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Reports

— State of Colorado —
— of the —
State Engineer
(J. P. MAXWELL)
— for —

1889, 1890



FIFTH BIENNIAL REPORT

OF THE

STATE ENGINEER

TO THE

Governor of Colorado,

FOR THE

YEARS 1889 AND 1890.



DENVER, COLORADO:
THE COLLIER & CLEAVELAND LITH. CO., PRINTERS.
1891.

1889-1890

LETTER OF TRANSMITTAL.

DENVER, COLO., Dec. 1, 1890.

Governor:

I have the honor to transmit herewith the report of the transactions of the Department of the State Engineer, for the two fiscal years ending November 30, 1890.

I am, sir, very respectfully,
Your obedient servant,

J. P. MAXWELL,

State Engineer.

To His Excellency,

JOB A. COOPER,
Governor of Colorado.



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INTRODUCTION.

By reference to section 2 of "An act in relation to State Printing," on page 417, Sessions Laws of 1889, it will be observed that the official reports of this department are now limited to 150 pages, and the publication thereof to 500 copies.

When it is considered that Part I of the Fourth Biennial Report from this office, made by my able predecessor, J. S. Greene, contains 428 pages, of which there is not a page of superfluous matter, that 224 of those pages are devoted exclusively to tabulated statements of ditches, reservoirs, artesian wells, etc., giving in concise form valuable and desirable information thereon; that, in the irrigation development of the State, new water districts have been formed, many additional ditches constructed, and expensive adjudications of water-rights taken place in various parts of the State; and, further, that in the construction of State bridges, roads, canals and other internal improvements provided for by the last General Assembly, new duties have devolved upon the State Engineer, requiring much additional space to make full and intelligent reports thereon, it may readily be seen that this report must be a very brief and inadequate summary of the operations of the department during the two years last past, or must transcend the limits prescribed by this act.

Of the 3,250 copies of Part I of the Fourth Biennial Report published, over 3,000 copies have been already distributed upon written and personal applications for the same, and daily calls are still made for them, both within and without the State. Having a wholesome respect for the law, I shall indulge in no extended discussions of problematical questions, but with a desire

to present fully such transactions of the office as will be of interest to the people of the State—the operations of the department will be given such amplitude as a just accountability requires.

All statements of adjudicated water-rights, ditch filings, and other statistical information embraced in the last report from this department, will be omitted in this, but such decrees as have been issued since December 1, 1888, and all filings of ditch statements made since that date, will be reported in tabulated form, as being essential to a general knowledge of the claims made upon the water supply of the various streams of the State. This information will, doubtless, govern, to a large extent, the future construction of ditches; as coupled with a knowledge of the mean discharges of the streams, reliable data is thereby furnished upon which to estimate the demands now made upon the supply.

CHAPTER I.

The duties of the office of State Engineer were assumed April 10, 1889, at a time when active preparations were being made for the irrigation season, and when the Water Commissioners would soon be called out to prepare for the distribution of the waters of the streams.

Each Commissioner having been supplied with a copy of the last report, embracing all the laws relative to his duties enacted at the time of publication thereof, it was deemed advisable to issue, in circular form, such recent enactments of the Seventh General Assembly as would be necessary to an intelligent understanding of the additional powers conferred and duties imposed, which circular follows herein:

TO WATER COMMISSIONERS.

GENTLEMEN:—Following will be found, for your guidance, the recent enactments of the Legislature of Colorado, affecting your duties as Water Commission-

ers. They are additional to and amendatory of the statutes concerning irrigation, contained in the State Engineer's report for 1887-88, now in your possession.

You will observe that it is made the duty of the Water Commissioner to be actively employed on the line of the streams in his water district. He should keep himself posted daily as to the flow of water in the streams, and as to what ditches are taking water, in order that report thereof may be made at any time on short notice from the Superintendent of Division.

Locks should be ordered placed on all head-gates where the owners refuse or are unable to keep them closed in accordance with instructions of Water Commissioners.

Wherever practicable, you will see that waters supplied to ditches in accordance with priority, are beneficially and economically used, or turned back into the streams for the benefit of others.

Very respectfully,

J. P. MAXWELL;
State Engineer.

AN ACT

TO GIVE POLICE POWERS TO WATER COMMISSIONERS, FIX THEIR SALARIES, DEFINE THEIR DUTIES, AND PROVIDE FOR THEIR ASSISTANTS, AND TO REPEAL CERTAIN PARTS OF ACTS INCONSISTENT HEREWITH.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. Water Commissioners shall, in the discharge of their duties, be invested with the powers of constables, and may arrest any person violating his orders relative to the opening or shutting down of head-gates, or the using of water for irrigation purposes, and take such offender before the nearest justice of the peace, who may, if such offender be convicted, fine him in any sum not exceeding one hundred dollars, and in default of the payment of such fine, may imprison him in the county jail not exceeding thirty days; *Provided*, That the orders of the Superintendents of Irrigation in their respective divisions, and the orders of the State Engineer, shall be held at all times superior to the orders of Water Commissioners, and shall relieve any person acting in accordance with such superior orders from the penalties herein provided; *And, provided also*, That in like manner the orders issued by the State Engineer shall be held superior to any order issued by any Superintendent of Irrigation.

SEC. 2. The Water Commissioner shall be entitled to pay at the rate of five (5) dollars per day for each day he shall actually be employed in the duties of his office, and be paid by the county or counties in which his irrigating district may lie. Each Water Commissioner shall keep a just and itemized account of the time spent by him in the duties of his office, and shall present a true copy thereof, verified by oath, to the Board of County Commissioners of the county in which his district may lie, and said Board of Commissioners shall allow the same; if said irrigation district shall extend into two or more counties, then such Water Commissioner shall present his account for his services, verified as aforesaid, to the Board of County Commissioners into which his district extends, and each Board of County Commissioners shall pay its *pro rata* share thereof.

SEC. 3. The Water Commissioner is hereby given power, whenever he shall deem it necessary, to employ a suitable assistant or assistants to aid him in the discharge of his duties; such assistant or assistants shall take the same oath as Water Commissioners, and shall obey his instructions, and shall be entitled to pay at the rate of two (2) dollars and fifty (50) cents per day for every day they are so employed, to be paid by the County Commissioners upon the certificates of the Water Commissioners.

SEC. 4. Each Water Commissioner shall keep an itemized account of the time of each assistant by him employed, and shall certify the same to the Board of County Commissioners, who shall pay such assistant or assistants in the same manner as provided for payment of Water Commissioners in section two of this act.

SEC. 5. That section one of an act entitled "An act to amend an act entitled an act to regulate the use of water for irrigation, and providing for settling the priority of rights thereto, and for payment of the expenses thereof, and for payment of all costs and expenses incident to said regulation of use," approved February 19, 1879; approved April 9, 1885; and also section forty-one of an act entitled "An act to regulate the use of water for irrigation, and providing for settling the priority of rights thereto, and for payment of expenses thereof, and for payment of all costs and expenses incident to said regulation of use," approved February 19, 1879, and all other acts inconsistent, are hereby repealed.

SEC. 6. It is hereby made the duty of the Water Commissioner, after being called upon to distribute water, to devote his entire time to the discharge of his duties, when such duties are required, so long as the necessities of irrigation in his district shall require; and it is made his duty to be actively employed on the line of the stream or streams in his water district, supervising the putting in of head-gates, waste-gates, keeping the stream clear of unnecessary dams or other obstructions, and such other duty as pertain to a guard of the public

streams in his water district; and for willful neglect of his duty, he shall be liable to fifty dollars' fine, with costs of suit.

SEC. 7. It is the sense of this General Assembly that an emergency exists; therefore, this act shall be in force from and after its passage.

Approved March 25, 1889.

AN ACT

TO PROVIDE FOR ERECTING HEAD-GATES, WASTE-GATES, LOCKS,
FASTENINGS, AND PAYING THE EXPENSES THEREOF.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. All persons, associations or corporations, who have heretofore, or who may hereafter divert water for purposes of irrigation from any of the public streams of the State, shall erect and maintain head-gates and waste-gates in connection therewith, and in case of failure or neglect, or refusal to do so, after five days' notice has been given by the Water Commissioner or State Engineer, then said head-gates shall be constructed by the Water Commissioner of the district within which said ditch, canal or conduit may be located, and if, upon demand, the owner or owners of said ditch, canal or conduit shall neglect or refuse to pay the expenses thereof, then the said Water Commissioner shall take such proceedings to recover the same as is now provided for by sections 1730, 1731 and 1732 of the General Statutes of 1883, in the case of failure to build and maintain bridges.

SEC. 2. All persons, associations or corporations shall put and keep suitable locks and fastenings on their head-gates, where water is conducted from the public streams or heads of supply, and if said persons, associations or corporations refuse or neglect to provide locks and suitable fastenings for said head-gates, after five days' notice by the Water Commissioner of the district, or by the State Engineer, it is made the duty of the Water Commissioner of the water district and its Superintendent to provide suitable locks and fastenings, and if the owner or owners of said ditch, canal or conduit shall neglect or refuse to pay the expenses thereof, the Water Commissioner shall take such proceedings to recover the same as are provided in section one of this act; the keys of said locks to be under the control and in possession of the Water Commissioner of the district during the season of irrigation or domestic distribution of water.

SEC. 3. In the opinion of the General Assembly, an emergency exists; therefore, this act shall take effect and be in force from and after its passage.

Approved April 17, 1889.

AN ACT

IMPOSING A PENALTY FOR THE BRIBING OF PERSONS IN CHARGE
OF THE DISTRIBUTION OF WATER.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. Any Water Commissioner, or any Deputy Water Commissioner, Assistant, Water Master, Superintendent, Ditch-rider, or other person in charge of the divisions or distributions of water, whether from the public streams or from any ditch or canal, who shall take or receive any money, promises or favors, or anything of value, intended to influence him dishonestly to favor, or cause water to accrue or run to any person or persons' advantage, benefit or gain, detrimental to the rights of others, shall be deemed guilty of a misdemeanor and shall be fined in any sum not less than fifty (50) dollars nor more than three hundred (300) dollars. Any person giving or offering any such money, promises or favors, or any other thing of value, to any of the above named persons, with intent as aforesaid, shall likewise be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine in any sum not less than fifty (50) dollars nor more than three hundred (300) dollars; and any fines so collected shall be paid into the school funds of the county wherein such fines are collected.

SEC. 2. It is the sense of this General Assembly that an emergency exists; therefore, this act shall be in force from and after its passage.

Approved April 19, 1889.

Water commissioners were appointed for many districts where no adjudications had taken place, and where, consequently, no data were available for the equitable distribution of the water. Letters were received from such officers, asking for instructions in emergencies of this kind, and setting forth that conflicts had arisen wherein there was no basis for the settlement of the respective rights of the owners of ditches, there being no decrees. In some of these districts there was also reported to be a general apathy in the matter of proving up their rights, and especially if expense was to be incurred in the measurement of ditches for the better information of the court. Believing that Water Commissioners could exercise the duties of their offices legally, only where the courts had determined the

respective rights of ditches and issued decrees therein, the following circular letter was sent to all Commissioners who were not armed with such decrees:

STATE ENGINEER'S OFFICE, }
DENVER, COLO., 1889. }

DEAR SIR:—The following is a copy, in part, of paragraph 1784 of the General Statutes of Colorado for 1883.

"No claim of priority of any person, association or corporation, on account of any ditch, canal or reservoir, as to which he or she or they shall have failed or refused to offer evidence under any adjudication herein provided for, or heretofore provided for by said act, the title of which is recited in section four hereof, shall be regarded by any Water Commissioner in distributing water in times of scarcity thereof, until such time as a decree adjudging such priority to such ditch, canal or reservoir has been entered, and certificate, such as mentioned in section four hereof, shall have been issued to claimant and presented to the Water Commissioner." (Section 22, pages 154-55, Acts 1881.)

It will be observed from the above paragraph that the warrant of authority to the Water Commissioner to distribute water, is the certificate of the Clerk of the District Court, setting forth the date of priority and the quantity decreed; hence in water districts where there are no decrees, there will be no occasion for a Water Commissioner, and in districts where adjudications have been had on a portion of the ditches, such portion only will be recognized in the allotment of water in times of scarcity.

The tangled web of difficulties that has arisen in the Northern and older irrigating districts of the State, resulting from decrees based upon erroneous statements as to size and capacities of ditches, as well also as to dates of construction and priority, should constitute a valuable lesson to the newer districts of the South and West.

It is to the interest of every ditch owner to secure an adjudication of the water-rights connected with his ditch at the earliest practicable moment, in order to get the benefit of the legal distribution of the water, and it is vitally to his interest to see to it that the decree to

every other ditch in his district is based upon facts as to capacity and date of priority.

Where a ditch has received a decree for water in excess of its carrying capacity, it is a very natural thing for the owner to enlarge in cleaning out his ditch until it will carry the water decreed, thereby eventually securing a quantity of water, dating back to the original construction to which the ditch was not justly entitled, but still in accordance with the decree. This, necessarily, injuriously affects post-dated ditches.

While water would not be allowed to a ditch in accordance with such increased capacity, if satisfactory proof was furnished as to its actual capacity at the time of the decree, yet it must be remembered that after the lapse of several years, such proof will, in a majority of cases, have passed beyond the reach of the parties interested, as can be instanced repeatedly in the experience of the older districts, which have passed through this ordeal.

To avoid these shoals upon which the older irrigation districts have floundered, it is earnestly recommended that great care be exercised in placing before the courts accurate data upon which to base the decrees for water to the respective ditches. In this matter every ditch owner of the district is interested.

Claims are often made that where no decrees have been issued the water could be distributed from information furnished by the statements filed in the State Engineer's office, but aside from the plain provisions of the law heretofore quoted, the statements so furnished are, many of them, so deficient in data as to be entirely useless for such a purpose; nor are they necessarily evidence of the existence of the ditches on the ground, many of them being filed as evidence of intention and preliminary to construction, and may never have been followed by actual construction, or may have been built with increased or decreased capacity.

It is hoped that County Commissioners, and other officials, in the interest of their respective counties, will afford every possible facility tending toward the proper adjudication of water-rights, and will encourage and assist Water Commissioners in building up a system of water distribution that will give security and perma-

nence to water-rights, and consequent freedom from the serious complications that have resulted from the loose methods heretofore prevailing.

Very respectfully,

J. P. MAXWELL,

State Engineer.

The early summer of 1889 found an unusual deficiency in the water supply of the South Platte and Arkansas divisions, and had it not been for timely rains severe losses in crops would have been inevitable. The position of Water Commissioner is no sinecure at such times, and his difficulties were augmented by a failure on the part of many ditch owners to provide suitable head-gates for the regulation of the water supply to their ditches, and rating flumes for its proper measurement.

The absence of head-gates was principally notable in the smaller ditches, but rating flumes were wanting in all classes. The Water Commissioners were requested to furnish this office with a list of the names of the ditches in which no rating flumes had been constructed, or in which they were out of repair, also the names and addresses of the managers of such ditches, whereupon notices were sent to each, accompanied by plans and instructions for the construction. This resulted in the building of quite a number, but many are still wanting. While the law provides for the construction of flumes, there is no penalty affixed, hence enforcement is impracticable.

The demands for ratings on new flumes, re-ratings on old ones, and the gaugings of the streams have kept one assistant in the field in the South Platte division continuously during the irrigating season.

One hundred and twenty-five ditches have been rated, at the request of Water Commissioners, for their better information in the distribution of waters.

COUNTY BOUNDARIES.

On the twelfth day of September, 1889, the County Commissioners of Garfield county petitioned the State Engineer to survey and definitely establish the boundary line between Garfield county and the counties of Pitkin and Mesa, in accordance with the provisions of an act of the General Assembly of the State of Colorado, approved April 4, 1887.

It being impracticable to give personal attention to this work, Frank P. Monroe, a competent engineer, of Glenwood Springs, was specially deputized for that purpose, and after due notice to the County Surveyors of the interested counties to appear and assist in the survey, began work in the field on the fourteenth day of October, 1889. Following is an extract from the deputy's report, showing his method of determining and locating the south-east corner of Garfield county—this being the initiatory point in securing the boundary line.

EXTRACT.

The south-east corner of Garfield county I found to be on the parallel of latitude $39^{\circ} 22' 10.5''$ north, and 31,929.8 feet west of the 107th meridian, west longitude.

The last official point on the 107th meridian, west longitude, I found to be located near the town of Crested Butte, as described in the certified copy of official notes of said meridian point. I then extended the 107th meridian, west longitude, due north, across the Roaring Fork river.

The location of the $39^{\circ} 22' 10.5''$ parallel of latitude north, was obtained by a system of triangulations from Sopris Peak, the latitude of which is definitely and accurately given in the notes of Hayden's Topographical Survey of the State of Colorado.

The parallel of latitude $39^{\circ} 22' 10.5''$ north, was found to be 38,204.706 feet due north from the Triangulation Station on Sopris Peak, whereby the south-east

corner of Garfield county was located and established by a cedar post $4\frac{1}{4}$ inches square, and 5 feet long, set in the ground 2 feet, with a mound of earth, marked "Garfield" on the north-west, and "Pitkin" on the south-west side.

At this point I obtained a true west course, and continued the same by a straight tangent line, with proper correction offsets.

The boundary line is shown to be defined by plain and substantial mounds and marks, at each and every mile, references being made to natural objects.

The survey was completed on the nineteenth day of June, 1890.

Field notes and maps of the survey were filed in this office September 15, 1890, and certified copies duly furnished the Boards of County Commissioners of the three counties interested.

RESERVOIRS.

Section 2 of an act of the Seventh General Assembly, relating to the State Engineer, provides that he shall collect "all necessary data regarding the location, size, cost and capacity of dams and reservoirs hereafter to be constructed, and like data regarding the feasibility and economical constructions of reservoirs on eligible sites, of which he may obtain information and the useful purposes to which the water from the same may be put."

Pursuant to this end circulars were prepared and sent out to Water Commissioners and others, asking information on the points therein contained.

Such reports as were received have been tabulated and will be found in the statements of the respective districts. Much of the information desired is wanting in the circulars returned, and many Commissioners have not responded; others had no information to give.

There are a total of 333 filings for reservoirs in this office, and 244 of them made within the last two years.

From the estimated capacities of these, and from the reports of eligible sites, there can be little question but the surplus waters of our streams will be fully conserved, at no distant day, and further, that the opportunities for storage are abundant throughout the State.

The storage of the storm waters of the plains, is a matter that has received marked attention during the past year. A very notable enterprise of this kind may well receive a passing notice here.

Some 35 miles south of Denver, on Cherry creek, the Denver Water Storage Company have constructed a dam across the stream, for the purpose of impounding the storm and surplus waters of Cherry creek.

The dam is a massive stone structure of mixed masonry and dry rubble, and has the form longitudinally of a well spread V. Its greatest height is 65 feet, and crest length, 586 feet. The inner wall is of random rubble masonry, is 8 feet thick at the base, and has a batter of 1 in 10. The outer wall is block, coursed rubble masonry, has a slope of 1 to 1, and is stepped. The interior is filled with stones of all sizes, promiscuously but compactly placed.

The dam presents an imposing appearance, and has a large factor of safety, so far as gravity is concerned.

The catchment basin is reported to have an area of about 125 square miles, and the reservoir a capacity of 229,000,000 cubic feet.

This enterprise will, undoubtedly, result in the reclamation of several thousand acres of otherwise arid lands.

Several thousand acres more have already been reclaimed by similar enterprises on the Bijou, east of Denver.

From the reports of Water Commissioners and from information obtained through other sources, it is esti-

mated that during the season of 1890 there were irrigated from stored waters in Division No. 1, South Platte, about 100,000 acres; 10,000 acres of this amount being reported from District No. 3, on the Cache la Poudre, and 12,000 acres from District No. 4, on the Big Thompson, as estimated by the respective Water Commissioners.

The stored waters being used in connection with that running in ditches, renders it impracticable to determine accurately the acreage irrigated therefrom, but the figures are given as close approximations.

Colorado is, evidently, now entering upon an era of reservoir construction, the necessity for which has become apparent wherever there is a deficient water supply during the irrigating season, and as there is an element of danger connected with such improvements, all possible safeguards should be provided against such disasters as have occurred in other sections of the country within the past few years.

GAUGING STATIONS.

No little annoyance and uncertainty has resulted from the temporary and changeable character of our gauging stations. Excepting as to Station No. 1, on the Cache la Poudre, the sites have been selected principally with reference to convenience for observers, taking the most uniform banks and beds in the vicinity of some house where the occupant could be secured at little cost to attend the readings. Each flood storm will change the cross-section, scouring the bed or filling in with sand and eroding the banks, thus materially modifying the area and necessitating a new profile. Much of the time of an assistant is occupied in this work.

Station No. 1, above referred to, was originally constructed, under the supervision of Mr. Nettleton, at considerable cost to the people of that district, and for

a time gave very satisfactory results. The floor was of plank, resting on piling, and the walls timbered and planked. During the administration of Mr. Greene, however, the walls partially gave way, and were replaced by masonry walls, and the floor became so bulged and rotted as to necessitate removal entirely, after which changes in the bed occurred and the results were not so reliable. There is a clock-work register, at this station, requiring attention but once a week, under ordinary circumstances, which furnishes an accurate record of the rise and fall in the stream. The expense of an observer at this station has, until this year, been borne by the General Government, but since their abandonment, has been paid by this Department.

Stations Nos. 8 and 5, on Big Thompson and St. Vrain Creeks, have been maintained at their old sites, but are subject to the general criticisms heretofore made. The plain rods used require observations three times a day.

Station No. 7, on Boulder Creek, was located some four miles above Boulder in the cañon, but the observer moving away, a new site was selected some two miles nearer town; rough, dry walls were built, a small building erected, and the plain rod replaced by a clock-work register. This has given fair satisfaction, and cost, including pipe, building, etc., \$69.30.

Station No. 4, on Clear Creek, is one of the most important in the South Platte Division, and affords the least reliable information.

Repeated changes have been made in the location of the site, but without materially improving the result.

The sediment, sand and silt carried in the water are continually modifying the cross-section, so that the profile of one day has little value the next.

Two gaugings made in August, with practically the same readings on the rod, gave a discharge in one case

of 212.25 cubic feet per second, and in the other, 143.70 cubic feet per second, a difference of 68.55 cubic feet per second.

A gauging made May 23, with the rod at 1.60 feet gave a discharge of 472.33 cubic feet per second. Another made June 6, following, with a reading on the rod of 1.70 feet, gave a discharge of 423.88 cubic feet per second, 0.10 greater height on the rod, in the latter case giving 48.45 cubic feet less discharge.

The plain rod is used, requiring three readings a day, and while an observer has been employed for the station, little benefit has accrued to the department, as it has been impossible to furnish the Water Commissioner reliable data for the distribution of water, and it is impracticable to make a diagram of the discharge.

A permanent cross-section should be established on this stream, with masonry walls and flagging floor, also, a weekly register attached, otherwise the observations had as well be discontinued.

Bear Creek Station No. 6.—This station has been changed to Morrison, to suit the convenience of an observer, the section being equally as good at the latter place.

South Platte Station No. 3.—This station has also followed the fortunes of various observers. The Deansbury Station being discontinued for want of an observer. It was located some two miles below, afterwards four miles below, and thence transferred back to Deansbury, as parties could be found to attend the observations. It is now located at the latter place, and a plain rod used for reading the water heights.

Uncompahgre Gauging Station No. 1.—At the urgent request of the Superintendent of Division No. 5, representing the ditch owners in district No. 41, a gauging station was established in July, 1890, on the Uncompahgre river, about eight miles above Montrose and

near the head of the Uncompahgre canal. Deputy State Engineer J. S. Titcomb was sent over for that purpose, and was assisted by E. B. Sawyer, Division Superintendent. William Sigafus acted as observer to October 15, when he was ordered to discontinue for the season.

The observers for the various gauging stations are paid from the State Engineer's Assistant Fund, at the rate of \$5 and \$10 per month, the price being regulated by the distance traveled and labor connected therewith. Where the rod is used, and three observations are required each day, it cannot be expected that close attention and accuracy will be attained for the small pittance allowed, hence reports from such stations have to be taken with some degree of allowance.

The principal object to be attained in the maintenance of these stations should be the furnishing of accurate information as to the daily discharge of each stream, and the rapid transmission of any changes to the Water Commissioner, to the end that his distribution to the ditches may be regulated thereby. With the daily, and sometimes hourly, fluctuations of our streams during the irrigating season, this knowledge is essential to the proper conservation of the waters. The Water Commissioner, through some station central to the district, should have close connection with the observer by telephone or other rapid transit, and in this manner anticipate the coming changes and regulate his head-gates accordingly.

With permanent and reliable gauging stations, and proper facilities for transmitting the record on occasions of rapid rises in the streams, many ditches, closed by reason of scarcity, could be temporarily supplied with water and relief afforded to suffering crops, where now the opportunity is lost on account of delayed information.

Such improvements will require but a moderate expenditure of money, and the benefits derived therefrom will amply repay the outlay.

Graphical presentation of the mean daily discharges of all the streams having gauging stations, for the years 1889 and 1890, excepting Clear creek, are herewith transmitted. Also, tabulated statements showing their mean daily discharge, and their mean discharge during the irrigating season.

The gaugings on the Cache la Poudre, Arkansas and Rio Grande rivers were taken for every month in the year, and complete tables are given, from which the annual discharge can be determined. On the other streams there are no facilities for correct gaugings during the winter months, when the ice forms on the margins and elsewhere, obstructing the flow of water and continuously changing the cross-sections; hence observers were employed only during the irrigating season, or from April to November. The gaugings of the South Platte, at Denver, are also given, as showing the daily flow into District No. 2. The table for Bear creek in 1889 is not complete, owing to the washing out of the rod by a flood, and the abandonment of the station by the observer, without notice to this office.

Much desirable information could be obtained if observations were taken on all the streams throughout the year, as thereby the amount of water available for storage on each stream could be ascertained; with suitable stations this could be done. Plans for the different stations have been prepared by the office, and estimates of the cost of construction in each case.

FIFTH BIENNIAL REPORT,

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME, OF THE CACHE LA POUDRE RIVER, AT GAUGING
STATION No. 1.

1889.

Day	Jan.	Feb.	Mar ^h	April	May	June	July	Aug.	Sept.	Oct.	Nov,	Dec.	Day
1	71	73	125	48	283	1960	844	455	73	71	92	69	1
2	130	75	104	48	237	1608	844	435	73	73	71	78	2
3	130	86	86	52	214	1502	779	403	73	69	75	67	3
4	89	101	78	57	237	1323	722	306	69	69	86	55	4
5	111	98	73	58	282	1282	633	249	67	71	69	56	5
6	115	92	58	65	348	1559	579	209	67	71	71	60	6
7	98	92	55	71	324	1583	680	159	67	67	73	60	7
8	83	122	55	78	237	1486	757	146	71	61	92	65	8
9	108	133	52	75	237	1502	757	183	65	56	111	65	9
10	98	130	52	68	300	1388	736	231	59	55	122	60	10
11	134	108	40	59	254	1298	653	237	58	56	122	48	11
12	173	111	41	59	254	1258	599	220	56	60	98	73	12
13	193	101	41	65	397	1298	546	188	58	69	85	73	13
14	193	75	41	70	736	1307	513	146	60	68	86	78	14
15	183	69	41	68	903	1559	461	137	69	69	101	89	15
16	173	71	42	73	947	1608	435	137	73	65	98	86	16
17	164	83	44	88	888	1486	416	133	73	65	107	33	17
18	168	108	47	129	851	1518	397	154	71	67	107	89	18
19	243	75	44	122	807	1534	385	225	73	69	111	73	19
20	306	89	43	101	736	1486	366	193	73	75	101	67	20
21	324	101	43	101	822	1315	354	178	73	73	101	61	21
22	342	101	47	101	1055	1307	294	150	75	71	92	55	22
23	255	134	48	101	1062	1242	378	146	73	69	98	58	23
24	164	150	46	107	1086	1178	360	141	73	69	89	73	24
25	146	198	46	146	1147	1062	336	141	70	69	67	61	25
26	118	198	43	198	1380	1016	312	111	68	71	58	71	26
27	89	173	43	237	1364	948	265	98	71	73	45	81	27
28	118	142	43	288	1642	874	271	86	71	75	56	67	28
29	108	...	44	342	1486	837	306	81	69	86	65	43	29
30	98	...	47	312	1477	837	416	67	67	85	73	41	30
31 ¹	73	...	55	...	1886	...	448	71	...	92	...	39	31
Mean	154.77	110.32	53.77	112.57	763.84	1338.70	504.25	187.61	68.60	69.64	87.40	64.32	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME, OF THE CACHE LA POUDRE RIVER, AT GAUGING
STATION No. 1.

1890.

Day	Jan.	Feb.	Mar'h	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day
1	45	104	89	73	435	1736	970	360	159	57	89	67	1
2	65	133	104	71	494	1804	963	342	173	55	83	60	2
3	69	137	101	69	552	1625	957	324	183	55	81	61	3
4	78	133	92	71	666	1510	896	294	159	58	78	55	4
5	101	104	78	73	764	1339	852	255	150	60	69	52	5
6	101	78	71	92	722	1225	822	222	138	73	67	67	6
7	83	75	67	107	633	1139	764	183	130	73	71	46	7
8	75	75	65	101	666	1178	736	173	130	73	73	52	8
9	59	89	71	98	729	1193	857	198	122	73	71	48	9
10	78	107	58	89	743	1217	770	336	111	73	68	50	10
11	86	104	49	98	800	1201	712	403	108	67	58	107	11
12	98	98	47	107	836	1186	601	348	101	89	55	80	12
13	104	86	52	122	800	1242	590	354	98	118	49	71	13
14	101	78	52	137	729	1225	546	403	89	118	52	65	14
15	101	73	60	137	736	1282	613	397	85	118	44	58	15
16	101	85	85	133	807	1315	533	385	85	101	39	60	16
17	78	75	104	133	888	1331	481	385	85	80	41	63	17
18	78	73	101	141	1078	1339	515	306	81	81	42	67	18
19	81	69	101	178	1109	1298	559	383	81	81	43	53	19
20	78	49	101	237	1186	1266	559	366	86	83	52	55	20
21	75	43	101	243	1388	1266	1000	348	89	83	55	44	21
22	78	52	107	271	1592	1258	1023	294	92	71	61	67	22
23	83	49	125	300	1461	1282	613	271	78	73	63	67	23
24	92	37	114	336	1405	1225	502	282	73	78	69	58	24
25	73	49	104	455	1469	1201	448	251	73	78	61	55	25
26	73	44	101	474	1583	1163	403	238	73	78	65	60	26
27	78	52	98	481	1651	1155	403	234	73	89	73	71	27
28	83	69	98	435	1710	1139	360	183	73	89	55	83	28
29	89	...	85	372	1650	1062	348	178	65	89	53	101	29
30	87	...	78	366	1510	1016	336	159	58	89	63	86	30
31	78	...	78	...	1575	...	366	150	...	92	...	101	31
Mean	82.03	78.57	85.06	200.00	1044.09	1313.93	648.32	290.48	103.36	80.42	61.43	65.48	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF THE SOUTH PLATTE RIVER, AT GAUGING STATION
No. 3.

1889.

Day	April	May	June	July	August	Sept.	October	Day
I	....	249	589	245	105	158	110	I
2	....	216	592	245	146	158	110	2
3	....	217	595	230	130	110	110	3
4	....	230	610	230	140	110	130	4
5	....	183	485	236	105	95	130	5
6	....	185	450	230	102	92	165	6
7	....	198	430	220	110	95	168	7
8	....	210	420	230	121	110	160	8
9	....	220	389	318	292	114	110	9
10	....	310	438	416	213	112	115	10
11	....	318	480	643	462	112	120	11
12	....	323	485	517	445	112	130	12
13	....	300	430	536	517	112	120	13
14	....	695	480	445	480	112	110	14
15	....	728	510	606	283	230	110	15
16	....	782	430	517	254	230	100	16
17	....	770	380	426	130	200	100	17
18	....	740	350	445	213	160	126	18
19	....	710	330	452	254	112	120	19
20	....	703	350	408	140	115	115	20
21	....	788	400	354	110	118	100	21
22	183	785	530	300	213	119	130	22
23	185	530	750	271	181	112	116	23
24	193	580	510	283	136	110	117	24
25	170	510	430	245	102	120	119	25
26	172	493	420	220	230	210	110	26
27	140	500	430	189	146	120	100	27
28	167	582	434	179	158	120	100	28
29	170	580	318	151	158	105	100	29
30	168	585	300	130	300	100	100	30
31	....	590	....	121	150	....	116	31
Mean	172.00	477.74	460.10	323.80	210.51	129.40	180.30	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF THE SOUTH PLATTE RIVER, AT GAUGING STATION
No. 3.

1890.

Day	April	May	June	July	August	Sept.	October	Day
I	323	480	400	360	300	163	I
2	396	516	426	480	210	163	2
3	390	510	470	568	280	163	3
4	428	520	446	581	265	154	4
5	420	480	452	556	208	164	5
6	408	420	490	548	190	185	6
7	364	370	387	529	175	215	7
8	350	356	420	516	205	209	8
9	352	312	426	548	210	209	9
10	350	293	716	638	202	213	10
11	355	270	696	620	190	236	11
12	360	280	588	581	192	260	12
13	340	312	875	626	183	240	13
14	340	387	480	626	165	202	14
15	330	356	470	652	142	185	15
16	325	370	385	652	136	170	16
17	340	400	410	542	131	146	17
18	370	351	428	638	128	174	18
19	330	332	500	626	131	170	19
20	350	380	780	594	142	185	20
21	390	370	710	581	156	178	21
22	480	394	680	581	219	163	22
23	610	412	620	568	230	154	23
24	410	420	630	529	209	146	24
25	420	446	550	581	200	146	25
26	400	510	530	620	199	135	26
27	400	536	430	606	210	126	27
28	430	452	425	484	200	120	28
29	440	452	430	446	185	114	29
30	450	387	410	433	176	112	30
31	470	. . . .	450	529	. . . .	117	31
Mean	391.00	403.13	519.67	561.90	196.30	171.51	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND OF TIME OF THE SOUTH PLATTE RIVER, AT GAUGING STATION No. 3B (FOOT OF TWENTY-FIRST STREET, DENVER).

1889

Day	May	June	July	August	Sept.	October	Day
1	147	299	82	141	65	107	1
2	155	299	72	135	65	94	2
3	151	290	80	121	65	75	3
4	155	208	82	114	66	102	4
5	143	118	101	96	70	102	5
6	92	104	104	75	65	75	6
7	95	118	141	65	65	110	7
8	100	118	151	65	65	70	8
9	139	189	610	92	65	75	9
10	175	355	633	480	67	75	10
11	185	355	562	417	66	75	11
12	252	299	455	362	65	75	12
13	263	128	299	196	66	28	13
14	275	181	189	156	72	60	14
15	355	345	101	172	62	65	15
16	633	299	82	150	70	85	16
17	590	269	252	150	75	70	17
18	645	104	93	141	80	65	18
19	645	100	144	144	76	75	19
20	562	93	101	156	77	60	20
21	527	82	87	107	80	65	21
22	527	96	93	81	80	65	22
23	527	134	1,315	75	137	60	23
24	527	299	510	75	130	54	24
25	527	252	383	75	102	54	25
26	527	104	391	83	109	68	26
27	527	118	370	86	95	70	27
28	362	107	417	73	75	70	28
29	259	104	334	70	85	65	29
30	305	93	160	70	85	75	30
31	345	... .	144	70	... .	85	31
Mean	345.71	188.66	275.42	138.48	64.83	73.35	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND OF TIME OF THE SOUTH PLATTE RIVER, AT GAUGING STATION No. 3B (FOOT OF TWENTY-FIRST STREET, DENVER).

1890

Day	May	June	July	August	Sept.	October	Day
1	170	111	154	147	1
2	232	376	111	87	2
3	243	390	87	135	3
4	232	403	147	117	4
5	243	390	87	146	5
6	243	307	87	197	6
7	277	279	105	210	7
8	213	255	98	197	8
9	116	258	118	159	9
10	290	186	235	147	236	10
11	277	320	160	197	11
12	348	300	125	223	12
13	528	680	118	250	13
14	155	232	459	125	279	14
15	194	170	445	125	236	15
16	234	170	418	117	236	16
17	245	204	376	125	223	17
18	232	456	376	111	223	18
19	215	528	292	125	279	19
20	126	860	264	98	250	20
21	163	780	250	45	334	21
22	243	1,202	250	76	223	22
23	232	528	388	76	223	23
24	186	582	223	76	223	24
25	123	290	560	87	264	25
26	111	254	431	67	146	26
27	265	292	172	99	135	27
28	194	235	135	98	210	28
29	142	105	111	115	140	29
30	155	82	160	125	135	30
31	82	160	..	146	31
Mean	194.72	327.74	315.25	107.80	291.93	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF THE ST. VRAIN CREEK, AT GAUGING STATION No. 5.

1889.

Day	May	June	July	August	Sept.	October	Nov.	Day
1	...	451	295	90	64	33	...	1
2	...	393	301	90	64	33	...	2
3	...	372	280	108	64	26	...	3
4	...	329	258	99	52	30	...	4
5	...	335	236	105	52	30	...	5
6	...	365	230	99	52	28	...	6
7	...	408	236	95	52	33	...	7
8	...	414	293	99	42	26	...	8
9	...	329	293	130	42	26	...	9
10	...	316	236	161	42	26	...	10
11	...	295	215	175	42	26	...	11
12	...	308	215	142	42	26	...	12
13	...	343	194	120	33	26	...	13
14	...	393	215	109	47	33	...	14
15	...	500	209	115	52	42	...	15
16	...	415	209	115	47	65	...	16
17	...	393	200	120	42	67	...	17
18	...	408	175	115	42	45	...	18
19	...	423	180	120	42	42	...	19
20	390	423	161	105	33	42	...	20
21	390	372	148	105	33	42	...	21
22	390	365	148	90	33	33	...	22
23	390	365	175	81	33	33	...	23
24	493	344	167	77	47	33	...	24
25	493	329	167	77	42	26	...	25
26	527	329	130	77	33	26	...	26
27	520	308	114	77	33	26	...	27
28	548	301	120	64	33	26	...	28
29	485	295	105	73	33	59	...	29
30	472	286	105	77	33	42	...	30
31	493	...	90	64	...	52	...	31
Mean	465.07	370.56	197.10	102.40	44.03	38.90	...	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF THE ST. VRAIN CREEK, AT GAUGING STATION No. 5.

1890.

Day	May	June	July	August	Sept.	October	Nov.	Day
1	. . . .	555	360	230	137	37	37	1
2	. . . .	675	380	190	158	37	37	2
3	. . . .	590	327	167	130	48	37	3
4	. . . .	590	291	146	111	37	33	4
5	. . . .	448	360	167	111	37	33	5
6	. . . .	343	380	137	85	43	33	6
7	. . . .	291	327	111	79	37	33	7
8	. . . .	244	410	85	85	37	33	8
9	. . . .	343	343	120	63	37	29	9
10	. . . .	380	360	190	48	37	29	10
11	. . . .	327	327	190	63	70	27	11
12	. . . .	433	275	146	50	63	20	12
13	. . . .	427	230	190	58	63	22	13
14	. . . .	257	244	252	48	57	29	14
15	29	360	244	252	48	48	18	15
16	193	380	230	230	48	48	. . . .	16
17	111	433	215	215	48	48	. . . .	17
18	111	395	215	167	48	48	. . . .	18
19	360	555	275	203	39	48	. . . .	19
20	244	501	306	337	63	48	. . . .	20
21	327	570	275	257	63	63	. . . .	21
22	395	410	327	257	48	63	. . . .	22
23	517	380	411	230	48	48	. . . .	23
24	448	485	343	190	48	43	. . . .	24
25	510	432	230	177	52	37	. . . .	25
26	433	540	203	137	48	37	. . . .	26
27	462	555	203	137	37	48	. . . .	27
28	570	410	291	158	37	45	. . . .	28
29	570	380	177	102	48	37	. . . .	29
30	590	395	215	93	40	37	. . . .	30
31	517	. . . .	291	93	. . . .	37	. . . .	31
Mean	375.70	436.13	292.42	179.22	66.20	45.26	30.00	Mean

FIFTH BIENNIAL REPORT,

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF BEAR CREEK, AT GAUGING STATION No. 6.

1889.

Day	May	June	July	August	Sept.	Oct.	Nov.	Day
1	...	137	47	36	...	...	...	1
2	...	130	41	68	...	...	...	2
3	18	130	42	76	...	...	...	3
4	26	125	35	65	...	...	...	4
5	29	125	32	55	...	...	...	5
6	27	119	28	69	...	...	...	6
7	18	114	37	68	...	...	...	7
8	21	111	72	53	...	...	...	8
9	21		64	49	...	...	...	9
10	21		50	51	...	...	...	10
11	21		55	...	...	...	...	11
12	30		46	...	...	...	...	12
13	47		64	...	...	...	...	13
14	100		59	...	...	...	...	14
15	127		59	...	...	...	...	15
16	154		49	...	...	...	...	16
17	160		61	...	...	...	...	17
18	149		54	...	...	...	...	18
19	149		43	...	...	...	...	19
20	195	57	47	...	...	...	...	20
21	149	62	33	...	...	...	...	21
22	163	62	55	...	...	...	...	22
23	149	55	55	...	...	...	...	23
24	149	54	39	...	...	...	...	24
25	149	69	48	...	...	...	...	25
26	149	54	48	...	...	...	...	26
27	149	53	53	...	...	...	...	27
28	149	53	55	...	...	...	...	28
29	149	55	68	...	...	...	...	29
30	137	53	49	...	...	...	...	30
31	143	...	40	...	...	...	...	31
Mean	101.45	85.16	49.30	58.00	...	...	...	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF BEAR CREEK, AT GAUGING STATION NO. 6.

1890.

Day	May	June	July	August	Sept.	Oct.	Nov.	Day
1	. . . .	60	33	21	21	21	19	1
2	. . . .	57	33	21	25	21	17	2
3	. . . .	60	33	21	26	21	16	3
4	. . . .	57	33	21	26	21	17	4
5	. . . .	53	33	21	21	21	18	5
6	. . . .	53	33	21	21	26	16	6
7	. . . .	53	33	21	21	21	17	7
8	. . . .	53	33	19	21	21	18	8
9	. . . .	53	33	19	19	21	18	9
10	. . . .	42	33	18	21	26	18	10
11	. . . .	42	33	21	18	19	15	11
12	. . . .	42	37	24	18	21	18	12
13	. . . .	42	33	33	18	18	17	13
14	. . . .	42	33	33	18	24	17	14
15	. . . .	33	35	33	18	26	16	15
16	. . . .	33	33	33	18	19	. . . .	16
17	. . . .	37	26	33	18	21	. . . .	17
18	. . . .	33	57	26	18	21	. . . .	18
19	. . . .	33	47	26	19	18	. . . .	19
20	60	33	42	26	19	21	. . . .	20
21	65	33	37	23	18	20	. . . .	21
22	60	33	47	25	18	19	. . . .	22
23	68	33	75	26	18	19	. . . .	23
24	68	33	26	26	18	19	. . . .	24
25	68	33	26	21	18	19	. . . .	25
26	68	33	26	21	20	19	. . . .	26
27	63	33	21	21	21	19	. . . .	27
28	60	33	21	21	21	19	. . . .	28
29	60	33	21	21	21	19	. . . .	29
30	60	33	21	21	21	19	. . . .	30
31	53	. . . .	21	21	. . . .	19	. . . .	31
Mean	62.75	31.33	33.80	23.97	19.93	20.58	15.13	Mean

FIFTH BIENNIAL REPORT,

TABLE

SHOWING DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF THE BOULDER CREEK, AT GAUGING STATION No. 7.

1889.

Day	May	June	July	August	Sept.	October	Nov.	Day
1	...	770	430	133	72	39	...	1
2	...	756	436	103	52	28	...	2
3	...	585	423	114	51	28	...	3
4	...	473	375	90	48	28	...	4
5	..	473	318	133	48	28	...	5
6	..	556	290	97	39	28	...	6
7	..	613	332	90	33	28	...	7
8	90	698	403	97	35	30	...	8
9	90	585	599	119	33	30	...	9
10	126	486	599	169	29	30	...	10
11	149	459	304	152	23	30	...	11
12	158	430	295	136	29	33	...	12
13	168	389	290	114	31	36	...	13
14	360	389	276	90	36	33	...	14
15	403	642	252	90	40	41	...	15
16	417	628	260	97	43	57	...	16
17	436	633	260	97	39	52	...	17
18	422	613	252	104	29	58	...	18
19	408	728	260	118	25	45	...	19
20	403	671	213	107	16	43	...	20
21	430	656	197	90	21	39	...	21
22	445	599	174	80	28	35	...	22
23	500	670	193	69	38	33	...	23
24	528	599	174	59	33	33	...	24
25	542	555	193	62	31	33	...	25
26	619	417	154	58	25	33	...	26
27	642	501	133	58	21	35	...	27
28	743	479	129	55	25	33	...	28
29	685	445	126	59	19	50	...	29
30	671	459	114	67	21	33	...	30
31	785	...	133	86	...	38	...	31
Mean	675.83	565.23	277.10	96.58	33.80	36.15	...	Mean

TABLE

SHOWING DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND OF TIME OF THE BOULDER CREEK, AT GAUGING STATION No. 7.

1890.

Day	May	June	July	August	Sept.	October	Nov.	Day
1	...	425	319	175	74	37	...	1
2	...	453	285	155	90	37	...	2
3	...	430	270	142	131	35	24	3
4	...	355	257	1,200	110	35	29	4
5	...	280	270	119	87	30	26	5
6	...	245	300	103	78	36	25	6
7	...	225	300	98	78	33	23	7
8	...	218	293	98	55	33	30	8
9	...	242	285	113	61	38	30	9
10	...	285	293	270	55	38	...	10
11	...	300	285	125	52	42	...	11
12	...	312	257	...	51	45	...	12
13	125	312	235	...	50	32	...	13
14	149	300	195	...	47	32	...	14
15	149	285	207	165	46	43	...	15
16	142	312	207	155	46	...	...	16
17	165	327	293	128	46	...	...	17
18	190	327	312	125	45	...	...	18
19	214	368	285	175	48	...	...	19
20	257	382	263	248	47	34	...	20
21	263	411	312	230	47	29	...	21
22	258	397	250	207	35	36	...	22
23	335	368	257	180	37	30	...	23
24	312	396	210	146	38	29	...	24
25	312	402	190	93	38	29	...	25
26	341	425	207	100	38	28	...	26
27	425	410	159	90	38	28	...	27
28	419	390	146	85	33	27	...	28
29	397	341	142	78	37	27	...	29
30	330	312	165	76	37	27	...	30
31	368	...	195	75	...	26	...	31
Mean	286.90	341.17	258.13	173.36	55.77	33.26	26.14	Mean

FIFTH BIENNIAL REPORT,

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF THE BIG THOMPSON CREEK, AT GAUGING STATION
No. 8.

1889.

Day	May	June	July	August	Sept.	October	Nov.	Day
1	....	527	300	106	59	36	....	1
2	....	413	309	137	58	28	....	2
3	....	410	275	95	58	40	....	3
4	....	366	223	96	56	45	....	4
5	....	354	207	96	55	45	....	5
6	....	389	206	96	55	45	....	6
7	....	397	206	96	55	45	....	7
8	....	362	370	91	57	50	....	8
9	....	322	311	109	57	53	....	9
10	....	327	282	127	57	55	....	10
11	....	379	241	114	53	56	....	11
12	....	208	238	124	53	56	....	12
13	....	323	213	113	53	56	....	13
14	....	383	181	103	53	56	....	14
15	....	456	139	96	42	54	....	15
16	....	413	193	89	42	60	....	16
17	....	394	195	84	42	60	....	17
18	....	463	231	75	42	31	....	18
19	....	497	209	67	42	31	....	19
20	130	487	163	83	44	31	....	20
21	130	453	142	87	44	31	....	21
22	313	403	139	84	44	36	....	22
23	309	399	227	80	44	40	....	23
24	359	421	194	78	44	40	....	24
25	352	338	163	77	44	45	....	25
26	424	311	143	78	44	45	....	26
27	449	338	137	58	44	45	....	27
28	497	323	116	57	44	50	....	28
29	410	319	116	53	43	50	....	29
30	391	283	113	53	40	50	....	30
31	546	....	108	53	....	50	....	31
Mean	359.17	381.60	199.70	88.87	48.93	45.64	....	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF TIME OF THE BIG THOMPSON CREEK, AT GAUGING STATION
No. 8.

1890.

Day	May	June	July	August	Sept.	October	Nov.	Day
1	. . . .	667	474	273	234	93	73	1
2	. . . .	712	471	281	234	65	68	2
3	. . . .	691	444	287	235	61	66	3
4	. . . .	582	444	229	219	52	66	4
5	. . . .	437	471	213	215	52	66	5
6	. . . .	375	461	205	215	52	66	6
7	. . . .	375	489	185	209	51	60	7
8	344	365	468	185	209	56	60	8
9	337	437	514	185	159	61	93	9
10	344	533	504	424	159	65	100	10
11	330	513	428	342	159	65	87	11
12	299	504	365	294	165	65	87	12
13	254	514	327	589	165	69	100	13
14	225	479	375	636	165	60	80	14
15	249	433	331	643	142	64	75	15
16	245	479	358	643	139	70	. . . .	16
17	279	504	399	542	139	75	. . . .	17
18	363	504	474	642	135	73	. . . .	18
19	330	549	479	642	135	97	. . . .	19
20	388	589	455	612	135	88	. . . .	20
21	540	523	1,603	551	123	80	. . . .	21
22	587	563	720	534	133	80	. . . .	22
23	563	561	561	485	133	80	. . . .	23
24	520	624	381	466	133	86	. . . .	24
25	520	653	332	425	73	80	. . . .	25
26	573	620	330	356	73	82	. . . .	26
27	683	556	255	356	73	78	. . . .	27
28	707	514	302	271	73	76	. . . .	28
29	638	514	327	234	74	76	. . . .	29
30	540	514	261	234	65	73	. . . .	30
31	595	. . .	261	234	. . . .	73	. . . .	31
Mean	435.96	529.53	453.68	393.48	150.66	66.71	83.13	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND OF TIME OF THE SOUTH BOULDER CREEK, AT GAUGING STATION No. 9.

1889

Day	May	June	July	August	Sept.	October	Nov.	Day
1	.. .	534	202	49	23	20	69	1
2	... .	460	204	47	22	19	67	2
3	... .	357	202	42	21	19	.. .	3
4	... .	315	168	42	21	19	.. .	4
5	... .	315	168	40	21	17	.. .	5
6	... .	315	168	38	20	18	.. .	6
7	... .	357	180	38	20	17	.. .	7
8	... .	402	205	38	21	16	.. .	8
9	... .	402	220	40	20	17	.. .	9
10	... .	303	195	52	20	16	.. .	10
11	... .	288	181	56	20	16	.. .	11
12	... .	280	197	51	20	15	.. .	12
13	... .	288	169	50	19	17	.. .	13
14	... .	303	128	74	23	17	.. .	14
15	... .	372	110	38	25	17	.. .	15
16	... .	357	102	38	23	29	.. .	16
17	... .	315	111	38	22	26	.. .	17
18	... .	350	270	38	22	20	.. .	18
19	... .	433	323	37	20	20	.. .	19
20	... .	433	190	35	20	19	.. .	20
21	... .	486	125	33	22	19	.. .	21
22	... .	357	326	31	23	18	.. .	22
23	... .	327	81	31	21	16	.. .	23
24	... .	303	78	31	26	16	.. .	24
25	... .	288	67	42	21	16	.. .	25
26	402	280	62	27	20	16	.. .	26
27	402	288	56	25	20	16	.. .	27
28	534	270	58	25	20	16	.. .	28
29	433	258	54	23	20	23	.. .	29
30	520	220	49	23	20	23	.. .	30
31	560	... .	49	23	.. .	61	.. .	31
Mean	475.17	335.20	151.55	38.55	21.20	19.80	.. .	Mean

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND OF TIME OF THE SOUTH BOULDER CREEK, AT GAUGING STATION No. 9.

1890

Day	May	June	July	August	Sept.	October	Nov.	Day
1	...	520	264	72	45	29	..	1
2	...	535	227	72	67	29	..	2
3	...	530	205	65	49	29	..	3
4	...	441	191	61	47	29	..	4
5	..	324	191	51	43	33	..	5
6	..	324	186	43	38	29	..	6
7	..	264	191	48	43	31	..	7
8	..	240	186	47	40	31	..	8
9	180	255	175	45	38	35	..	9
10	180	303	180	51	35	35	..	10
11	175	289	173	84	35	33	..	11
12	180	310	165	62	35	33	..	12
13	175	343	148	84	33	30	..	13
14	169	315	131	90	33	30	..	14
15	202	296	124	79	31	30	..	15
16	215	343	124	81	33	33	..	16
17	180	335	116	72	30	35	..	17
18	202	343	220	67	33	38	..	18
19	219	350	152	74	30	33	..	19
20	289	503	136	106	19	29	..	20
21	315	380	128	72	40	27	..	21
22	476	370	210	74	32	29	..	22
23	472	343	110	70	31	29	..	23
24	463	343	105	67	31	30	..	24
25	343	315	100	59	32	28	..	25
26	403	343	96	54	32	..	..	26
27	433	325	87	54	32	..	..	27
28	542	303	84	51	32	..	..	28
29	531	303	78	48	31	..	..	29
30	433	270	68	48	29	..	..	30
31	433	...	87	47	..	..	..	31
Mean	313.48	348.93	143.16	64.45	39.20	31.08	..	Mean

DAILY DISCHARGE

OF THE ARKANSAS RIVER AT CAÑON CITY, COLORADO—DRAINAGE AREA 3,060 SQUARE MILES.

1889.

Day	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day	
1	398	2010	810	290	243	228	248	335	1	
2	418	.	810	258	228	228	243	331	2	
3	438	.	840	258	214	208	274	307	3	
4	438	.	702	324	214	208	307	324	4	
5	398	.	652	324	214	200	274	387	5	
6	360	.	652	324	214	200	290	420	6	
7	379	.	606	324	214	200	397	438	7	
8	342	.	652	324	200	200	307	410	8	
9	324	.	606	2620	200	200	307	398	9	
10	324	1624	1150	478	200	200	307	335	10	
11	379	1488	702	324	200	190	307	324	11	
12	398	1272	652	324	190	190	274	314	12	
13	398	1038	606	324	190	190	307	335	13	
14	398	1112	606	324	206	220	307	360	14	
15	438	1230	606	324	243	214	324	360	15	
16	438	1400	562	324	234	258	317	360	16	
17	214	398	1488	562	324	206	284	307	342	
18	214	398	1444	520	324	214	248	307	335	
19	214	360	1400	562	324	214	222	307	314	
20	228	324	1717	520	324	214	228	290	290	
21	280	360	1578	520	342	214	222	290	274	
22	360	499	1717	478	307	206	206	290	284	
23	324	728	1578	520	290	228	200	307	300	
24	307	840	1533	520	274	258	206	317	307	
25	290	1190	1357	478	274	243	228	331	307	
26	274	1670	1272	438	274	243	243	307	324	
27	290	1960	1190	478	274	243	228	290	317	
28	324	1578	1190	398	258	243	214	300	317	
29	398	1624	1002	324	258	243	200	342	360	
30	438	1578	1002	290	258	243	200	335	307	
31	1910	.	324	243	.	214	.	307	31	
Mean	300	600	1374	602	340	220	223	299	335	Mean

STATE ENGINEER.

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DAILY DISCHARGE

OF THE ARKANSAS RIVER AT CAÑON CITY, COLORADO — DRAINAGE AREA 3060 SQUARE MILES.

1890.

Day	Jan.	Feb.	Mch.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Day
1	250	369	180	307	841	3090	2132	1425	555	...	...	...	1
2	250	423	316	307	841	3200	2025	1340	580	...	...	...	2
3	250	446	336	369	918	3260	2025	1175	625	...	...	...	3
4	316	446	348	356	961	3120	1875	1060	625	...	...	...	4
5	316	423	344	328	1051	2850	1780	990	580	...	...	...	5
6	250	400	344	369	952	2450	1780	855	555	...	...	...	6
7	328	382	356	391	1134	2270	1735	580	555	...	...	...	7
8	260	356	391	391	1520	2068	1645	505	555	...	...	...	8
9	293	369	382	304	1520	2097	1825	365	530	...	...	...	9
10	328	400	336	200	1520	2339	1825	325	530	...	...	...	10
11	336	356	324	238	...	2487	2025	285	505	...	...	...	11
12	250	356	209	269	...	2639	1735	230	505	...	...	...	12
13	220	316	200	241	...	2749	1645	215	505	...	...	...	13
14	180	340	282	400	...	2678	1425	230	505	...	...	...	14
15	180	316	340	376	...	2620	1425	305	480	...	...	...	15
16	250	365	365	437	...	2568	1645	660	480	...	...	...	16
17	332	356	365	414	...	2549	1510	630	455	...	...	...	17
18	316	400	348	428	...	2478	1510	715	455	...	...	...	18
19	356	396	391	484	2250	2549	1555	740	455	...	...	...	19
20	282	340	386	575	2300	2678	1555	885	455	...	...	...	20
21	241	356	386	570	2580	2720	1600	770	...	...	...	...	21
22	282	391	348	544	2700	2649	1690	740	...	...	...	...	22
23	316	369	348	446	2800	2620	1555	770	...	...	...	...	23
24	344	336	400	500	2870	2568	1425	715	...	...	...	...	24
25	344	336	356	673	2900	2620	1215	660	...	...	...	...	25
26	437	316	289	736	3070	2668	1175	630	...	...	...	...	26
27	494	250	220	980	3230	2620	1135	605	...	...	...	...	27
28	456	250	220	952	3270	2450	1060	580	...	...	...	...	28
29	446	...	220	890	3250	2320	920	580	...	...	...	...	29
30	356	...	220	868	3080	2370	920	580	...	...	...	...	30
31	356	...	300	...	2900	...	1340	580	...	...	...	...	31
Mean	310	363	320	477	2090	2611	1571	670	...	...	...	...	Mean

GUAGINGS FURNISHED BY
FRANK NEWELL FIFTH BIENNIAL REPORT,
U. S. GEO. SURVEY. TABLE

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET PER SECOND
OF THE RIO GRANDE, AT DEL NORTE, COLORADO.

1890.

TABLE

SHOWING THE DAILY MEAN DISCHARGE IN CUBIC FEET, PER SECOND
OF TIME, OF THE UNCOMPAHGRE RIVER.

1890.

Day	May	June	July	August	Sept.	October	Nov.	Day
1	263	128	136	...	1
2	273	128	128	...	2
3	246	128	128	...	3
4	199	128	128	...	4
5	199	128	136	...	5
6	156	128	170	...	6
7	145	190	231	...	7
8	136	156	184	...	8
9	128	136	231	...	9
10	441	128	128	246	...	10
11	392	128	128	199	...	11
12	359	246	128	170	...	12
13	311	231	128	156	...	13
14	295	231	121	145	...	14
15	318	199	114	128	...	15
16	305	170	114	128	...	16
17	311	199	121	128	...	17
18	382	199	114	128	...	18
19	382	170	128	...	...	19
20	343	170	128	...	...	20
21	327	145	128	...	...	21
22	305	145	128	...	...	22
23	279	199	128	...	...	23
24	279	184	128	...	...	24
25	263	161	128	...	...	25
26	273	128	114	...	...	26
27	215	128	114	...	...	27
28	199	128	114	...	...	28
29	199	128	114	...	...	29
30	190	128	128	...	...	30
31	305	128	...	...	...	31

TABLE

SHOWING THE MEAN DISCHARGE IN CUBIC FEET PER SECOND OF TIME, FROM MAY 20TH TO SEPTEMBER 20TH, INCLUSIVE, FOR THE SEASONS OF 1889 AND 1890, OF THE FOLLOWING NAMED STREAMS:

STREAMS	1889	1890
Cache la Poudre River	735.00	770.51
Big Thompson Creek	214.53	425.42
St. Vrain Creek	215.46	284.238
North and South Boulder Creeks	461.97	419.334
Bear Creek	64.40	33.98
South Platte River	189.90	443.00
Arkansas River (at Cañon City)	743.00	1,657.80
Rio Grande River (at Del Norte) . . . . .	.....	2,389.00

ARTESIAN WELLS.

In response to the printed circulars sent out, soliciting information as to artesian wells, many statements have been received, and under the headings of their proper districts, these will be found tabulated. In addition to those reported, the office is enabled, through the courtesy of Prof. L. G. Carpenter, of the Agricultural College, to furnish a list of many others collected by him, under the direction of the United States Department of Agriculture.

The list embraces those statements not heretofore published. It is to be regreted that the showing from the San Luis Valley is not more complete, but the failure of the Superintendent and Water Commissioners of that Division, to make any reports whatever, has left the department without information as to that section of the State.

Prof. Carpenter estimates the number of wells in the San Luis Valley at about 2,000, the largest measured by him giving a flow of 495 gals. per minute, being the town well at Alamosa.

Bucher's well at the same place gave a pressure, by pressure gauge, of 25 lbs. per sq. in. There are between 25 and 30 wells in Alamosa.

The Monte Vista wells, some 85 to 100 in number, gave a pressure of between 5 and 6 feet. The Espinosa well, some 20 miles north of the latter place, throws a solid 3 in. column of water nearly 40 inches above the casing, and flows between 300 and 400 gals. per minute.

La Jara has 19 wells all shallow, being about 33 feet in depth.

The line where water (flowing) ceases to be found, is but a short distance West of Monte Vista, and is not many miles south of La Jara.

The Denver Artesian Basin statement embraces a list of 74 wells, in which will be found the flow in gallons per minute, at the time of completion, also the flow at the date of last report made thereon, from which can readily be seen the decrease in flow in certain wells and increase in others between the respective dates.

This information is deemed desirable as indicating the degree of permanency in the supply and the effect of a multiplicity of wells upon the different water-bearing stratas.

MOUNTAIN FORESTS.

The destruction of our mountain forests is the occasion of repeated complaints on the part of people living in South Park and in other localities along the base of the main range, and its effect upon the water supply for irrigation, is a question that has received some attention in the former reports from this department. While it is not the intention here, with the limited space at our command, to enter into a general discussion of the subject, it may not be amiss to make some remarks as the result of observations made along the base of the main range.

It is well known that our heaviest bodies of timber and that of the largest growth are to be found in the valleys and on the adjacent hill-sides of our principal streams and their tributaries, but a short distance below timber line, and that this section of the mountains is comparatively free from deep, narrow cañons and precipitous ledges. It is further well known that the most broken and rugged portions of the range are to be found on the very head waters of these streams, and very close to the summit of the Great Divide. The snows precipitated on the crest of the range and even on the gentle slopes adjacent thereto, on the western side, are carried by the prevailing west winds over the bold points on the eastern slope, and in close proximity to the summit, and there deposited to great depths. And here let it be observed, that such banks are not formed to any great extent on the western slope, and hence, as a rule, it is not practicable to secure water in quantity above timber line on that water-shed at such seasons of the year as would make it possible to divert it.

It is from these banks that the late water supply is supposed to be derived, but I apprehend that no inconsiderable amount of that supply is traceable to other sources.

Between the heads of the various streams bearing eastward, are to be found prominent spurs or divides putting out from the main range, and but a little below it in elevation, being above timber line. These divides are frequently elevated plateaus, with considerable extent of surface, with smooth, grassy slopes, and are sometimes known as bald mountains.

The snow-fall on these spurs is as great as on the main range, and the wind there has as keen an edge and as great a sweep. At the bases of these spurs, on either side, are to be found the dense forests to which reference is made, and in them much of the snow drifted from the heights above finds a resting place. Early

spring will find hundreds of acres of this timber belt covered with drifts, five, ten, and in places twenty and twenty-five feet deep. In these forests the fallen timber is frequently so thick as to render passage through it with a horse impracticable. Much of it is in an advanced stage of decomposition. Decayed vegetation covers the ground, absorbing and holding the moisture from the melting snow. The soil underneath it, and protected by it, is porous and spongy and holds water to such an extent as to render it marshy well up onto the hillsides. Springs abound, and every ravine carries a running brook, well into the summer months. It would be difficult to convince an old mountaineer, who is familiar with these forests, that the valley irrigator should not thank their protecting shades for much of the moisture that matures his crops.

Destroy these forests by fire and with them will burn the vegetable mold that covers the earth. Destroy them by the woodman's ax, and fire will soon follow among the tops, with a similar effect.

The snows that were wont to find lodgment there will then be carried on by the wind, evaporating them to such an extent as to far over-balance any consumption of moisture in the support of forest life.

Under the action of the wind, the earth is soon divested of its light soil, and the exposed gravel and sand becomes compact, hard and dry, shedding the Spring rains like the roof of a house. The springs cease to flow and the ravines become dry.

The results are, sudden and unusual floods, sending immense volumes of water to the valleys, without notice, and beyond all possibility of control, with existing facilities.

The laws for the protection of these forests from the ravages of fire, cannot be too stringent, and more efficacious methods should be devised for their execution.

DUTY OF WATER.

This department is in receipt of numberless letters from within and without the State, asking every conceivable question pertaining to the subject of irrigation, but probably no conundrum is plied with more persistent frequency than that relative to the duty of water, and no answers are more replete with glittering generalities than those bearing upon this subject.

The waters of the eastern slope being very closely appropriated and the means of diversion provided, it is not of so much importance to determine the present duty of water for future canal development, as to realize its maximum duty for the better cultivation of lands already under ditch. Whatever service water may perform at this time, we know that service can be increased by eliminating many of the sources of waste apparent on every side. The varied conditions of soil and surface preclude the possibility of a uniform standard, but there are local causes for a diversified duty, even where the lands are not appreciably different.

Water rights vested on a basis of the low duty assigned to water ten years ago, have, in instances, deteriorated lands and reduced their productiveness by a surfeit in application, while on adjoining lands through an enforced economy, a higher duty, better condition of the soil, and greater productiveness have resulted.

Unskilled labor has a penalty of 25 to 50 per cent. attached to it in the application of water, and unfortunately this class is too prevalent in the irrigating fields, in many cases, no other being obtainable.

An abundant water supply tends to carelessness in its application and consequent waste. Where liberal and old water rights are provided, it is frequently the practice to turn the water upon the land and permit it to run without change or attention throughout the night, and sometimes during the day, a large volume of the water soaking into the soil without benefit to the crop.

There is much complaint on this score by parties whose fields have suffered from an insufficient supply.

The duplication of ditches is another fruitful source of waste, reducing the duty of the volume of water, as indicated by the gauging stations in the cañons.

Reference to some of the maps prepared by this department, will show, in different localities, several ditches paralleling each other at inconsiderable distances apart, the upper one of which could be made to answer the purposes of all with marked economy in water, as well as a large saving in capital.

Too little attention has also been given to the proper preparation of the surface to facilitate the rapid spreading of the water.

This is principally the result of too large individual ownership in land, rendering it impracticable to give close supervision and secure careful preparation of the land.

The best results will be obtained from small proprietary rights in land, and a consequent higher state of cultivation.

The ownerships of the cultivated lands of the State should be multiplied by ten and the population increased to that extent.

We are enabled to give some general results as to the service water has performed in some of the older districts of the State, for the two years last passed, based upon the gaugings of the several streams, at the cañons, and the areas under cultivation, as reported by the Water Commissioners.

For the purposes of the estimates herein given, we have assumed the irrigating season to be four months, embracing the time from May 20th to September 20th, inclusive.

In 1889, within the dates above given, the mean discharge of the Cache la Poudre river, was 735.97 cubic feet per second of time, or second feet.

The area cultivated under the ditches from this stream, as reported by the Water Commissioners of District No. 3, was 139,222 acres. By calculation, it will be found that the mean discharge for the time given, spread upon the acreage reported, would cover it uniformly to a depth of 1.178 feet, and would give a duty for the water measured at the cañon, of 189,168 acres per second foot, continuous flow.

The precipitation at Fort Collins for the period stated was 0.682 feet in depth. Assuming this to be uniform throughout the district, and adding to the irrigated depth, and we have 1.178 plus 0.682 equals 1.860 feet, as the amount of depth of moisture received by the crops cultivated on the acreage given.

But it is claimed that much of this water is used over and over again, as the result of seepage back into the river; which is undoubtedly true. Referring to the tabulated statement for 1889, under the head of "Seepage," it will be seen that the seepage flow in the river, at the time of the measurement in October, was 98.96 cubic feet per second of time. The volume of seepage water was probably greater at the close of the irrigating season than at any other time, but assuming it to have been uniform throughout the season, and adding the amount per second to the mean discharge of the river, we have 735.58 plus 98.96 equals 834.93 second feet, which would give a duty of 166.62 acres per second foot.

For the year 1890, the same stream gives a mean discharge of 770.51 cubic feet per second. Area cultivated, 139,222 acres, which would be covered to a depth of 1.254 feet, giving a duty of water of 180.687 acres per second foot.

The mean precipitation at all of the stations in the district for the period is 0.338 feet, which added to depth above gives 1.592 feet as the average depth supplied to the lands.

The seepage flow in the river for October, 1890, as per table above referred to, is 100.793 cubic feet per second; adding this to mean discharge, we have 770.51 plus 100.793 equals 871.30, giving a duty of 159.78 acres per second foot, deducting lands irrigated from stored waters as for 1889, and the duty would be 166.64 acres, adding seepage flow to river discharge and the duty would be 147.36 acres.

BIG THOMPSON CREEK—DISTRICT NO. 4.

For 1889—Mean discharge, 214.53 cubic feet per second; area cultivated, 91,037 acres; giving in depth over area, 0.579 feet, and a duty of 424.35 acres per second foot.

For 1890—Mean discharge, 425.42 cubic feet per second; area cultivated, 89,790 acres; giving in depth over area, 1.192 feet, and a duty of 211.06 acres per second foot.

ST. VRAIN CREEK—DISTRICT NO. 5.

For 1889—Mean discharge, 215.46 cubic feet per second; area cultivated, 94,013 acres; equivalent in depth over area, 0.563 foot; duty, 436.33 acres per second foot. The precipitation at Longmout was for the period, 0.532 foot, which added to above gives depth of 1.095 feet over area cultivated.

For 1890—Discharge, 284.238 cubic feet per second; area cultivated, 94,365; equivalent in depth over area, 0.739 foot; water duty, 332.69 acres per second foot.

SOUTH BOULDER AND BOULDER CREEKS—
DISTRICT NO. 6.

For 1889—Mean discharge, 461.97 cubic feet per second; area cultivated, 77,682 acres; equivalent in depth over area, 1.406 feet; duty, 168.153 acres.

For 1890—Discharge, 419.334 cubic feet per second; area cultivated, 76,682 acres; equivalent in depth over area, 1.345 feet; duty, 182.866 acres.

BEAR CREEK—DISTRICT NO. 9.

For 1889—Mean discharge, 60.40 cubic feet per second; area cultivated, 10,173 acres; equivalent in depth over area, 1.46 feet; duty, 168.42 acres.

For 1890—Discharge, 33.98 cubic feet per second; area cultivated, 8,112 acres; equivalent in depth over area, 1.030 feet; duty, 239 acres.

TABULATED STATEMENT OF WATER-DUTY ON STREAMS INDICATED
FOR 1889 AND 1890.

STREAMS GAUGED.	Mean discharge from May 20 to Sep- tember 20 in cubic feet per second	Area cultivated in acres	Equivalent in depth over area in feet	Rain-fall during period	Total depth over area	Duty in acres per cubic foot
Cache La Poudre	1889 1890	735.97 770.51	139,222 139,222	1.178 1.254	0.682 0.338	1.860 1.592
Big Thompson	1889 1890	214.53 425.42	91,037 89,790	0.579 1.192	no data no data	424.35 211.06
St. Vrain	1889 1890	215.46 284.238	94,013 94,365	0.563 0.739	0.532	1.095 332.69
South Boulder and Boulder Creek	1889 1890	461.97 419.33	77,682 76,682	1.406 1.34	. . . . .	168.15 182.86
Bear Creek	1889 1890	60.40 33.98	10,173 8,112	1.46 1.03	. . . . .	168.42 239.02

The Water Commissioners of the districts above referred to, in their reports, give the number of days water is carried by each ditch and the amount. Using these figures as a basis for calculation, a much higher duty will be given to water than as above tabulated, but when measurements are made in so many places, the liability to error is very much increased, and, furthermore, proper facilities for accurate measurements are not provided in many of the ditches.

Unfortunately, we have no statistics showing the crops raised from the cultivated areas, reported by the Commissioners, nor to what extent there were failures from a scarcity of water. Where lands are irrigated from stored or seepage water, the quantities are given.

INJUNCTION PROCEEDINGS.

General report credited the range with a much greater snow-fall during the winter of 1889-90, than the year previous, and the responses to circular letters of inquiry from this office corroborated that impression, the mean of the estimates sent in giving the increase at 46 per cent. In full confidence of a good water supply upon the melting of the snow, farmers generally planted an increased acreage, trusting to the usual early rains for moisture to germinate and start the crops. The rains failed to materialize, and very suddenly there was a general demand for water, and the waters were also kept back by the unusual cold weather in the mountains.

Distress seemed imminent, and injunctions were resorted to, in several cases, to secure temporary advantages and to obtain relief from alleged unfairness, in the distribution of the waters, by this Department. Other suits were instituted, for other purposes, as will be herein set forth as briefly as possible.

The first of the suits was instituted April 28, 1890, and was entitled:

DAVID A. RANKIN ET AL., *Plaintiffs,*
vs.
THE COLORADO AGRICULTURAL DITCH COMPANY, THE CLEAR CREEK AND PLATTE RIVER MILL AND DITCH COMPANY, THE STATE ENGINEER, SUPERINTENDENT OF IRRIGATION AND WATER COMMISSIONER OF DISTRICT NO. 7, *Defendants.*

The groundwork for the complaint was an application on the part of the plaintiffs, to this Department, to have the water decreed to the Clear Creek and Platte River Mill and Ditch Company, by virtue of its enlargement in 1863, to wit: $20\frac{5}{6}$ cubic feet of water per second of time, turned into the Colorado Agricultural Ditch, alleging that the two ditches had the same headgate; that their lines were practically parallel and contiguous; and that this water was originally appropriated to and for their lands, which lay, principally, under the Clear Creek and Platte River Ditch, but on account of the difficulty of diverting the water, at the head of the latter ditch, and for the purpose of securing a full and uniform flow of water, they had constructed the Colorado Agricultural Ditch.

For the purpose of determining the matter of the application, I had an examination and measurement made of the Clear Creek and Platte River Ditch, from which it was ascertained: that the points of diversion of the two ditches were originally about 80 rods apart; that of the Colorado Agricultural Ditch being the upper; that owing to the difficulty of maintaining a head-gate and dam, at the lower place, the two were merged into one, and the waters of both ditches carried in the Colorado Agricultural Ditch, to a point of divergence near the old head of the Clear Creek and Platte River Ditch, and further that the Clear Creek and Platte River

Ditch did not have, at the time of measurement, and from the best information obtainable, never had capacity sufficient to carry the water decreed under its original appropriation; and that consequently, any waters used on the lands of the plaintiffs, from the latter ditch must have been from that original appropriation; that they could not have appropriated and used water the ditch could not carry.

Had the application been made to transfer a portion of the water decreed under the original construction (within the limits of the ditch's capacity), a different conclusion would probably have been arrived at, for it was not intended to deny the right of the plaintiffs to carry the water justly belonging to them through the best and most economical channels, onto their lands.

The Colorado Agricultural has a decree for 30.20 cubic feet, dated March 5, 1867.

The Clear Creek and Platte River has a decree for $49\frac{5}{100}$ cubic feet, under original construction, dated November 1, 1861, and for 20.56 cubic feet, under enlargement, dated November 5, 1863.

The effect of such a permit would be to give the Colorado Agricultural, a ditch constructed in 1867, a decree for 20.56 cubic feet, dating back to 1863, and this water must be taken from some other ditch having an appropriation prior to the latter date, because it could not be taken from the Clear Creek and Platte River, a ditch that could not carry it and had, therefore, never appropriated it.

The court ordered and adjudged that the officers of this department be directed to turn and allow to flow, in the Colorado Agricultural ditch, all of the water appropriated and decreed to the said Clear Creek and Platte River Mill and Ditch Company, by virtue of its enlargement in 1863, to wit: 20.56 cubic feet of water per second of time.

On or about the first of June, 1890, the Superintendent of Division No. 1, ordered all ditches in the valley districts, post-dating January, 1867, shut down, in order to supply older priorities in District No. 2, on the Platte.

By this order, the supply of the Farmers' High Line, and four other large canals, taking water from Clear Creek, was cut off, and the owners of said canals are the plaintiffs in the following suit.

On June 9, 1890, a temporary injunction was granted by Hon. J. W. Barnes, Judge of the County Court of Jefferson county, in the absence of the Judge of the District Court of said county, in the case of

THE FARMERS' HIGH LINE *et al.*,
Plaintiffs,
vs.
J. P. MAXWELL *et al.*,
Defendants.)

The case came up before Judge Becker, on a motion to dissolve the injunction, and is concisely stated in the first part of his decision, as follows:

"This is a contest between the ditch owners of District No. 7, who take water from Clear Creek, and those of District No. 2, who take water from the Platte.

"The defendants are State officers, in whose hands is placed the duty of superintending the distribution of water used for irrigation purposes, and administering the irrigation laws of the State.

"The contention arises from an order made by the Superintendent of Irrigation upon the Commissioner of District No. 7, that a certain amount of water should be excluded from the ditches taking water from Clear creek at or near Golden, and that such water should be sent down Clear creek to replenish the Platte, and thus afford a supply for ditches taking water from the Platte below the entrance of Clear creek, on the ground that said Platte ditches were prior in time of appropriation."

Said order was obeyed, and a temporary injunction was granted, restraining its enforcement; and the motion

now made is to dissolve the injunction. Space forbids giving the full text of the decision, as it quotes quite extensively from the law pertaining to the duties of Water Commissioners and Superintendents of Divisions, but the following points are made.

First—That the Superintendent did not have the necessary information from the Water Commissioners, in the form prescribed by law, on which to base his order.

Second—That the ditches in District No. 23, embracing the South Park, were not ordered closed to a date corresponding with those on the valley; and

Third—That the law of 1887, which creates the office of Superintendent, and defines his duties, is unconstitutional, in so far as its effect is to determine rights of priority in the waters of the natural streams against persons who have had no day in court, by making the decrees rendered in one district binding and conclusive against claimants in another separate and distinct district, who have also received decrees.

The motion to dissolve the injunction was overruled. The Water Commissioner was, however, ordered to distribute the waters of Clear creek among the ditches of that stream, in accordance with their order of priority.

It is not the intention to enter into a discussion of this decision; but justice to the Superintendent of Division No. 1 requires a statement of the extenuating circumstances connected with his position in the case.

First—It has been his practice to exact from the Water Commissioners a weekly statement, covering the points required by the law, and printed blanks are furnished them for this purpose. That this has not been rigidly enforced in all cases and under all circumstances is due to the fact that many of the Water Districts cover large extents of territory, and the incessant demands upon the time of the Commissioner in distributing the

ever-changing volumes of water among the numerous ditches, in regulating head-gates and settling controversies where gates have been forced open and changed, will not permit of his taking the time to collect some of the data required; and moreover, this data is already in possession of the Superintendent through more reliable sources. As an instance, take District No. 2 (so vitally interested in this suit) which extends from Denver some fifty miles down the Platte. If the Commissioner was required to report daily or weekly the amount of water coming into the District, it would involve, for each report, a measurement of the Platte, at Denver, and the mouth of Clear creek, St. Vrain and Big Thompson, the amount flowing one day being no index of what was coming the next; and besides, the shifting beds at the mouths of the streams mentioned, would require the taking of a new cross-section at every measurement, occupying a needless amount of time.

This office keeps a gauging station in the Platte, at Denver, and the discharge into District No. 2 is taken and recorded each day, and is always accessible to the Superintendent. The Commissioners on the Boulder, St. Vrain and Big Thompson report when, and the amount, if any, going out of their districts. Further than this the Superintendent requires from the Commissioner telegrams in emergencies and informal communications wherever they may be in their Districts; and in the Districts adjoining Denver, personal interviews whenever practicable. But all this in the opinion of the learned Judge is not legal information upon which action can be based.

If such is the case, the law should be changed, for flood storms do not await the convenience of Commissioners, and the telegraph is an important factor in securing an equitable distribution of the water.

He who expects the letter of the law in relation to irrigation to be executed with the precision of clock-

work, and that infallible results will be obtained, has a small conception of the tangled web of difficulties in the way, and a meagre knowledge of the uncertainties of the element to be manipulated.

With regard to the second point of error, let it be borne in mind that the South Park has never heretofore been considered in the distribution of the waters of this division, although irrigation has been practiced there for many years, and it was only in October of 1889, that the adjudications took place in that district. It was consequently late in the season of 1890 before the Superintendent's office was furnished with the decrees and had official knowledge of the claims and rights of the respective ditches.

There were over 200 decrees issued, and these all had to be tabulated and their relative priorities adjusted with reference to the rest of the division.

It was also a mooted question much discussed, as to the effect irrigation of natural grass lands there would have on the water supply in the valley. The ditches there are principally short, and seldom extend a mile away from the streams. Some contended that the soaking of the grass lands contiguous to the channels, in the early part of the season, tended to hold the waters in store, and when later they drained back into the channels, the valley would derive the benefit, where most needed for later irrigation. However this may be, the Superintendent ordered a cut in the ditches of the South Park, at the same time the order was given here, but evidently erred in fixing the date at 1879. In explanation of this, he stated that the cut was an experimental one, as he knew nothing of the quantity of water diverted by the ditches there, if any, the Commissioner having reported for duty but a few days previous, and then principally for the purpose of getting the head-gates and rating flumes in shape for the reception of water.

The Park District is some 50 miles square, and the Superintendent anticipated that before his order could be fully carried out there he would be enabled to raise to the same date on the valley, as, with the fluctuations of the streams, the cuts are, at most, a "cut and try" process.

The Water Commissioner of District 23, after consultation with attorneys, and having in view the injunction granted at Golden, declined to shut down any ditches whatever.

The Superintendent then made a personal inspection of the district, and endeavored to obtain the necessary information as to location of ditches, to himself close them down, in accordance with the order, but aside from being unable to secure the needed information, he found that in the excited condition of the people it would require the State militia to enforce his orders. An assistant from this office was sent to the district, with instructions to gauge all streams flowing through the Park, measure the full capacity of ditches, as far as practicable, and the quantity being diverted by them. About a month was occupied in this work, and, as a result, it was ascertained that—

There was flowing, in nine tributaries of South Fork—measured above all ditches.	286.67 cu. ft. per sec.
Diverted into ditches, measured	160.00 cu. ft. per sec.
Continued in above streams	126.67
South Fork—measured above Howbert, and below all above ditches	348.75 cu. ft. per sec.
Tarryall, Michigan and Jefferson creeks—measured at heads, but emptying below Howbert.	50.09 cu. ft. per sec.
Diverted in ditches from above streams	20.00 cu. ft. per sec.
Continued in above streams	30.09 cu. ft. per sec.
North Fork—measured at Junction	120.00 cu. ft. per sec.
Mean discharge of Platte river, at Deansbury, for July, deducting the local flood storm from Eleven Mile Cañon.	507.00 cu. ft. per sec.

The assistant, in charge of measurements, reported rainy weather during July, and that considerable quantities of water were coming into the river in every direction, above Howbert, from seepage and small ravines,

which it was impracticable to measure, thus accounting for the increased flow at that place.

From the figures above given, though not conclusive, it would seem there was some ground for the opinion that irrigation in the Park did not materially affect the flow of the water to the valley, nor to any great extent retard it.

The method of applying the water there, if correctly reported, must be highly detrimental to the soil and the quality of the grasses, and under different conditions would be extremely wasteful of the water, it being the practice to turn the water on to the lands at the beginning of the irrigating season, and allow it to flood them continuously until turned off for the haying.

In this connection, it may be well to make some observations relative to the water-rights of that district. By reference to the tabulated statement of the decrees, it will be seen that 4,665.61 cubic feet per second are allotted to 209 ditches. Such figures, upon their face, might well fill the valley farmers with apprehension, as it would require the waters from all the streams in northern Colorado to satisfy them, but a measurement of 65 of the ditches, and those among the largest, whose combined decrees entitle them to 2,055.63 cubic feet per second, gave them a maximum carrying capacity of only 692 cubic feet per second. A few would carry the full amount decreed, but many fell short eight and ten times the requisite capacity. The tabulated statement referred to also shows the maximum capacity of the 65 ditches measured.

July 16-19 injunctions were obtained from the County Court of Larimer county, in the absence of the District Judge, restraining Water Commissioner W. A. Bean, of District No. 4, from shutting the water out of the Louden, Handy and Hillsborough ditches, except for the benefit of older priorities, on Big Thompson Creek.

Pursuant to an order from the Superintendent of this division, the Water Commissioner closed the gates of the above named ditches, to satisfy older priorities on the Platte, whereupon the injunction was obtained, and later, I am informed, made permanent by the District Court.

This suit is similar in its nature to that of June 9, before Judge Becker, bringing in question the constitutionality of the law of 1887.

The Attorney-General holding that it was not a part of his official duty to visit different portions of the State in the defense of Water Commissioners, no defense was made on the part of the State.

MARY ANN EDWARDS,
vs.
J. P. MAXWELL *et al.*



This was a proceeding instituted July 21, in the District Court of Arapahoe county, before Judge Rising, to secure water for a ditch on Clear Creek, claimed to carry one cubic foot or less, per second, and for which there was no decree.

Still pending.

AGRICULTURAL DITCH CO.,
vs.
J. P. MAXWELL *et al.*



This suit was instituted July 23, 1890, to obtain water for domestic and stock purposes. The ditch not being entitled to water under its decree, an application to run water for domestic purposes was denied by the Water Commissioner.

Judgment was given for ten cubic feet per second.

RICOLO CHICRICKIQUE,

vs.

J. P. MAXWELL *et al.*

Before Judge Allen, of the District Court of Arapahoe county, August 1, 1890.

Case similar to that of Marry Ann Edwards. Application granted.

FARMERS' INDEPENDENT DITCH CO.

vs.

AGRICULTURAL DITCH CO. *et al.*

Instituted September 1, 1890, asking an injunction and \$50,000 damages.

This, a counter-suit to the one of June 9, before Judge Becker and involves the same issues.

Still pending.

DOMESTIC USE.

Early in the season of 1889, and soon after entering upon the duties of this office, the question of the domestic use of water was raised, by repeated applications, to divert water into ditches for that purpose. Realizing that if permission was granted in one case, it could not be consistently denied in another equally meritorious, so far as the needs were concerned; and further realizing that, with the latitude given in such cases, trees, gardens, and even field crops sometimes become very domestic in their nature; and being fully persuaded that the establishment of such a practice generally would tend to subvert priorities, would be very injurious to the irrigation interests, and would result in great loss of water, without compensating returns, I determined to grant no permits for that purpose, except where specially ordered by the Courts so to do. The wisdom of this course directly became apparent, for

applications soon ceased, and very general satisfaction was expressed.

While in a few cases, doubtless, people living along the lines of canals, at remote distances from their heads, became distressed for domestic water, at times when the irrigating supplies were shut out, it will not be denied that, in a majority of instances, such distress was sympathetic in its nature, and resulted more from the wilted condition of their crops, than from the parched condition of their throats, and wherever water was granted for domestic use, more or less irrigation was practiced. One cubic foot of water per second, used strictly for domestic purposes, would more than supply the needs of all the people on the line of the longest canal in the State, but that quantity would cut a sorry figure in the canal, and many times that quantity would be evaporated and filtrated to secure one drop in the bucket of the farmer at the lower end of the canal. Not a few complained that the cattle in their pastures were suffering for water, but the reply was that "Cattle could be driven to water, while crops could not."

These complaints came mainly from the owners of the large and extended canals, but where such canals have been operated for a series of years, springs are formed under their lines, in nearly every ravine, and those are frequently more accessible than the canal, where the farmer lives some distance from the latter.

Small reservoirs and other receptacles can also be built to tide over such emergencies.

In one instance, only, has an appeal been made to the Court, and that was in the case of the Agricultural Ditch diverting water from Clear Creek, wherein the Court granted 10 cubic feet per second for domestic purposes. This amount was, of course, taken from a prior appropriation and deprived at least a thousand acres of crops of the moisture to which their priorities of appropriation under the law entitled them.

WATER DIVISION No. 1.

SOUTH PLATTE DIVISION.

Mr. I. H. Batchellor, Superintendent of Irrigation; appointed April 23, 1889; residence, Denver, Colo.

Water Division No. 1 has had added to its list five new water districts since the last report, namely: Numbers 46, 47 and 48, embracing the North Park, and numbers 64 and 65, in the north-eastern part of the State, the boundaries of which will be found under their respective headings.

The Superintendent reports generally, for 1889 and 1890, a very low stage of water in the streams, consequent upon which there arose many complications between the conflicting interests of different districts; that much of his time during the irrigating season was occupied in hearing complaints and in the settlement of these differences; that during the year 1890, as a result of his efforts to secure water for District No. 2, in accordance with its priorities, temporary injunctions were obtained restraining him from closing ditches in No. 7, for the benefits of older rights in No. 2, and that these restraining orders have interfered very materially with the legal and equitable distribution of the waters of his division. (The orders referred to will be found under the head of injunctions.) He further reports that the Water Commissioners of his division, with one exception, have responded promptly to all orders for the closing of ditches and executed them, where not restrained by the courts. The exception was in the case of the Water Commissioner of District No. 23, South Park.

On June 4, 1890, instructions were mailed to this Commissioner to close all ditches to a certain date, and reply received that instructions would be followed, but that on the 13th of same month the following reconsideration of his resolution was received:

COMMUNICATION.

*Office of M. R. HANLIN,
WATER COMMISSIONER, DISTRICT No. 23,
FAIRPLAY, COLO., June 13, 1890.* }

HON. I. H. BATCHELLOR,
Supt. Irrigation, Division No. 1:

DEAR SIR:—Since receipt, on the seventh, of your letter of the fourth instant, instructing in behalf of valley irrigators in other Water Districts to close down all irrigation ditches of priorities later than January 15, 1879, I have made diligent examination by myself and counsel to determine whether my duty is to obey these instructions or the decrees of the District Court of this county, establishing priorities in this Water District.

The question is both difficult and important, but must be decided promptly even if somewhat hastily, and I have concluded that, until differently advised by some court decision, I must follow the decrees aforesaid wherever your instructions may be in conflict with the same. Accordingly, I shall, for the present, decline to carry out your instructions in said letter contained.

Respectfully,

M. R. HANLIN,
Water Commissioner, District No. 23.

That subsequently the Superintendent made a personal inspection of the district and found it impracticable to enforce the order in the excited condition of the people.

In districts 46, 47 and 48 the water rights not having been adjudicated, the Commissioners were not called out, and hence no reports were made. In District No. 65 no application had been made for the appointment of a Water Commissioner. That in all other districts full reports had been received and summarized by the Superintendent, in his report to this office.

Water District No. 1—James Hurley, Commissioner, Orchard, Morgan county.

Mr. Hurley reports for 1890, eleven ditches carrying water during the season and 16,775 acres irrigated therefrom, as more fully shown by the following statistical tables.

He was called out April 1, and found no difficulty in satisfying all demands for water until June 1, from which time on there was a scarcity.

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION NO. 1—DISTRICT NO. 1.

STATE ENGINEER.

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING ARTESIAN WELLS

IN THE DENVER ARTESIAN BASIN, SHOWING THE FLOW OF WATER AT THE DATE OF COMPLETION AND AT THE DATE OF THE LAST REPORT OBTAINABLE.

NAME OF WELL, OR OWNER	LOCATION	DATE OF COMPLETION	T S R W.	Total depth of well in feet	Depth of primi- tive flow	At date of completion	At date re- ported	Flow in gal. per minute	Depth from which pumped	Last report	Date of last report	REMARKS
Mrs. M. Braintner . . . . .	. . . . .	36	1	67	May 4, 1887	430	...	15	7½	...	Aug., 1890	...
D. E. Young . . . . .	. . . . .	35	1	67	Feb., 1885	316	...	6	5	...	May, 1888	...
Fred Reithman	NW . . .	25	1	67	Feb. 29, 1887	306	265	2	1	...	Jan., 1888	...
F. Wolpert	S½ . . .	3	2	67	Dec. 10, 1886	323	300	10	8	...	May, 1888	...
R. Morris	NW . . .	4	2	67	Jan. 22, 1887	300	210	45	40	...	June, 1888	...
M. Cline . . . . .	. . . . .	5	2	67	Mar. 20, 1886	280	239	10	5	...	June, 1888	...
Solomon Cline	SE . . .	5	2	67	Mar., 1886	416	416	16	4	...	June, 1888	...
R. A. Southworth . . . . .	. . . . .	6	2	67	...	1885	480	343	4	...	Sept., 1889	...
P. E. Gleason . . . . .	. . . . .	8	3	67	Nov. 25, 1876	620	...	40	10	...	Sept., 1890	...
George Wooley	SW . . .	18	2	67	Sept., 1886	216	316	35	30	...	Sept., 1890	...
David Wolpert . . . . .	. . . . .	19	2	67	Oct. 20, 1884	600	580	120	60	...	June, 1888	...
Upper Well, Cherry Hill Farm	31	2	67	July, 1887	531	485	20	10	...	Sept., 1890	...
Lower Well, Cherry Hill Farm	31	2	67	Mar., 1887	295	...	60	30	...	Sept., 1890	...

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Broadwell No. 1	3	67	April 30, 1889	750	• • •	8	• • •	Sept., 1890	• • • . . . Pumps
Dr. A. Stedman	NE . . .	24	Oct., 1885	325	• • •	6	3	Sept., 1890	• • • . . .
J. B. Ish	NE . . .	25	Fall, 1887	400	400	50	30	June, 1888	• • • . . .
V. S. Wright	•	25	Oct., 1886	560	560	14	1½	Oct., 1890	• • • . . .
W. W. Groves	NW . . .	25	Sept., 1886	389	389	40	30	Sept., 1890	• • • . . .
A. L. Ish	•	25	Sept. 20, 1886	337	333	100	60	Sept., 1890	• • • . . .
B. F. Harrington	W½ . . .	33	May, 1887	821	600	10	• . .	Sept., 1890	Pump and wind mill
B. F. Harrington	W½ . . .	33	Nov. 11, 1886	465	440	12	• . .	Aug., 1888	• • • . . .
Frank P. Watson	•	35	Oct. 5, 1886	420	375	35	30	Sept., 1890	• • • . . .
Z. T. Block	•	35	Nov., 1889	415	415	48	44	Nov. 3, 1890	• • • . . .
Jacob Sandhofer	•	35	Oct., 1888	544	450	20	4	Nov., 1890	• • • . . .
A. R. Taggart	•	35	Oct., 1888	427	426	30	15	Nov., 1890	• • • . . .
E. Reithman	•	1	Mar. 2, 1884	318	318	35	15	June, 1888	• • • . . .
School District No. 9	SW . . .	5	Oct. 15, 1887	385	375	25	10	Sept., 1890	• • • . . .
A. S. Lang	SW . . .	7	June, 1888	400	360	20	15	Sept., 1890	• • • . . .
John Wolff	•	8	Dec., 1885	410	335	120	80	Sept., 1890	• • • . . .
J. H. Moser	•	9	July 24, 1888	494	460	60	120	Sept., 1888	• • • . . .
Globe Smelter	NE . . .	15	May, 1886	505	500	173	100	Sept., 1890	• • • . . .
D. A. Montague	•	22	June 15, 1887	444	258	90	40	Sept., 1890	• • • . . .
Smith Bros.	•	23	June 1, 1885	360	• . .	• . .	• . .	Pump	Diminished ½ 400,000 gal. daily
B. & M. R. R.	NW . . .	27	•	600	500	Did	• . .	Sept., 1890	• • • . . .
The American House	NE . . .	33	Aug. 29, 1884	400	• . .	Did	10	Sept., 1890	• • • . . .

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING ARTESIAN WELLS—Continued.

NAME OF WELL OR OWNER	LOCATION				DATE OF COMPLETION	TOTAL DEPTH IN FEET OF WELL	DEPTH OF PRINCIPAL FLOW	DEPTH OF PRINCIPAL FLOW AT DATE OF COMPLETION	FLOW IN GAL. PER MINUTE	DEPTH FROM PUMPED PORT LAST RE- PORT	DATE OF LAST REPORT	REMARKS	
	1/4 SEC	T	S	R									
Zang Brewing Company	NW	..	33	3	68	July 1, 1884	600	..	300	..	Pump	Sept., 1890	
J. Q. Charles . . . . .	..	..	34	3	68	First to reach 600 ft.	602	..	Pressure about 40½	7½	..	Flow ceased
Barclay Block	NW	..	34	3	68	Aug. 4, 1884	602	..	..	..	..	Jan., 1887
Windsor Hotel	NW	..	34	3	68	Aug. 30, 1883	998	735	208	15	..	Aug., 1884	
Daniels & Fisher . . . . .	..	..	34	3	68	June, 1884	662	605	..	..	..	Pump Raised 60' above surface.
Artesian Ice Co.	NW	..	4	4	68	Dec., 1888	636	600	70	Small	..	Sept., 1890	
University Park . . . . .	..	..	35	4	68	..	1886	740	..	15	..	Sept., 1890
Rosedale . . . . .	..	..	27	4	68	April 8, 1886	627	620	11	7	..	Sept., 1890
Charles Moore . . . . .	..	..	..	..	..	Fall, 1887	675	650	5	2	..	Sept., 1890
Thomas Skarrit . . . . .	..	..	3	4	68	Oct., 1887	640	620	20	5	..	Sept., 1890
Adolph Candler . . . . .	..	..	4	5	68	Jan., 1888	650	530	15	25	..	Sept., 1890
Adolph Candler	4	5	68	720	346	10	12	..	Sept., 1890
Bertha Magnes . . . . .	..	..	4	5	68	Aug., 1888	806	560	4	12	..	Sept., 1890
Jacob Puff	4	5	68	April, 1888	500	500	15	10	..	Sept., 1890	
William R. Smith	4	5	68	Oct., 1887	800	670	10	Sept., 1890	

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Charles W. Wyman		June, 1857	60°	45°	1°	30°	1890	
Joseph Playter	4	5 Fall,	1855	55°	10	0	Sept., 1890	
A. W. Rucker	5	5	1855	50°	0	0	Sept., 1890	
Chultz, Horn & Canney	5	5	1854	65°	3°	0	Sept., 1890	
J. B. Mayers (near R. R.)	68	68	1853	71°	60	40	Sept., 1890	
F. W. Shunkhart	68	68	1853	71°	60	40	Sept., 1890	
H. H. Shepard	68	68	1853	70°	49°	1°	Sept., 1890	
W. G. Sprague	68	68	1853	54°	50°	6	Sept., 1890	
Stark Survey Co., No. 2	68	68	1853	70°	67°	15	Sept., 1890	
David Linhart	68	68	1853	56°	54°	20	Sept., 1890	
J. B. Mayers, No. 2	68	68	1853	51°	47°	25	Sept., 1890	
Chauncy Ohnsleal	68	68	1853	51°	47°	25	Sept., 1890	{ Flowed 30 for 2 years.
School District, Littleton	68	68	1853	51°	47°	25	Sept., 1890	
David Linhart	68	68	1853	41°	42°	10	Sept., 1890	
Charles F. Hill	68	68	1853	46°	33°	8	Dec., 1889	
R. J. Spotwood	68	Nov., 1853	29°	—	25	30	May, 1890	
J. W. Bowles	68	April, 1854	37°	7	4	—	Dec., 1889	
H. H. Curtis, Sr.	68	Dec., 1853	34°	10	5	—	Sept., 1890	
H. H. Curtis, Jr.	68	—	35°	20	more	—	Sept., 1890	
Levi Palmer	68	Fall, 1853	28°	20	9	—	Sept., 1890	
J. M. Fox	68	Dec., 1853	59°	18	10	—	Sept., 1890	

STATEMENT CONCERNING ARTESIAN WELLS—Concluded.

NAME OF WELL OR OWNER	LOCATION				DATE OF COMPLETION.	Total depth of well in feet	Depth of primi- tive flow.	Flow in gal. per minute	Depth from which pumped	At date of last re- port.	At date of last re- port.	DATE OF LAST REPORT	REMARKS.
	1/4 Sec	T S R W											
J. H. Pearce . . . . .	.....	34	6	68	Aug., 1883	442	440	10	30	...	Sept., 1890	.....	.....
Edward L. Chatfield	NE	1	6	69	March, 1888	365	..	7	10	...	Sept., 1890	.....	.....
A. Latham . . . . .	.....	.....	.....	.....	July, 1890	740	720	15	7	...	Sept., 1890	.....	.....

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 1, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

STATE ENGINEER.

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NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	NAMES OF CLAIMANTS	
				Capacity claimed in cubic feet per second	
The Wadlin Ditch No. 3	Crow creek	Dec. 4, 1888	Dec. 1, 1888	162.00	J. M. G. Wadlin
The Melburn Ditch	West Kiowa creek	Dec. 26, 1888	Oct. 25, 1888	1.09	John A. Melburn
The Brewer Ditch	Bijou creek	Feb. 21, 1889	Feb. 2, 1889	25.00	W. A. Pratt
The Aux Ditch No. 1	Kiowa creek	Feb. 21, 1889	Feb. 12, 1887	1.00	Geo. Aux
The Aux Ditch No. 2	Kiowa creek	Feb. 21, 1889	Mar. 1, 1887	1.00	Geo. Aux
The Schaffer Ditch	Box Elder creek	April 29, 1889	April 20, 1889	30.00	Frank M. Schaffer
The Sled Ranch Ditch.	Big Beaver creek	May 6, 1889	Feb. 2, 1889	21.00	C. I. Lawton
The Beaver Ditch	Beaver creek	May 21, 1889	May 1, 1882	51.80	The Beaver Ditch Company
The Beaver Creek Ditch	Beaver creek	July 18, 1889	April 18, 1889	157.00	The Beaver Creek Ditch Company
The Bijou Res. & Canal Co's Canal	South Platte river, { Kiowa & Bijou creek}	July 18, 1889	Oct. 1, 1888	450.00	The Bijou Reservoir and Canal Company
The A. A. Smith Irrig. Canals and Pipe Lines	South Platte river { and Antelope creek}	Oct. 1, 1889	July 1, 1889	258.40	A. A. Smith
The Corona Ranch Ditch	South Platte	Oct. 7, 1889	Nov. 16, 1886	10.00	E. A. Van Wickler
The Gill Stevens & Co. Ditch	South Platte	Oct. 14, 1889	Sept. 3, 1889	52.00	M. L. Stevens
The Beaver Farmers' { fast ditch Canal & Ditch Co's { West ditch	{ Big Beaver creek } Big Beaver creek } West ditch }	Oct. 18, 1889	Sept. 9, 1889	202.50 100.00	{ The Beaver Farmers Canal and Ditch Company included in one statement.

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAMES OF CLAIMANTS
The P. H. Parsons Irrigat. Ditch	Platte river	Dec. 4, 1889	Sept. 8, 1889	78.75	The P. H. Parsons Irrigating Ditch Company
The Sand Arroya Irrigating Ditch	Sand arroya	Dec. 17, 1889	Dec. 12, 1889	48.00	James W. McCreery
The Mandlin & Kruse Ditch	Running creek	Dec. 19, 1889	Sept. 17, 1889	2.63	James A. Mandlin and H. J. Kruse
The Darling Ditch	Wolf creek	Jan. 9, 1890	. . . . .	65.00	Charles M. Darling
The Benck Ditch	East Bijou creek	Jan. 14, 1890	Sept. 15, 1889	48.00	August Benck
The Worth Brothers Ditch	Running creek	Jan. 14, 1890	June 9, 1888	5.21	Moses and Peter Worth
The Comanche Ditch	Comanche creek	Jan. 15, 1890	Dec. 2, 1889	13.50	Henry Nordloh
The Middle Bijou Ditch	Middle Bijou creek	Jan 27, 1890	Aug. 1, 1889	42.00	Adams M. Fahringer
The Darlington Ditch	Kiowa creek	Mar. 4, 1890	Jan. 21, 1890	269.24	Charles W. Darling
The J. G. Smart Irrigating Ditch	Bijou creek	Mar. 14, 1890	. . . . .	. . . . .	J. G. Smart
The H. H. Winger Ditch	Morrison creek	Mar. 17, 1890	Jan. 14, 1890	2.00	H. H. Winger
The Sanderson Ditch	East Bijou creek	April 22, 1890	April 1, 1890	14.40	John P. and Wm. P. Sanderson
Ditches of the Watkins No. 2 Canal and Conduit Company	No. 2 Canal and Conduit Company	Box Elder, Terrian and Station creeks	April 28, 1890 May 1, 1890	22.00 22.00 22.00	The Watkins Canal and Conduit Company included in one statement.
The Fred Bachman Ditch No. 1	Kiowa creek	May 14, 1890	Mar. 1, 1870	23.00	Fred Bachman
The Fred Bachman Ditch No. 2	Kiowa creek	May 14, 1890	Mar. 20, 1881	23.00	Fred Bachman
The Fred Bachman Ditch No. 3	Kiowa creek	May 14, 1890	July 3, 1882	23.00	Fred Bachman

Amended statement of The Fred Bachman Ditch No. 1	{ Kiowa creek	May 20, 1890	• • • • •	Fred Bachman
The Bijou Ditch	East Bijou creek	June 4, 1890	Aug. 1, 1886	The Bijou Ditch Company
The Happy Thought Ditch	Box Elder or Terrapin creek	June 14, 1890	Mar. 10, 1890	The Watkins Consolidated Irrigation Company
The George A. Wood Ditch	Kiowa creek	Aug. 9, 1890	April 10, 1883	George A. Wood
The Joseph Oaks Ditch No. 1	Kiowa creek	Oct. 21, 1890	June 10, 1886	Joseph Oaks

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT No. 1, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	NAME OF STREAM SUPPLYING WATER THEREFOR	NAME OF DITCH LEADING WATER THERETO	DATE OF FILING IN STATE ENGINEER'S OFFICE	TIME OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET	NAME OF CLAIMANT
Snow's (?) Reservoir	East Bijou creek.	Bijou ditch	Feb. 14, 1889	Not stated	800,000	Geo. A. Snow
Beaver Reservoir	Bijou creek	Beaver ditch	Feb. 24, 1889	2, 1889	5,000,000	W. A. Pratt
Darlington Reservoir No 1.	Kiowa creek	Darlington ditch.	March 5, 1890	Jan. 21, 1890	977,836	Charles M. Darling
Darlington Reservoir No. 2	Kiowa creek	Darlington ditch.	. . . . .	. . . . .	5,899,292	

Water District No. 2—Frank C. Albee, Commissioner; Platteville.

Mr. Albee reports for 1890, that he was called out April 12, and continued in service until October 31; total number of days, 203; that during this time J. W. Stockett was employed as assistant; that Frank Estes was employed 16 days and Wm. Brown 28 days guarding the head-gates of ditches nights to prevent the illegal diversion of water.

He further reports a greater scarcity of water during the season of 1890 in District No. 2 than ever before known; that the supply was not sufficient for ditches ante-dating 1865, and serious loss of crops has resulted therefrom.

This unusual scarcity is attributed to the diversion of water through post-dating ditches in Districts Nos. 4, 7 and 23, under the restraining orders of the courts, whereby the waters were distributed according to priorities in the districts mentioned and regardless of the division.

The orders referred to are more fully mentioned under the head of injunctions.

A statistical table for this district is herewith presented:

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION NO. 1—DISTRICT NO. 2.

Buckers	35	49,11	3,895	1,188	10	956
Farmers' Independent	11	112	27,88	9,944	1,585	1,919
Hewes and Cook	3	77	6,76	600	50	75
J. Thomas	1.25	203	3	900	· · · · ·	70
Howe	65	3,50	400	15	· · · · ·	40
Big Bend	2.50	129	6	175	14	· · · · ·
Frederick Bros.	2.50	98	2.75	580	18	· · · · ·
Union	1.20	30.82	4,953	447	· · · · ·	1,139
Section No. 3	4	130	15.40	850	15	17
Lower Latham	20	190	37.70	15,000	2,127	20
Farmers' and Gardeners' . . .	3	207	3	1,200	32	23
Dugan	3.25	107	5	500	68	18
Patterson	2	60	3	930	20	· · · · ·
Highland	3.50	175	8	1,310	· · · · ·	1,180
Wyatt	1	147	2	300	40	· · · · ·
* Loomis	· · · · ·	· · · · ·	· · · · ·	· · · · ·	· · · · ·	· · · · ·
* Mayfield	· · · · ·	· · · · ·	· · · · ·	· · · · ·	· · · · ·	· · · · ·
* Gelz	· · · · ·	· · · · ·	· · · · ·	· · · · ·	· · · · ·	· · · · ·
Totals in district	236.50	· · · · ·	636.55	103,548	13,447	704
					13,227	23,028
						600
						51,006

* Abandoned.

FIFTH BIENNIAL REPORT,

STATEMENTS CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 2, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1,
OBSERVER FOR U. S. GEOLOGICAL SURVEY, AND NOT HERETOFORE PUBLISHED.

NAME OF OWNER OF WELL,	Total depth of well	Diameter of case (in inches)	Length of case (in feet)	DEPTH OF FLOW BELOW SURFACE.				LOCATION	Present flow in million, per minute.	REMARKS
				First flow	Second flow	Third flow	Fourth flow			
Scranton	800	3	600	...	...	...	...	Sec. 16, T. 3 S., R. 65 W.	...	...
A. E. Meek	800	...	...	...	...	...	...	Sec. 13, T. 1 S., R. 66 W.	...	Pump 25 feet, by windmill; 75 barrels per day.
Fred Milheim . . . . .	...	...	...	...	...	...	...	Sec. 18, T. 1 S., R. 66 W.	...	...
L. Haigus . . . . .	...	...	...	...	...	...	...	Sec. 18, T. 1 S., R. 66 W.	1	...
J. M. Munsford	446	2½	300	...	...	...	...	Sec. 31, T. 1 S., R. 66 W.	...	...
H. Damours . . . . .	...	...	...	...	...	...	...	Sec. 6, T. 2 S., R. 66 W.	...	...
August Becker . . . . .	...	...	...	...	...	...	...	Sec. 6, T. 2 S., R. 66 W.	4	...
Wm. P. Tietermann . . . . .	...	...	...	...	...	...	...	Sec. 8, T. 2 S., R. 66 W.	...	...
Wm. Douglas . . . . .	...	...	...	...	...	...	...	Sec. 18, T. 2 S., R. 66 W.	1	...
Arthur Barnes . . . . .	...	...	...	...	...	...	...	Sec. 18, T. 2 S., R. 66 W.	2	...
H. B. Gilbert . . . . .	...	...	...	...	...	...	...	Sec. 20, T. 2 S., R. 66 W.	1	...
Max Moore . . . . .	...	...	...	...	...	...	...	Sec. 24, T. 2 S., R. 66 W.	2½	...
F. A. Morse . . . . .	...	...	...	...	...	...	...	Sec. —, T. 2 S., R. 66 W.	25	...

ERRATA.

Prof. L. G. Carpenter, of the State Agricultural College, at Fort Collins, who furnished a considerable portion of the data in relation to artesian wells, on pages 78 and 127, of this report, is "Field Agent, etc., in the Artesian Well Investigation of Department of Agriculture," under direction of R. J. Hinton, Washington, D. C., instead of in the U. S. Geological Survey, as given.



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M. J. Lawrence		Sec. 1, T. 1 S., R. 67 W.	
G. C. Braendlin	730	Sec. 20, T. 1 S., R. 67 W.	Pump, 125 feet
Theodore Lohf.	340	Sec. 22, T. 1 S., R. 67 W. Pump
Theodore Lohf.	215	16	Sec. 22, T. 1 S., R. 67 W. 2
George Hazzard.		Sec. 23, T. 1 S., R. 67 W. 3	
A. Andrews.		Sec. 24, T. 1 S., R. 67 W. 2	
Carl Miller.		Sec. 25, T. 1 S., R. 67 W. 3	
Mrs. Dixon.		Sec. 26, T. 1 S., R. 67 W. 1	
H. Taylor.		Sec. 26, T. 1 S., R. 67 W. 3½	
T. A. McCool.	300	Sec. 27, T. 1 S., R. 67 W. 20	
E. S. Rese.		Sec. 34, T. 1 S., R. 67 W. 2½	
Wm. Arnette.		Sec. 34, T. 1 S., R. 67 W. .	
F. F. Cochrane.		Sec. 35, T. 1 S., R. 67 W. ½	
F. F. Cochrane.		Sec. 35, T. 1 S., R. 67 W. 2	
F. F. Cochrane.		Sec. 35, T. 1 S., R. 67 W. 2	
Rodney Curtis.	600	420	Sec. 35, T. 1 S., R. 67 W. 5
Davis & Day.	640	450	Sec. 36, T. 1 S., R. 67 W. .
J. F. Robinson.		390	Sec. 1, T. 2 S., R. 67 W. ¾
C. H. Jenison.	{ ^{2½} 3½	826	Sec. 1, T. 2 S., R. 67 W. 1
Platte Land Company.	828	450	SW¼ sec. 33, T. 2 S., R. 67 W. 12
Appel.		564	Sec. 6, T. 2 S., R. 67 W. 4½
S. A. Hamilton		810	Sec. 6, T. 2 S., R. 67 W. .

FIFTH BIENNIAL REPORT,

STATEMENTS CONCERNING ARTESIAN WELLS—*Continued.*

NAME OF OWNER OF WELL.	Total depth thereto from bottom (in feet)	Diameter of case (in inches)	Length of case (in feet)	DEPTH OF FLOW BELOW SURFACE				LOCATION.	REMARKS.
				First flow	Second flow	Third flow	Fourth flow		
R. A. Southworth	480	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 6, T. 2 S., R. 67 W.	4
A. Hanscome	328	4	35	100	210	318	318	Sec. 8, T. 2 S., R. 67 W.	60
— Meyers	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 10, T. 2 S., R. 67 W.	2
W. F. Crocker	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 11, T. 2 S., R. 67 W.	5
George A. Starbird	600	• • •	580	180	350	580	600	Sec. 16, T. 2 S., R. 67 W.	40
Max More	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 20, T. 2 S., R. 67 W.	3
— Richardson	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 20, T. 2 S., R. 67 W.	34
D. H. & D. S. Pike	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 22, T. 2 S., R. 67 W.	10
L. C. Palmer	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 22, T. 2 S., R. 67 W.	8
— Klarter	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 24, T. 2 S., R. 67 W.	1
J. A. Hubbard	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 26, T. 2 S., R. 67 W.	3
Mrs. Cook	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 29, T. 2 S., R. 67 W.	12
Wm. Craig	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 30, T. 2 S., R. 67 W.	4
— O'Brien	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 30, T. 2 S., R. 67 W.	½
J. Rasmussen	• • •	• • •	• • •	• • •	• • •	• • •	• • •	Sec. 30, T. 2 S., R. 67 W.	1

STATE ENGINEER.

FIFTH BIENNIAL REPORT,

STATEMENTS CONCERNING ARTESIAN WELLS—Concluded.

NAME OF OWNER OF WELL.	Total depth thereof	Diameter of case (in inches)	Length of case (in feet)	DEPTH OF FLOW BELOW SURFACE				LOCATION	Present flow per minute (in gallons per second)	REMARKS
				First flow	Second flow	Third flow	Fourth flow			
J. C. Larcom . . . . .	...	...	...	...	...	...	...	Sec. 13, T. 3 S., R. 67 W . . . . .	...	...
Unknown . . . . .	...	...	...	...	...	...	...	Sec. 13, T. 3 S., R. 67 W . . . . .	...	...
C. H. Brand . . . . .	...	...	...	...	...	...	...	Shepherd's Addition	2	...
Fish Hatchery . . . . .	...	...	...	...	...	...	...	Near Central Park	25	...
County Poor Farm . . . . .	...	...	...	...	...	...	...	North of Denver	10	...
— Ebert . . . . .	...	...	...	...	...	...	...	Sec. 21, T. 3 S., R. 67 W	25	...
J. Cook, Jr.	1,069	{ 5½ 2½	723	...	...	...	...	Sec. 25, T. 3 S., R. 67 W . . . . .	...	...
Platte Land Co	915	{ 3½ 2½	790	713	798	...	...	Sec. 1, T. 4 S., R. 67 W . . . . .	...	...
Louis Dugal	770	...	...	350	500	770	...	Sec. 6, T. 4 S., R. 67 W . . . . .	...	...
East Capital Hill	715	...	...	...	...	...	...	Sec. 7, T. 4 S., R. 67 W . . . . .	...	...
Bush & Morse	1,103	...	...	...	...	...	...	Sec. 15, T. 4 S., R. 67 W . . . . .	...	...
Thomas B. Croke	630	5½	630	...	...	...	...	SE. ¼, sec. 10, T. 2 S., R. 68 W	60	... By pumping 18 feet
A. Stedman	325	...	...	...	...	...	...	Sec. 24, T. 2 S., R. 68 W	3	...
D. A. Ranslin	399	4½	49	238	376	Sec. 3, T. 3 S., R. 68 W	60	...
J. H. Moser	494	3	50	140	245	425	494	Sec. 9, T. 3 S., R. 68 W	60	...

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Globe Smelter	505	• • • • •	300	465	500	• • • • •	Sec. 15, T. 3 S., R. 68 W	100	• • • • •
Smith Brothers	360	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 23, T. 3 S., R. 68 W	•	Flows freely from 1½ inch opening.
Denver Electric Co	629	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 27, T. 3 S., R. 68 W	•	Pump
B. & M. R. R.	600	4 to 9	90	225	350	500	Sec. 27, T. 3 S., R. 68 W	•	Pump
U. P. R. R.	634	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 27, T. 3 S., R. 68 W	80.	• • • • •
Anheiser Company	604	4	314	• • •	• • •	• • •	Sec. 33, T. 3 S., R. 68 W	•	• • • • •
American House	545	{ 5 5/8 { 4 1/4 { 9 20/21 { 5 5/8	{ 400 { 545 { 500 { 500	400	545	• • •	Sec. 33, T. 3 S., R. 68 W	•	Pump
Zang Brewing Co	600	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 33, T. 3 S., R. 68 W	•	• • • • •
Excelsior Laundry	609	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 33, T. 3 S., R. 68 W	•	Pump 20 feet
Donald Fletcher	904	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 34, T. 3 S., R. 68 W	•	Pump 50 feet
Daniels & Fisher	662	{ 6 5/8 { 10 { 5 5/8 { 3 2/3 { 4 1/4	{ 30 { 497 { 735 { 284 { 538	• • •	• • •	• • •	Sec. 34, T. 3 S., R. 68 W	•	Pump 30 feet
Windsor Hotel	997	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 34, T. 3 S., R. 68 W	85	By pumping
Barclay Block	602	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 34, T. 3 S., R. 68 W	7½	Jan. 17, 1887, last report
W. H. McClelland	200	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Sec. 34, T. 3 S., R. 68 W	•	Said to be abandoned

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 2, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAMES OF CLAIMANTS
The Adolph Schinner Ditch . . .	Coal creek . . .	Dec. 28, 1888	Oct. 15, 1888	45.00	Adolph Schinner
The Adolph Schinner Ditch No. 2 . .	Coal creek . . .	Dec. 28, 1888	Dec. 15, 1888	8.00	Adolph Schinner
The Frey Tunnel Ditch	Senack creek . . .	Mar. 7, 1889	Mar. 2, 1889	18.00	George Frey
The Reithman Brothers Ditch . . .	Second creek . . .	Mar. 25, 1889	Mar. 4, 1889	18.00	Emile and Fred. Reithman
The Hudson Ditch No. 1,	Burlington ditch . .	April 9, 1889	Feb. 1, 1889	56.40	The Hudson Ditch and Reservoir Company
The Hudson Ditch No. 2,	Burlington ditch . .	April 9, 1889	Feb. 1, 1889	56.40	The Hudson Ditch and Reservoir Company
Feeder No. 1 to Beaver Lake Ditch	Not given	June 5, 1889	Mar. 4, 1889	60.00	The Beaver Lake Ditch Company
The Coal Creek Ditch & Res. Line Extension Ditch to Feeder No. 1 } to Beaver Lake Ditch	Coal creek	Sept. 11, 1889	Aug. 29, 1889	20.00	J. J. Lichtor
The Loustano Ditch	Not given	Sept. 16, 1889	Sept. 9, 1889	150.00	The Beaver Lake Ditch Company
The Heller Ditch	Coal creek	Sept. 18, 1889	Aug. 7, 1889	21.50	J. J. Crippen
The Cactus Hill Ditch	Platte river	Oct. 16, 1889	Oct. 9, 1889	1.50	David Heller
The Big Dry Creek Ditch	Second creek	Sept. 9, 1886	Sept. 9, 1886	78.83	. . . . . Not stated
The First Creek Ditch	Big Dry creek . . .	Feb. 4, 1890	Dec. 15, 1889	32.60	D. S. Thompson <i>et al.</i>
The Schultz Ditch	First creek	Mar. 11, 1890	Feb. 14, 1890	47.80	The First Creek Land and Improvement Co.
	South Platte river .	Mar. 14, 1890	Jan. 1, 1889	37.00	W. C. Schultz

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	Meadow Sp. stream	Mar. 26, 1890	Mar. 25, 1890	Mar. 25, 1890	6.00	6.00	Mrs. J. H. Lawrence and Wm. McCann
The Meadow Spring Ditch	Springs	April 29, 1890	April 1, 1875	April 1, 1875	7.50	7.50	W. C. Schutte
The W. Z. Hallam Irrigat'g Ditch	South Platte river .	May 7, 1890	Dec. 10, 1886	Dec. 10, 1886	329.50	329.50	W. C. Schutte
The Burlington Ditch	South Platte river .	July 22, 1890	May 7, 1890	May 7, 1890	209.00	209.00	W. C. Schutte
The First Drain Ditch of the Lower Latham Ditch	South Platte river .	Aug. 12, 1890	May 14, 1890	May 14, 1890	9.50	9.50	W. C. Schutte
The Meek Lateral Ditch	Waste and seepage .	August, 1887	1.00	1.00	1.00	1.00	A. E. Meek
Unnamed	Waste and seepage .	Sept. 10, 1890	Sept. 6, 1890	Sept. 6, 1890	1.00	1.00	W. W. Pardee
Unnamed	Reservoir in Sec. 6 .	Aug. 18, 1890			1.00	1.00	W. C. Schutte

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT No. 2, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Hudson Reservoir 1 N. 66 . . .	South Platte	Burlington	April 9, 1889	Feb. 1, 1889	1,800,800	The Hudson Ditch & Reservoir Company
The Hudson Reservoir 2 N. 65 . . .	South Platte	Burlington	April 9, 1889	Feb. 1, 1889	792,000	
Dry Creek Reservoir	Little Dry Creek	On the Stream	May 18, 1888	May 4, 1888	Not stated	J. D. Hooper
Twin Reservoirs	South Platte	Burlington	Feb. 4, 1890	Dec. 4, 1889	3,920,400	Curtis & Brown
Willis Reservoir No. 1	Springs and Seepage } on Big Dry Creek	On Big Dry Creek	Feb. 8, 1890	Jan. 22, 1890	180,000	C. N. Willis
Willis Reservoir No. 2			Feb. 8, 1890	Jan. 22, 1890	480,000	
Clark Reservoir	Big Dry Creek	Big Dry Creek Ditch	Feb. 21, 1890	Dec. 18, 1889	7,541,340	Lawrence G. Clark
Thompson Reservoir	Big Dry Creek	Big Dry Creek Ditch	Feb. 21, 1890	Dec. 18, 1889	9,801,792	D. S. & C. A. Thompson
Reservoir on 21 and 28, I. N. 66 W.	South Platte	Burlington	May 19, 1890	Jan. 28, 1890	13,068,000	Not stated
Christinck Reservoir	Dry Creek in Dist. No. 2 Clear Creek in Dist. No. 7	{ German Farmers High Line	Sept. 5, 1890	{ Aug. 18, 1890	1,888 4,000,000	Louis A. Christinck
Unnamed			Sept. 10, 1890	Sept. 6, 1890	{	W. W. Pardie
Unnamed	Waste and Seepage	Built in Gulch	Sept. 10, 1890	Sept. 6, 1890	{	
Unnamed	Waste and Seepage	Built in Gulch	Sept. 10, 1890	Sept. 6, 1890	{	

Water District No. 3—B. S. La Grange, Commissioner for 1889, Greeley, Weld county; J. L. Armstrong, Commissioner for 1890, Fort Collins, Larimer county.

No report was received from this district for the year 1889.

For 1890, Mr. Armstrong reports 139,222 acres irrigated from ditches and 10,825 acres from stored water. For details as to crops, see tabulated statement. Mr. Armstrong took charge of the district July 11, 1890, in the midst of the irrigating season, and was unable from lack of data prior thereto to make as complete a statement as he desired.

FIFTH BIENNIAL REPORT,

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION NO. 1—DISTRICT NO. 3.

NAME OF DITCH	Length thereof in miles	Number of days water was carried therein		Average amount of water carried during season of 1890 in cubic feet per second of time	Number of acres that can be irrigated three-months from	Number of acres of alfalfa irrigated three-months from		Number of acres of grasses seeded other than alfalfa irrigated three-months from	Number of acres of grasses irrigated three-months from	Number of acres of grasses irrigated three-months from	Number of acres of other crops irrigated three-months from	Number of acres irrigated from seepage	Number of acres irrigated from reservoirs
		days	carried			from	to						
The Dry Creek Ditch	12	300	25	2,600	676	• • •	•	629	1,013	300	•	300	•
The Pleasant Valley and Lake Canal.	18	200	50	6,700	2,500	500	800	2,900	2,900	300	600	300	•
The Pioneer Ditch	3	95	10	1,050	145	• • •	•	750	155	• • •	•	• • •	•
The Boyd and Freeman Ditch	3.50	230	7	1,440	150	130	800	300	300	• • •	•	• • •	•
The Whitney Ditch	8	185	15	1,200	150	20	400	500	500	50	50	50	•
The B. H. Eaton Ditch	3.50	250	5	1,000	25	• • •	•	900	20	• • •	•	• • •	•
The Larimer and Weld Canal	64	191	107.50	45,000	5,000	• • •	•	4,000	28,000	1,500	600	600	•
The John G. Coy Ditch	2	275	4	270	40	40	145	45	45	• • •	•	• • •	•
The John R. Brown Ditch	1	80	4	280	6	• • •	•	140	120	40	40	40	•
The Box Elder Ditch	4.75	187	6.50	2,245	207	35	1,345	251	800	800	800	800	•
The Chamberlain Ditch . . . . .	.75	250	2.50	100	20	•	15	50	50	20	20	20	•
The Taylor and Gill Ditch	1	240	1.50	300	20	• • •	•	80	170	75	75	75	•
The Wm. R. Jones Ditch	2	150	5	500	20	10	10	425	425	20	20	20	•

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The Josh Ames Ditch	215	4	800	100	20	350	250	100	100
The Martin Calloway Ditch	2	65	3	350	2	150	17	17	17
The N. and P. Bristol Ditch No. 1 . . .	.75	300	4	75	28	39	8	8	8
The Cañon Canal	180	2	240	200	200	10	30	30	30
The Cache la Poudre Irrigating Ditch	3.50	300	17	1,500	250	50	540	560	560
The Fort Collins Canal	6	200	10	2,570	1,020	140	100	1,310	400
The New Mercer Ditch	13	187	24	6,700	720	150	250	5,175	100
The N. and P. Bristol Ditch No. 2 . . .	2	300	4	320	35	235	50	2,000	2,500
The Union Colony Canal No. 3	10	200	45	6,000	250	25	1,500	17,500	400
Cache la Poudre Irrigating Co.'s Ditch	30	213	160	26,800	8,500	800	3	5	5
The Burnham and Emerson Ditch	1.25	200	1.50	35	27	40	40	40	40
The Wm. Calloway Ditch No. 1 . . . . .	.50	40	1	80	35	240	100	100	100
The Chaffee Ditch	2.50	90	3	375	30	700	5,900	400	400
The Lake Canal	14	156	52	8,700	1,300	100	100	100	100
The W. S. Taylor Ditch . . . . .	.75	40	1.50	100	35	25	65	35	35
The Larimer County Canal No. 2	12	175	47	8,000	1,850	475	375	4,800	400
The Aquila Morgan Ditch . . . . .	.50	30	1.50	100	100	80	80	80	80
The Brown Ditches Nos. 1 to 7	2	185	1.75	240	240	25	160	30	30
The Sturdevant Ditches Nos. 1 and 2	2	200	1	75	1	72	2	2	2
The Vandewark Ditch . . . . .	.65	28	2	100	15	55	26	30	30
The Mitchell & Weymouth Ditch No. 1	1.25	30	1.50	60	10	50	50	50	50
The Boyd, George and S., Ditch	1.50	200	2	200	10	16	150	22	22

COMMISSIONER'S REPORT, A. D. 1890—Concluded.

NAME OF DITCH.	Length thereof in miles	Number of days water was carried therein	Average amount of water carried during season of irrigation per second foot per acre	Number of acres that can be irrigated each year	Number of acres of alfalfa irrigated from time of second cutting	Average amount of water carried during season of irrigation per second foot per acre	Number of acres of grasses irrigated therefrom	Number of acres of alfalfa irrigated from time of first cutting	Number of acres that can be irrigated each year	Number of acres of grasses irrigated therefrom	Number of acres of alfalfa irrigated therefrom	Number of acres of grasses irrigated therefrom	Number of acres of alfalfa irrigated therefrom	Number of acres of grasses irrigated therefrom	Number of acres irrigated from seepage	Number of acres irrigated from	Number of acres irrigated from seepage	Number of acres irrigated from	Number of acres irrigated from seepage	
The Wm. Calloway Ditch No. 2 . . . . .	.67	50	2	240	5	75	8	140	60	100	136	6	4	5	10	35	11,570	170	10	275
The Wetzler Ditch	1.25	35	2	160	14	100	60	100	60	100	136	6	4	5	10	35	2,280	40	600	4,000
The Kitchell & Ladd Ditch	1.75	185	2.50	220	4	4	4	100	100	100	136	6	4	5	10	35	11,570	170	10	275
The A. Washburn Ditches Nos. 1 and 2	1.75	185	3	150	60	55	55	100	100	100	136	6	4	5	10	35	11,570	170	10	275
The Roberts Ditch No. 1 . . . . .	.67	25	1.50	60	25	25	25	60	60	60	136	6	4	5	10	35	11,570	170	10	275
The Box Elder Res. Co.'s Ditch	8.50	30	3	3,000	8	45	7	70	70	70	136	6	4	5	10	35	11,570	170	10	275
The McNEY & Chace Ditch . . . . .	.50	45	.50	60	5	45	7	70	70	70	136	6	4	5	10	35	11,570	170	10	275
The Fisk Ditch No. 2 . . . . .	.33	30	2	80	5	5	5	80	80	80	136	6	4	5	10	35	11,570	170	10	275
The Mitchell & Weymouth Ditch No. 2	2.25	35	4	300	5	200	200	300	300	300	136	6	4	5	10	35	11,570	170	10	275
The North Poudre Canal	20	60	90	20,000	100	20	20	300	300	300	136	6	4	5	10	35	2,500	50	20	3,500
The Chase Ditch . . . . .	.67	50	2	100	100	10	10	100	100	100	136	6	4	5	10	35	11,570	170	10	275
The Larimer County Ditch	70	63	200	37,000	2,280	790	790	37,000	37,000	37,000	136	6	4	5	10	35	11,570	170	10	275
The Emerson Bros. Ditch	2	40	6	220	40	40	40	220	220	220	136	6	4	5	10	35	11,570	170	10	275
The Ogilvy Ditch	6	275	10	4,000	100	400	400	4,000	4,000	4,000	136	6	4	5	10	35	11,570	170	10	275

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The Poudre High-Line Canal	5	60	8		560	130				170	
The Arthur Lateral Ditch	3	150	3	*							
The Virginia Dale Ditch	1.50	100	.50	20			10			10	
The Woodruff Ditches Nos. 1 to 3	1	180	1	60			30	10		20	
The Aldrich Ditch . . . . .	.50	40	.75	40						40	
The Emerson Bros. Ditch No. 2 . . . .	.40	15	2	20				20			
The Luke Landers Ditch . . . . .	.75	45	2.50	160	10				148	2	
The Bristol Ditch No. 3	3.25			600							
The Christman Ditches Nos. 1 and 2 . .	1.50	200	.50	110	8	4		80		10	
The Kibler Ditches Nos. 1 to 4	3	200	.50	100	4				40	40	
The Murchland Ditch . . . . .	.25	150	.50	15					15		
The Geallow Ditch . . . . .	.25	80	.50	10			2			8	
The Pillman Ditch . . . . .	.50	100	.50	50			25	15	10		
Totals in District	331.14	...	931.50	193,440	26,780	1,926	19,042	86,370	5,104	10,825	

* Areas given under Ft. Collins canal.

Total number of acres irrigated in District, 139,222.

STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 3, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888 TO DECEMBER 1, 1890; AND NOT HERETOFORE PUBLISHED.

NAME OF OWNER OF WELL	Total depth thereof	Diameter in case in inches	DEPTH OF FLOW BELOW SURFACE			LOCATION	Present flow in gallons per minute	REMARKS.
			First flow	Second flow	Third flow			
Greeley public well	2,300	...	1,200	...	...	Sec. 5, T. 5 N., R. 65 W.	1½	...
Not known	2,140	...	1,165	...	...	Sec. —, T. 5 N., R. 65 W.	¾	Temperature 63°
Greeley Artesian Well Co., No. 2 . . .	1,250	3	90	1,070	1,137	Sec. 5, T. 5 N., R. 65 W.	...	...
B. H. Eaton	970	Sec. 31, T. 5 N., R. 65 W.	...	Pump 18 feet
R. Loveland	350	6	250	Sec. 12, T. 5 N., R. 65 W.	...	Pump 18 feet

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STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 3, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Avery Ditch No. 1	Box Elder Creek .	Dec. 8, 1888	Dec. 5, 1888	1,000 cu. in.	Wm. H. Avery
The Avery Ditch No. 2	Box Elder Creek .	Dec. 8, 1888	Dec. 5, 1888	500 cu. in.	Wm. H. Avery
The Avery Ditch No. 3	Box Elder Creek .	Dec. 8, 1888	Dec. 5, 1888	800 cu. in.	Wm. H. Avery
The Oliver Sand Creek Ditch . .	Sand Creek . . .	June 7, 1889	May 6, 1889	5.00	William H. Oliver
The Coral Rock Rauch Ditch No. 1	Elkhorn Creek . .	June 27, 1889	Spring of 1889	1.00	John Pearce
The Coral Rock Ranch Ditch No. 2	Elkhorn Creek . .	June 27, 1889	1886	1.50	John Pearce
The Coral Rock Ranch Ditch No. 3	Elkhorn Creek . .	June 27, 1889	1887	1.00	John Pearce
The John Ayres Ditch	Elkhorn Creek . .	July 15, 1889	Spring of 1883	1.00	John Ayres
The J. W. Warren Irrigation Ditch	Flood, seepage, etc	Sept. 16, 1889	July 1, 1887	7.70	John W. Warren
The Bardwell & Wathen Irr. Ditch	Horse Tooth Gulch	Oct. 2, 1889	July 6, 1889	2.77	Stephen A. Wathen
The W. S. Mason Ditch	Draw not named .	Nov. 29, 1889	Oct. 6, 1889	3.59	W. S. Mason
The Tuni & Dowdy Lake Res. Ditch	Elkhorn Creek . .	Dec. 5, 1889	Oct. 5, 1889	17.50	Isaac Phillips, <i>et al</i>
The Douglas Ditch	Dry Creek	Dec. 6, 1889	Sept. 2, 1889	6.00	John Douglas

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAMES OF CLAIMANTS
The Dionysius Mantez Ditch No. 1	Lone Tree Creek .	Feb. 24, 1890	April 15, 1882	26.00	
The Dionysius Mantez Ditch No. 2	Lone Tree Creek .	Feb. 24, 1890	April 15, 1882	10.00	
The Dionysius Mantez Ditch No. 3	Lone Tree Creek .	Feb. 24, 1890	April 15, 1882	23.00	Dionysius Mantez
The Dionysius Mantez Ditch No. 4	Lone Tree Creek .	Feb. 24, 1890	April 15, 1882	6.00	
The Dionysius Mantez Ditch No. 5	Lone Tree Creek .	Feb. 24, 1890	April 15, 1882	6.00	
The Dionysius Mantez Ditch No. 6	Lone Tree Creek .	Feb. 24, 1890	April 15, 1882	5.00	
The Ireland Ditch	Larimer & Weld C'n'l	Mch. 20, 1890	March, 1889	49.45	
The Hardscrabble Ditch	East Draw Spring	May 12, 1890	Oct. 1, 1884	144.00	Ames Ackroyd
The Feeder to the Highland Res.	Cache la Poudre C'n'l	Sept. 2, 1890	Aug. 25, 1890	75.00	The Highland Valley Reservoir & Ditch Company
The Windsor Canal	Cache la Poudre .	Oct. 9, 1890	July 8, 1890	103.12	The Windsor Reservoir & Canal Company
The Lavery Ditch	Dry Creek	Nov. 22, 1890	May 20, 1890	19.00	Charles W. & Mora G. Lavery

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT No. 3, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	NAME OF STREAM SUPPLYING WATER THEREFOR	NAME OF DITCH LEADING WATER THERETO	DATE OF FILING IN STATE ENGINEER'S OFFICE	TIME OF COM- MENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET	NAME OF CLAIMANT
Mitchell Reservoir	S. Fork of N. Pine	Mitchell Ditch .	Aug. 24, 1889	Not stated	14,754,930	Jacob Mitchell
Box Elder Cañon Reservoir	Box Elder Creek	On the stream . .	Jan. 25, 1889	Not stated	Not given	John E. & Ellis H. Roberts
Botsford Reservoir	Cache la Poudre .	Larimer Co. ditch	Oct. 15, 1889	Sept. 11, 1889	2,600,000	Milton Botsford
Chase-King Reservoir	Cache la Poudre .	Larimer Co. ditch	Nov. 6, 1889	Oct. 7, 1889	6,399,666	Howard Chase <i>et al</i>
Twin Lakes Reservoir	Elkhorn & S. Pine	Feeder ditch . . .	Dec. 5, 1889	Oct. 5, 1889	3,526,481	Isaac Phillips <i>et al</i>
Dowdy Reservoirs		Dionysius $\begin{cases} \text{No. 1} \\ \text{No. 2} \\ \text{No. 3} \end{cases}$	Feb. 24, 1890	April 15, 1882	31,654,810	
Dionysius $\begin{cases} \text{No. 1} \\ \text{No. 2} \\ \text{No. 3} \end{cases}$	Lone Tree Creek	Mantey $\begin{cases} \text{No. 1} \\ \text{ditches} \\ \text{No. 2} \end{cases}$			157,500	
Mantey's Reservoirs $\begin{cases} \text{No. 1} \\ \text{No. 2} \\ \text{No. 3} \end{cases}$		Cache la Poudre $\begin{cases} \text{Cache la Poudre} \\ \text{Irrigat'g can't} \end{cases}$	Sept. 7, 1890	Aug. 25, 1890	38,004	Dionysius Mantey
Highland Reservoir		Cache la Poudre .			356,400	The Highland Reservoir & Ditch Company.
Windsor Reservoir		Cache la Poudre .	Oct. 9, 1890	July 8, 1890	8,799,083	The Windsor Reservoir & Canal Company.
		Larimer & Weld			124,229,552	

*Water District No. 4—Wm. A. Bean, Commissioner,
Loveland, Larimer county.*

Mr. Bean reports for 1890, a shortage of water during the cold spell in June, but a supply sufficient for all practical purposes, from the twentieth of July to the close of the season.

Eighty-nine thousand seven hundred and ninety acres were irrigated from ditches, and about twelve thousand acres from reservoirs.

COMMISSIONER'S REPORT, A. D. 1890,
DIVISION NO. 1—DISTRICT NO. 4.

NAME OF DITCH

	Length thereof in miles	Average amount of water carried during season of 1890 in cubic feet per second of time	Number of days water was car- ried thereon	Number of days water was car- ried thereon	Average amount of water carried during season of 1890 in cubic feet per second of time	Number of acr's that can be irri- gated three- times from each acre	Number of acr's seeded grasses other than all that can be irri- gated three- times from each acre	Number of acr's of natural grasses irrigat- ed three times from each acre	Number of acr's of other crops irrigated three- times from each acre	Number of acr's irrigated from seepage
Handy	25	173	46½	15,722	1,270	147	5,372	8,933	12,800	...
Home Supply	36	120	23	15,940	1,000	200	2,319	12,800	1,000	...
South Side	10	134	16	1,365	100	...	365	1,000	1,000	...
Loudon	20	176	77	15,500	500	150	500	14,350	1,040	...
George Rist	8	52	41	5,000	200	100	1,700	2,000	2,000	...
Barnes, Branch & Greeley	6	180	26	2,140	150	70	980	1,040	1,040	...
Loveland & Greeley	26	200	111	17,390	900	...	7,490	9,000	9,000	...
Big Thompson, No. 2	3½	200	40	1,500	200	...	700	600	600	...
Farmers	12	160	24	2,000	150	20	260	1,564	1,564	...
Big Thompson, No. 5	3½	200	20	1,000	70	30	800	100	100	...
Hillsborough	12	152	80	8,000	400	150	200	7,250	7,250	...
Big Thompson, No. 1	7	180	10	2,160	300	40	1,100	720	720	...
Hill & Brush	3	60	20	1,000	...	...	400	600	600	...
Big Thompson and Platte River	4	200	30	1,500	200	50	700	550	1,000	1,000
	176	...	564.50	90,217	5,440	957	22,886	59,507	59,507	1,000

Total number of acres irrigated in District, 89,790.

STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 4, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OF WELL	Total depth in feet	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE				LOCATION	Present flow in inches per minute	REMARKS
				First flow	Second flow	Third flow	Fourth flow			
Town of Loveland	2,465	. . . . .	. . . . .	1,365	. . . . .	. . . . .	. . . . .	Sec. 13, T. 5 N., R. 69 W . . . . .	. . . . .	. . . . .

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 4, RELATIVE TO WHICH STATEMENTS WERE FILED IN THIS STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890

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NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT.
The Dry Creek Ditch	Dry creek	Jan. 2, 1889	Nov. 19, 1888	1.84	Pat. O'Hara
The Parsons High Line Ditch	Parsons' gulch	Mar. 26, 1889	Mar. 1, 1889	5.20	A. Parsons
Enlargement and extension of { the Neville Ditch	Buckhorn creek	June 14, 1889	Oct. 1, 1888	8.72	George A. Galucia <i>et al.</i>
The Buckingham Ditch	Ryan's gulch	July 19, 1889	May 4, 1889	22.86	Charles G. Buckingham
Not named	{ N. branch Ryan's { gulch	July 26, 1889	April 27, 1889	12.66	Percy D. Goss
The Badger Ditch	Dry creek	Aug. 13, 1889	April 25, 1884	8.33	William S. Warren and Charles Emerson
The Thompson Ditch	Buckhorn creek	Dec. 3, 1889	May, 1886	7.81	E. J. Thompson <i>et al.</i>
Hyatt's Individual Ditch	Buckhorn creek	Dec. 3, 1889	October, 1887	3.65	H. F. Hyatt
The Ditch of the Union Irrigating Ditch and Reservoir Co. {	Buckhorn creek	Dec. 6, 1889	Nov. 27, 1889	13.60	The Union Irrigating Ditch and Reservoir Co.
The Buckhorn High Line Ditch	Buckhorn creek	Feb. 24, 1890	Oct. 22, 1883	11.10	J. O. Talley <i>et al.</i>
The Neville Ditch	Buckhorn creek	Feb. 28, 1890	Nov. 30, 1889	12.60	Edward Neville
The Second Extension of the { Neville Ditch	Buckhorn creek	May 1, 1890	Feb. 1, 1889	3.78	Jos. E. Neville
Enlargement of the Victoria Causal	Not stated	July 19, 1890	May 1, 1887	Not stated	The Victoria Irrigating Canal Company
The Big Cut Lateral	{ The Loveland & { Greeley Ir. canal	July 30, 1890	Not given	49.28	The Big Cut Lateral and Reservoir Company

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 4, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	NAME OF STREAM SUPPLYING WATER THEREFOR	NAME OF DITCH LEADING WATER THERETO	DATE OF FILING IN STATE ENGINEER'S OFFICE	DATE OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET	NAME OF CLAIMANT
Welch Reservoirs	No. 1			Oct. 1880	128,000,000	
	No. 2			Oct. 1880	18,000,000	
	No. 3	Big Thompson Creek	Jan. 20, 1890	Dec. 27, 1889	39,000,000	
	No. 4			Dec. 27, 1889	20,000,000	
	(No 5)			Oct. 1880	400,000	
Beasley Reservoir	Big Thompson Creek	Handy	Mar. 29, 1890	Oct. 1, 1881	8,000,000	Hannah A. Dobbins, Adm. ^x
The Boulder and Larimer County Irrigating and Manufacturing Ditch Company's Reservoir	Little Thompson Creek	Company's Ditch . . .	May 1, 1890	Feb. 3, 1890	Not stated	The Boulder and Larimer County Irrigating and Manufacturing Company
Big Cut Reservoir	Big Thompson Creek . . .	{ Loveland and Greeley Irrigat. Canal	July 30, 1890	Not given . . .	49,762,944	{ The Big Cut Lateral and Reservoir Company

STATEMENT CONCERNING EXISTING RESERVOIRS

IN WATER DISTRICT NO. 4, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

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Sec.	LOCATION ON		Area in acres	Length of dam in feet	Greatest depth of dam in feet	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
	T. S.	R. W.								
12	5	69	45	60	8	.....	.....	.....	Irrigation	Big Thompson creek
1	6	69	50	.....	12	.....	.....	.....	.....	Big Thompson creek
30	6	68	69	.....	3	Earth . . .	.....	.....	Irrigation	Big Thompson creek
*	11	5	69	640	.....	Natural . .	.....	.....	.....	Big Thompson creek
15	5	69	380	1,100	20	Earth . .	\$ 10,000.00	.....	Irrigation	Big Thompson creek
32	5	68	{ 4	1,200	.....	Natural *	.....	.....	.....	Big Thompson creek
4	4	68	5	.....	.....	Natural . .	.....	.....	Irrigation	Big Thompson creek
32	5	68	4	73	.....	Natural . .	.....	.....	Irrigation	Big Thompson creek
4	4	69	540	.....	.....	Natural . .	.....	.....	.....	Big Thompson creek

* Greatest depth sixty four feet. Used for breeding fish.

*Water District No. 5—J. W. Daniels, Commissioner,
Longmont, Boulder County.*

Mr. Daniels reports for 1889, that he was called out April 22, to divide water for domestic use, there being a very small supply in the stream.

May 10, a heavy fall of snow in the mountains, and rain in the valley afforded an abundant supply for all purposes until late in the season, when the scarcity of water and interference with the head-gates rendered it necessary to place locks on all gates. An assistant was employed for 97 days during the season. He further reports the season a very prosperous one for all the agricultural interests.

For 1890, he was called out March 25, and found very little water to divide, nor was there a supply sufficient for all ditches at any time during the season. An unusually large acreage of grain was sown in anticipation of an abundant water supply, as the result of the supposed heavy snow-fall in the mountains during the preceding winter, but the water failing to materialize, the grain crop necessarily suffered in many localities. Heavy rain-falls later in the season, afforded a good supply for hay, crops and storage purposes. Two assistants were employed, one for 107 days to aid in the distribution of water to the ditches, and a second to patrol the district and enforce the economical use of water among the consumers.

Mr. Daniels further reports 2,854.44 cubic feet per second decreed to ditches in his district, this quantity being nine times the average discharge of St. Vrain creek during the irrigating season; that a large proportion of the ditches have been enlarged one or more times since the adjudication took place, and still have not the capacity to carry the decrees; that the earlier ditches to which water was decreed in sufficient quantity

to drain the stream in its ordinary stages do not cover to exceed 3,000 acres of land.

He recommends a re-adjudication of water rights, that the date of priority should correspond to the date of application of water to the land, and the quantity should be limited to the necessities of the land actually cultivated, and further, the quantity of water decreed should be limited to the average discharge of the stream, plus the probable amount that can be stored in reservoirs, further rights being granted as the water supply increased.

He further recommends that Water Commissioners should have control over the lines of ditches and the Superintendents of ditches, the better to regulate the distribution of water among consumers, and insure its economical use.

Mr. Daniels is to be commended for the completeness of his report in its details.

COMMISSIONER'S REPORT, A. D. 1890.

J. J. W. DANIELS, WATER COMMISSIONER, DIVISION NO. 1, DISTRICT NO. 5, LONGMONT, COLORADO, NOVEMBER 7, A. D. 1890.

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The South Flat	4	160	4	100	75	325	500
The Beckwith	3	138	*	*	*	300	250
The Taylor & Denio	5	138	*	80	*	450	300
The Coffman	2	120	2	*	*	250	100
The Dickens	2	140	2	*	*	150	200
The Island	1	104	*	*	*	75	50
The Cushman	1	60	2	*	*	50	40
The Last Chance	6	*	*	*	*	800	*
The Hayseed	2	*	*	*	*	300	160
The Coffin & Davis	2	70	*	*	*	150	180
The Davis & Downing	3	150	4	*	*	400	*
The Swede	12	160	8	*	*	800	2,400
The C'ain of J. R. Mason	*	*	*	*	*	150	300
The Cochran	2	*	*	*	*	*	*
The N. W. L. Ins. Co.'s Claim	*	*	*	*	*	200	*
The Hornbaker	3	124	*	*	*	*	100
The Bacon Appropriation	*	*	*	*	*	*	*
The True & Webster	2	160	2	*	*	50	120
The Dickens, private	1	80	*	*	*	80	*
The Clough & True	3	*	*	*	*	75	150
The Montgomery, private	1	40	*	*	*	60	*
The Williamson & Cavey	2	*	*	*	*	*	150

WATER COMMISSIONER'S REPORT, A. D. 1890—Concluded.

STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT No. 5, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEERS OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OF WELL,	Total depth thereof	Diameter in inches in feet	DEPTH OF FLOW BELOW SURFACE			LOCATION	Present flow gallons per minute	REMARKS
			First flow	Second flow	Third flow			
J. Hetzel	250	None	25 . . . . .	. . . . .	. . . . .	Sec. 30, T. 3 N., R. 67 W.	Small	Strongly alkaline
J. W. Goss	965	4	17	675 . . . . .	. . . . .	Sec. 24, T. 3 N., R. 70 W. . . . .	. . . . .	Flow lost, not recovered

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 5, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office.	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
Lower Dry Creek Ditch	Dry creek	July 3, 1890	Jan. 1, 1887	5.62	B. Ottens and Wm. Butler
Ni Wot Feeder to Ni Wot Ditch	Dry creek	July 5, 1890	Jan. 1, 1890	66	. . . . . The Ni Wot Ditch Co
McKay Lateral from Highland Ditch	St. Vrain creek	July 7, 1890	Apr. 10, 1890	21	. . . . . J. A. McKay

STATEMENT, CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 5, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888 TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
Enlargement of Highland Reservoir No. 2	St. Vrain Creek	Highland . . .	June 28, 1889	Aug. 1, 1888	47,262,600	The Highland Ditch Co.
Oligarchy Reservoir	St. Vrain Creek	Palmetto, n. . .	July 3, 1889	April 7, 1884	47,044,800	The Oligarchy Ditch Co.
Last Chance Reservoir	St. Vrain Creek	Supply	April 5, 1890	Mar. 11, 1890	117,000,000	. . . W. S. Mitchell, <i>et al</i>
Enlargement of Oligarchy Reservoir No. 1	St. Vrain Creek	Palmetto . . .	June 28, 1890	Mar. 31, 1890	15,568,632	The Oligarchy Ditch Co.
Sanborn Reservoir	Highland . . .	July 15, 1890	May 1, 1890		4,970,000	. . . . . F. J. Sanders
McIntosh Reservoir	St. Vrain Creek	Oligarchy . . .	Aug. 11, 1890	July 28, 1890	72,745,200	. . . G. R. McIntosh, <i>et al</i>

STATEMENT CONCERNING EXISTING RESERVOIRS

IN WATER DISTRICT NO. 5, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON Sec.	T. N. R. W.	Area in acres	Length of dam in feet	Greatest depth of dam in feet	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
22	3	68	70	1,000	4	\$ 500 00	26,100,000	Irrigation	St. Vrain creek
27	3	63	110	. . . . .	Natural . . .	1,500 00	40,000,000	Irrigation	St. Vrain creek
5	3	69	190	2,500	9	1,500 00	117,000,000	Irrigation	St. Vrain creek
16	3	69	320	600	7	{ Earth and rock	50,000,000	Irrigation	St. Vrain creek
25	3	70	60	. . . . .	Natural . . .	1,000 00	28,000,000	Irrigation	St. Vrain creek

STATEMENT CONCERNING RESERVOIR SITES, UNIMPROVED,

IN DISTRICT NO. 5, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON			Estimated area in acres.	Length of dam in feet	Greatest depth of dam in feet	Material convenient for construction	Estimated cost	Estimated capacity in cubic feet	Source of supply	REMARKS
Sec!	T N	R W								
29	3	69	250	800	8	.....	.....	50,000,000	St. Vrain ..	.....
31	3	68	1,000	.....	..	Natural ..	.....	913,500,000	St. Vrain ..	.....
22	3	70	80	1,000	10	.....	.....	25,000,000	St. Vrain ..	.....
16	3	69	500	2,000	17	.....	.....	174,000,000	St. Vrain ..	Etnl. of existing reservoir
23	2	73	320	450	22	.....	.....	174,000,000	Beaver ..	.....

Water District No. 6—S. J. Plumb, Commissioner, Erie, Weld county.

Mr. Plumb reports for 1890, an abundance of water, during April and May, for all irrigating purposes, and a large excess passing out of the district, which, if stored, would have given ample supply during the season.

He was called to distribute water June 5, and was actually employed 89 days, with an assistant 78 days, a second assistant on special work 6 days, and a third, in charge of reservoir ditches, 16 days.

There was a great scarcity of water in August, and about September 1 the small supply was distributed among the several ditches needing it for the irrigation of orchards and small fruits.

The small grains and seeded grasses averaged about two-thirds of a crop, and the native grasses about one-half. These losses might have been avoided by proper storage in times of excess of water, earlier in the season.

He further reports much difficulty in securing the construction of proper rating flumes in many ditches selling water, and attributes the disinclination on the part of the owners to put them in, to the fact that they are selling water in excess of the capacities of their ditches, and are consequently adverse to any ratings that would show the great discrepancy between decreed quantity and actual capacity.

He suggests remedial legislation, making the application of water to the land the basis of appropriation, and that the present decrees be adjusted thereto.

He thinks the owners of ditches carrying water for hire should be required to have their ditches in repair and ready for the reception of water by April 1 of each year, as thereby the consumers would receive the benefit of the early flow of water, and save many crops otherwise lost.

He reports about 3,500 acres irrigated from stored waters, and estimates that quantity could be increased to 35,000 acres, with proper storage facilities. He suggests State aid for this purpose.

Mr. Plumb has so managed his district that very little complaint has come to this office, and his report indicates an economical administration of his office.

COMMISSIONERS REPORT, A. D. 1890.

DIVISION NO. 1—DISTRICT NO. 6.

NAME OF DITCH

	Lengt ^h thereof in miles	Numb ^r of days water was carried therein	Average amount of water scattered during season of 1890 in cubic feet per acre second of time	Numb ^r of acres that can be irrigated thereforefrom	Numb ^r of acres of seeded grasses other than alfalfa irrigated three times	Numb ^r of acres of natural grasses irrigated three times	Numb ^r of acres of other crops irrigated three times	Numb ^r of acres irrigated from seepage	Number of acres irrigated from seepage
Lower Boulder	22	175	3,682	890	49	1,230	1,506	...	...
Smith and Goss	1	175	125	50	10	60	...	...	...
Howell Ditch	1	100	400	...	...	400	...	...	...
Howard Ditch	2	100	600	50	...	400	100	...	...
McGinn Ditch	3	175	700	100	50	150	350	...	...
Jones and Donnelly	1	100	300	10	50	225	15	...	...
Autrey and Eggleston	1	50	100	25	...	60	15	...	...
Anderson Ditch	3	175	425	75	50	110	175	...	...
Godding, Daily and Plumb	6	60	700	250	...	350	100	500	...
Hauck No. 2	1/2	30	100	...	...	75	25	...	...
Martha M. Matthews	1	100	82	2	...	70	20
N. H. Smith and Tyler	1	30	200	25	...	175	...
William C. Hake	1	30	100	15

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East Boulder	3	150	• • • •	700	250	50	100	275
Plumb Ditch	3	150	• • • •	450	40	• • •	410	• • •
Eggleson No. 2	1	50	• • • •	150	15	• • •	90	45
Rural Ditch	5	150	• • • •	1,800	445	• • •	1,210	195
South Boulder and Bear Creek	7	175	• • • •	900	100	100	450	250
Miscellaneous—seven small ditches	4	175	• • • •	500	80	100	225	95
North Boulder Farmers'	6	175	• • • •	800	150	100	200	300
Farmers' Ditch	8	200	• • • •	2,500	600	300	900	600
Hauk No. 1	½	40	• • • •	100	• • •	• • •	100	• • •
Cottonwood No. 2	3	150	• • • •	500	125	75	100	200
Dry Creek and Davidson	8	150	• • • •	800	150	50	300	300
Smith and Edmunds	2	40	• • • •	506	100	• • •	355	51
Dry Creek No. 2	5	175	• • • •	900	100	100	500	175
Andrews and Farwell	3	150	• • • •	100	• • •	• • •	• • •	100
Carr and Tyler	½	30	• • • •	380	200	• • •	180	• • •
Enterprise	5	175	• • • •	900	150	100	150	500
Butte Mills	3	100	• • • •	500	100	100	230	65
Leyner	4	100	• • • •	600	25	• • •	465	110
Deehant	1	100	• • • •	100	15	• • •	35	50
Marshallville	8	175	• • • •	1,200	360	100	200	600
Highland Ditch—south side	6	100	• • • •	1,600	500	400	• • •	700
Cottonwood No. 1	8	173	•	1,500	200	• • • •	400	900

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Boulder and Left Hand	15	125	2,000	400	100	1,500	
Four Mile Cañon	2	30	300	150	100	50	
Six Mile	3	30	500	150	200	150	
North Branch	3	20	200	50	75	75	
Forbes	3	30	200	50	110	40	
Town of Boulder	2	365	200	50	25	100	
Wellman	1	40	200	50	600	1,350	
Matthews	2	30	150	25	13,275	5,000	
Revolution	14	40	2,500	600	13,777	31,615	
Community	40	40	20,000	2,000	18,740	29,845	
Silver Lake	6	120	100	20	80	500	
Totals in district	258	...	...	...	...	...

Total number of acres irrigated in district, 76,682.

STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 6, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OF WELL	Total depth in feet	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE				LOCATION	REMARKS
				First flow	Second flow	Third flow	Fourth flow		
H. W. Allen	400	...	...	196	...	...	...	Sec. 12, T. 1 S., R. 70 W.	3 Water is excellent

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 6, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Maffet Ditch	Coal creek	May 4, 1889	Feb. 4, 1889	3.00	. . . . . Maffet & Jones
The Ross Ditch	Coal creek	May 4, 1889	Feb. 4, 1889	3.00	. . . . . Maffet & Jones
The Get There Ditch	Coal creek	Dec. 4, 1889	Oct. 19, 1889	16.32	. . . . . Geo. W. Matthews
The Silver Lake Ditch	Boulder creek	Feb. 4, 1890	Feb. 22, 1888	20.00	. . . The Silver Lake Ditch & Reservoir Company
The Sibley Ditch	Waste from lower Boulder ditch	April 22, 1890	Not stated	Not given	. . . . . T. D. Sibley
The Boulder and Beaver Company's { Upper Ditch Beaver Company's } Lower Ditch	South Boulder creek Aug. 15, 1890 South Boulder creek Aug. 16, 1890 Middle Boulder cr'k Nov. 19, 1890	July 10, 1890 July 18, 1890	38.70 38.70 45.00	. . . . . The Boulder & Beaver Placer Company	{ George W. Giggey and Edward S. Snell

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 6, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
Round Lake Reservoir	South branch of North Boulder Creek	{ On the stream	{ Feb. 4, 1890 Nov. 1, 1889	8,712,000		
Island Lake Reservoir	Boulder Creek	{ Silver Lake	{ Feb. 4, 1890 Nov. 1, 1889	13,068,000	{ James P. Maxwell and George S. Oliver	
Crystal Lake Reservoir	North Boulder Creek	{ On the stream	{ Feb. 4, 1890 Jan. 1, 1890	3,659,040		
Silver Lake Reservoir			{ Feb. 4, 1890 Feb. 22, 1888	46,173,000		
A. Nissen & Co.'s Reservoirs	{ No. 1 No. 2 No. 3 No. 4 No. 5 No. 6	{ Clear Creek, and seepage from Golden City Ditch; and from Community Ditch and Ralston Ditch and Community Ditch	{ Mar. 5, 1890 May 1, 1889 Mar. 5, 1890 Dec. 10, 1889 Mar. 5, 1890 Dec. 16, 1889 Mar. 5, 1890 Dec. 16, 1889 Mar. 5, 1890 Nov. 15, 1886 Mar. 15, 1890 Sept. 1, 1888	222,000 6,250,000 328,000 606,000 1,236,000 13,294,000		A. Nissen & Company
A. J. Zang's Reservoirs	{ No. 1 No. 2 No. 3	Same as above	{ Mar. 15, 1890 Dec. 16, 1889 Mar. 15, 1890 Feb. 18, 1890	926,400 7,666,000 1,519,800		Adolph J. Zang
Coal Park Reservoir	Coal and Rock Creeks	On the streams	Mar. 27, 1890 Jan. 2, 1890	6,000,000		Edward B. Light

		Boulder Creek	Boulder & White Rock Sept. 4, 1890	Aug. 8, 1890	98,532,720	. . . . .	J. J. Beasley, et al
Beasley Reservoir		Coal Creek	Last Chance Ditch . Oct. 29, 1890	Dec. 10, 1893	17,500,000	. . . . .	Francis Smart, et al
Unnamed Reservoir		Jasper Gulch				{ 88,000,000	{ George W. Giggy
G Jasper Reservoir		Diamond Gulch				20,000,000	and Edward S. Snell
D Diamond Reservoir		Ruby Gulch				{ 25,800,000	
R Ruby Reservoir							

Water District No. 7—J. G. Hartzell, Commissioner, Golden, Jefferson county.

Mr. Hartzell reports for 1889 and 1890, statistical information in tabulated form, and calls attention to defects in the law. Among other things, he recommends a more effective law to compel ditch owners to erect in their ditches suitable head-gates and rating flumes, in order to secure more equitable distribution of the water.

That the superintendents of ditches should be required to collect and furnish to the Water Commissioner, irrigation and agricultural statistics; that a proper gauging station be provided on Clear creek, for the measurement of the stream, and facilities for transmitting the daily discharge to the Water Commissioner, for his information in the distribution of the water.

He thinks, if the diversion of domestic water is permitted from the streams, it should be required to be done in pipes to prevent waste and loss.

He further reports that the issuance of *ex parte* injunctions against the Water Commissioner has worked great injustice to consumers of water, in portions of his district, and advises legislation to prohibit the same.

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION NO. 1—DISTRICT NO. 7. IN DISTRICT NO. 7 THERE ARE FIFTY-NINE DITCHES HAVING DECREES AND AN INDEFINITE NUMBER WITHOUT DECREES.

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NAME OF DITCH	LENGTH THEREOF IN MILES	NUMBER OF DAYS WATER WAS CARRIED DURING SEASON OF IRIGATION	AVERAGE AMOUNT OF WATER CARRIED PER SEASON OF IRIGATION IN CUBIC FEET TIME	NUMBER OF ACRES THAT CAN BE IRRIGATED FROM GATED THREHOLD	NUMBER OF ACRES OF GRASSES FROM NATURAL GRASSES	NUMBER OF ACRES OF OTHER THAN ALFALFA FROM NATURAL GRASSES	NUMBER OF ACRES OF OTHER THAN ALFALFA FROM SEEDED GRASSES	NUMBER OF ACRES OF OTHER THAN ALFALFA FROM SEEDED GRASSES	NUMBER OF ACRES OF OTHER CROPS IRIGATED FROM GATED THREHOLD	NUMBER OF ACRES OF SEEPAGE FROM GATED THREHOLD	TOTAL NUMBER OF ACRES IRIGATED IN DISTRICT
The Golden Canal	47	220	115	39,925	9,217	6,856	950	12,855	1,140	...	...
The Agricultural Ditch	28	164	50	15,000	4,575	5,025	515	3,370	550	...	...
The Golden City and Ralston Creek	35	121	65.21	29,500	5,120	4,910	500	9,000	545	...	...
The Rocky Mountain Ditch	28	175	54.67	12,280	8,620	2,200	500	5,875	465	...	...
The Clear Creek and Platte River Ditch.	12	185	33.29	4,600	1,420	2,345	235	500	190	...	...
The Colorado Agricultural Ditch	13	132	29	1,600	150	1,175	50	225	...	...	...
The Golden Ditch	13.5	110	15	7,000	1,290	480	200	2,500	100	...	...
The Fisher Ditch	1.5	200	7	1,100	400	150	465	50	...	...	...
The Quelite Ditch	1.5	205	5	500	75	50	40	335	...	...	...
The Kershaw Ditch	2	150	4	500	200	25	50	200	...	...	...
The Wauhemaker Ditch	6	190	4	3,000	1,600	105	95	1,100	20	...	...
The Lee Stewart and Esskins Ditch	6	150	6	1,137	450	150	225	300	...	...	...
The Swadley Ditch	4	175	3	1,000	280	50	20	600	10

COMMISSIONER'S REPORT, A. D. 1890—Continued.

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The Miles & Eskins' Ditch	1	80	1.5	100	40	30	30
The Wolff North Side Ditch75	100	1.25	60	20	20	20
Tue Wolff Ditch	1.5	100	1.5	125	6	• • •	100
The Sanderson & Slater Ditch . . . . .	.5	100	1	80	• • •	• • •	80
The Claus & Couch Ditch . . . . .	.75	100	2	150	75	• • •	75
The Lee Ditch . . . . .	.25	100	.75	20	10	• • •	10
The Grover North Side Ditch . . . . .	.75	75	1.25	125	25	• • •	100
The Sayer & Lee Ditch	1	100	1.5	175	50	• • •	100
The Wadsworth & Graves Ditch . . . . .	.75	75	1	175	50	• • •	75
The Graves South Ditch . . . . .	.75	100	1	100	25	• • •	75
The Bluff Ditch	1	100	2	175	50	25	100
The Sander Ditch . . . . .	.25	90	1	40	20	• • •	20
The Slater & Moody Ditch . . . . .	.25	75	1	60	20	• • •	40
The Rhodes Middle Ditch . . . . .	.25	100	.50	30	15	• • •	15
The Cort & Graves Ditch	1	100	2	200	50	10	75
The Rhodes South Ditch . . . . .	.75	100	1.5	100	40	• • •	40
The North Side Ditch . . . . .	.25	100	1	40	15	• • •	25
The McQuiston Ditch . . . . .	.75	75	1	50	10	• • •	30
The Churches Ditch	3	40	1.5	200	141	• • •	20
The Bunney & Ballinger Ditch	1.25	50	1.5	120	54	14	12
The Piquette Ditch	1.25	50	1.5	60	20	• • •	40
The Haines & Ballinger Ditch	1.50	40	1	60	30	5	20

COMMISSIONER'S REPORT, A. D. 1890—Concluded.

STATEMENT CONCERNING ARTESIAN WELLS

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IN WATER DISTRICT NO. 7, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, AND FROM DATA FURNISHED BY PROF. L. G. CARPENTER, LOCAL OBSERVER FOR UNITED STATES GEOLOGICAL SURVEY, AND NOT HERETOFORE PUBLISHED

NAME OF OWNER OF WELL	Total depth in feet	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE				LOCATION	Present flow gallons per min.	REMARKS
				First flow	Second flow	Third flow	Fourth flow			
J. M. Paulding	420	...	...	390	420	...	...	Sec. 25, T. 2 S., R. 68 W.	9	...
V. S. Wright	560	3	400	330	390	560	...	Sec. 25, T. 2 S., R. 68 W.	1½	...
E. L. Farrell	429	3½	75	138	415	...	...	Sec. 34, T. 2 S., R. 68 W.	40	...
Z. T. Block	415	...	44	215	415	...	...	Sec. 35, T. 2 S., R. 68 W.	44	...
Jacob Sanhofer	544	4½	45	300	450	...	...	Sec. 35, T. 2 S., R. 68 W.	4	...
A. R. Taggart	427	3	40	189	426	...	...	Sec. 35, T. 2 S., R. 68 W.	15	...
Wimbush & Powell	644	{ 4½ }	644	441	513	565	585	Sec. 18, T. 3 S., R. 69 W.	...	...
O. L. Bright	908	...	...	412	905	...	...	Sec. 1, T. 3 S., R. 69 W.	...	Pump 50 feet
Reno Park	724	8	40	...	...	...	...	Sec. 11, T. 3 S., R. 69 W.	...	Pump 60 feet
Joseph Stanley	560	...	...	...	...	...	...	Sec. 17, T. 3 S., R. 69 W.	...	Pump 50 feet
Not given	200	...	...	...	...	...	...	Sec. 6, T. 4 S., R. 69 W.	...	40 feet from surface

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 7, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in state Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
Feeder to Lake Reservoirs 1, 2, 3	Clear Creek	Feb. 11, 1889	Feb. 8, 1888	16	{ Union Real Estate, Live Stock and Investment Co.
The Colorado Agricultural Ditch and Clear Creek and Platte River Mill & Ditch Co.'s Ditch }	Clear Creek	May 3, 1889	Mar. 5, 1888	132.06	{ The Colorado Agricultural Ditch and Clear Creek and Platte River Mill and Ditch Co.
The Risdon Ditch	Clear Creek	Oct. 24, 1889	Oct. 4, 1875	20,68	John S. Risdon
The Farmers' High Line Canal and feeder or pipe-line	Clear Creek	Mar. 8, 1890	Feb. 4, 1890	50	{ The Farmers' High Line Canal and Reservoir Co.
The Broomfield High Line Ditch	Clear Creek	Mar. 15, 1890	Nov. 15, 1886	14	. The Broomfield High Line Ditch Co.
The Boyles Ditch	Clear Creek	April 2, 1890	May 15, 1863	1	. Robert S. Boyles
The Lookout Water Supply Co.'s Ditch and Pipe-Line	Soda and Beaver Creeks, springs, flood, snow water }	July 14, 1890	April 25, 1890	5.50	. The Lookout Water Supply Co.
The Downing and Kountze Lateral Ditch	Clear Creek, thro' Golden D.& F.I. Co.'s Ditch	Aug. 22, 1890	July 31, 1890	27.21	{ The Downing and Kountze Lateral Ditch Co.
Under-ground conduit, unnamed	Under-ground waters	Nov. 29, 1890	Sept. 1, 1890	50	A. McL. Hawks

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 7, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF RESERVOIR	NAME OF STREAM SUPPLYING WATER THEREFOR	NAME OF DITCH LEADING WATER THERETO	DATE OF FILING IN STATE ENGINEER'S OFFICE	DATE OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET	NAME OF CLAIMANT
Knox & Reser Reservoirs . . .	{ No. 1 . . . No. 2 . . . No. 3 . . .	Clear Creek	Dec. 7, 1888	July 16, 1888	{ 2,900,000 609,150 1,761,230	Jno. W. Knox and F. A. Reser
Lake Reservoir . . .	Ohio Lake or Reservoir . . .	Clear Creek	Dec. 12, 1888	{ Aug. 15, 1888 Oct. 1, 1887	13,977,000 3,900,590	Mary J. King and Emma Woolley
Cole Reservoirs . . .	{ No. 1 No. 2 . . .	Waste and seepage from	Jan. 19, 1889	{ Nov. 1886 Aug., 1887	1,440,000 1,675,000	. . . . . Lyman H. Cole
Enlargement of last named. . .	{ Farmers High Line and Golden City . . . & Ralston Creek . . .	Ditches	Jan. 9, 1889	Jan. 9, 1889	1,344,000	
Lake No. 1, Reservoir.	Agricultural	Feb. 11, 1889	Feb. 8, 1888	{ 2,400,000 16,800,000 1,000,000	The Union Real Estate, Live Stock and Investment Company	
Lake No. 2, Reservoir.	Clear Creek					
Lake No. 3, Reservoir.	Clear Creek					
Swan Reservoir.	Golden City and Ralston Creek		Mar. 9, 1889	Dec. 10, 1888	6,000,000	Carrie E. Swan and J. S. Swan
Cart Reservoir.	Agricultural	April 19, 1889	April 17, 1889		100,000	Nancy J. Cart

STATEMENT CONCERNING RESERVOIRS—*Continued.*

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
Ward Reservoir No. 5	Clear creek	Agricultural and Ward (Dist. 9)	May 14, 1889 {	April, 1883 Feb. 28, 1889	9,429,800 6,420,000	Wm. S. and Jasper D. Ward
Enlargement of same	Bear creek (dist. 9)		May 20, 1889	May 1, 1886	1,258,859	Neal Everett
Neal Reservoir	Clear creek	Agricultural	May 29, 1889	May, 1879	9,324,191	G. W. Dollison & Oliver Graves
Broomfield Reservoir	Clear creek	Golden City and Ralston creek	Aug. 23, 1889	June 28, 1889	36,959,000	A. W. Chamberlain
A. W. Chamberlain Reservoir .	Clear creek	Agricultural	Aug. 17, 1889	May 15, 1873	7,229,017	George H. Church
Church Reservoir	Clear creek	Golden City and Ralston creek	Dec. 26, 1889	Dec. 17, 1889	1,475,562	Jayman H. Cole
Cole Reservoir.	Clear creek,	Golden City and Ralston Creek and Ralston Creek Ditch, and Community Ditch (latter in district 6)	Mar. 5, 1890 {	May 1, 1889	222,000	
A. Nissen & Company's Reservoirs.	No. 1	Same as the above	Dec. 10, 1889	Dec. 16, 1889	6,250,000	
	No. 2		Mar. 5, 1890 {	Dec. 16, 1889	328,000	A. Nissen & Company
	No. 3			Dec. 16, 1889	666,000	
	No. 4			Dec. 16, 1889	1,235,000	
	No. 5			Mar. 15, 1890 Nov. 15, 1886	13,204,000	
	No. 6			Sept. 1, 1888	926,000	
A. J. Zang's Reservoirs.	No. 1	Same as the above	Mar. 15, 1890	Dec. 16, 1889	7,666,000	Adolph J. Zang
	No. 2					
	No. 3			Feb. 18, 1890,	1,519,800	

STATEMENT CONCERNING RESERVOIRS—Concluded.

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
Christinck Reservoir	{ Clear creek; also Dry creek (Dist. 2)	Farmers' High Line and Feeder, Dry C'k	Sept. 5, 1890	1888-1890	4,000,000	Louis A. Christinck
	No. 1			Oct. 1, 1885	1,500,000	
	No. 2			Nov. 30, 1885	2,240,000	
	No. 3			Nov. 30, 1886	291,250	
	No. 4			Nov. 30, 1887	1,650,000	
	No. 5			Nov. 30, 1888	1,440,000	
	No. 6			Nov. 30, 1888	1,400,000	
Croke's Reservoirs	No. 7	Clear Creek	Sept. 22, 1890	Nov. 30, 1888	2,000,000	Thomas B. Croke.
	No. 8	{ Farmers' High Line Canal and Reservoir Company Canal				
	No. 9			Aug. 28, 1890	1,050,000	
	No. 10			Aug. 28, 1890	2,625,000	
	No. 11			Aug. 28, 1890	645,000	
	No. 12			Aug. 28, 1890	980,000	
	No. 13			Dec. 15, 1888	7,996,000	
Ashwood Reservoir				Dec. 15, 1890	3,837,500	
				Dec. 15, 1890	4,750,000	W. H. Br

Lake No. 1	lear Creek	Farmers' High Line	{ 1881 | April 20, 1888 | Dec. 19, 1889; Oct. 1, 1890 | Mar. 1890 | Oct. 25, 1890 | Nov. 25, 1890	8,820,712 | 2,758,785 | 153,331 | 359,805 | 1,097,712 | 60,668 |
Lake No. 2	lear Creek	Farmers' High Line		
Lake No. 3	'The Gulch"	Built in the gulch		
Lake No. 4	lear Creek	Golden City and Ralst		
Lake No. 5	'The Gulch"	Built in the gulch		
Wyman Reservoir	ocal Springs, etc			
Elmwood Reservoir	lear Creek	Farmers' High Line		

STATEMENT CONCERNING EXISTING RESERVOIRS

IN WATER DISTRICT NO 7, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON Sec. T. S. R. W.	Area in acres	Length of dam in feet	Greatest depth of dam in feet	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
.32 1 67	75x60 feet	75	3	Earth	\$ 50	Not given	Irrigation	Clear creek
10 1 68	20	....	....	Earth . . . . .	.....	6,000,000	Irrigation and domestic	Clear creek
20 4 68	50	....	....	Natur'lake . . . . .	.....	.....	Pleasure and fish	Clear creek
35 1 68	....	....	....	Earth . . . . .	.....	.....	Irrigation and domestic	Clear creek
25 1 68	50.57	1,278	12	Earth . . . . .	.....	7,592,988	Irrigation and domestic	Clear creek
25 1 69	1.78	....	....	....	.....	222,500	.....	.....
25 1 69	34.50	....	....	....	.....	6,250,000	Irrigation . . . . .	.....
25 1 69	4.10	....	....	....	.....	328,000	Domestic and pleasure	Clear creek
25 1 69	3.63	....	....	....	.....	606,000	.....	.....
36 1 69	15.76	....	....	....	.....	1,236,000	.....	.....
36 1 69	33.65	....	....	....	.....	13,204,000	.....	.....
26 1 69	3.15	....	....	Earth . . . . .	.....	926,400	.....	.....
and 39.54	....	....	....	Earth . . . . .	.....	7,693,600	Irrigation and domestic	Clear creek and Ralston creek
7.85	....	....	....	Earth . . . . .	.....	1,519,800	.....	.....
36 1 69	38.67	913	12	Earth & slag	9,342,191	Irrigation and domestic	Clear creek and Ralston creek

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5	2	37	.75	6	Earth	150-	Irrigation	Clear creek
33	2	67	Earth	Irrigation and domestic	Clear creek
2	2	68	1.50	. . . . .	Earth . . . . .	. . . . .	Irrigation and domestic	Clear creek
2	2	68	5	250	6	Earth	300,000	Irrigation, stock and domestic
3	2	68	25	1,360	14	Earth	290,000	Irrigation and domestic
33	1	68	5	1,000	7	Earth	699,150	Irrigation and domestic
34	1	68	8	420	7	Earth	1,763,230	Irrigation and domestic
3	2	68	24	280	10	Earth & slag	850	1,000,000
3	2	68	40	2,640	14	Earth	7,588,900	Irrigation, stock and domestic
3	2	68	5	400	10	{ Earth rock face }	500	Agricultural and domestic
5	2	68	. . . . .	. . . . .	Earth . . . . .	. . . . .	Irrigation, stock and domestic	Clear creek
5	2	68	. . . . .	. . . . .	Earth . . . . .	. . . . .	Irrigation and domestic	Clear creek
5	2	68	. . . . .	. . . . .	Earth . . . . .	. . . . .	Irrigation and domestic	Clear creek
5	2	68	. . . . .	. . . . .	Earth . . . . .	. . . . .	Irrigation and domestic	Clear creek
8	2	68	5	320	8	Earth	200	Irrigation and domestic
10	2	68	21	275	20	Earth	425	Irrigation, stock and domestic
14	2	68	. . . . .	. . . . .	. . . . .	. . . . .	Irrigation, stock and domestic	Clear creek
18	2	68	. . . . .	. . . . .	. . . . .	. . . . .	Irrigation and domestic	Clear creek
18	2	68	. . . . .	. . . . .	. . . . .	. . . . .	Irrigation and domestic	Clear creek
18	2	68	. . . . .	. . . . .	. . . . .	. . . . .	Irrigation and domestic	Clear creek
18	2	68	. . . . .	. . . . .	. . . . .	. . . . .	Irrigation and domestic	Clear creek
23	2	68	. . . . .	. . . . .	. . . . .	. . . . .	Irrigation and domestic	Clear creek
24	2	68	5	. . . . .	. . . . .	. . . . .	800,000	Irrigation, stock, domestic and R. R. {

STATEMENT CONCERNING EXISTING RESERVOIRS—Continued.

LOCATION ON Sec. T. S. R. W.			Area in acres	Length of dam in feet	Greatest depth of dam in feet	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
25	2	68	1	250	7½	Earth . . .	\$ 400 00	• • • •	Irrigation	Clear creek
25	2	68	1	• • •	9½	Earth&stone	150 00	• • • . .	Raising fish	Clear creek
25	2	68	.40	• • •	7	Earth . . .	150 00	• • • . .	Irrigation	Clear creek
25	2	68	35x50 feet	• • •	5	Earth . . .	100 00	• • • . .	Irrigation	Clear creek
35	2	68	1	575	5	Earth . . .	300 00	• • • . .	Irrigation	Clear creek
35	2	68	2	• • •	14	Earth . . .	• • • . .	• • • . .	Irrigation	Clear creek
35	2	68	2	• • •	12	Earth . . .	• • • . .	• • • . .	Irrigation	Clear creek
35	2	68	2	• • •	10	Earth . . .	• • • . .	• • • . .	Irrigation	Clear creek
35	2	68	5	600	12	Earth . . .	300 00	• • • . .	Irrigation	Clear creek
36	2	68	.25	150	4	Earth . . .	75 00	• • • . .	Irrigation	Clear creek
11	2	69	40.01	• • •	8	Earth . . .	• • • . .	7,229,017	Irrigation and domestic	Clear creek
12	2	69	15	1,500	14	Earth . . .	• • • . .	3,265,000	Irrigation, stock and domestic	Clear creek
12	2	69	1.50	450	4	Earth . . .	100 00	200,000	Irrigation, stock and domestic	Clear creek
23	2	69	10	• • •	• • •	Earth . . .	• • • . .	• • • . .	Irrigation and domestic	Clear creek
24	2	69	40	500	12	Earth . . .	• • • . .	2,000,000	Irrigation and domestic	Clear creek
25	2	69	60	400	10	Earth . . .	1,100 00	2,800,000	Irrigation, stock and domestic	Clear creek
26	2	69	9.62	475	10	Earth . . .	350 00	2,753,785	Irrigation and domestic	Clear creek

STATEMENT CONCERNING EXISTING RESERVOIRS—Concluded.

LOCATION ON Sec. T.S. R.W.	Area in acres	Length of dam in feet *	Greatest depth of dam in feet *	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
11 3 68	5	300	5	Natural . . . . .	.....	.....	Irrigation, stock and domestic	Clear creek
12 4 68	1	100	4	Earth . . . . .	.....	.....	Irrigation, stock and domestic	Clear creek
12 4 68	6	1,000	10	Natural . . . . .	.....	.....	Irrigation, stock and domestic	Clear creek
13 4 68	5	650	5	Earth	\$ 1,200 00	.....	Irrigation, stock and domestic	Clear creek
14 4 68	3	30	8	Adobe soil	450 00	.....	Irrigation, stock and domestic	Clear creek
18 4 68	12	1,200	8	Earth . . . . .	.....	.....	Irrigation and domestic	Clear creek
19 4 68	1	600	8	Earth	350 00	.....	Irrigation and domestic	Clear creek
20 4 68	1	1,800	26	Earth	1,500 00	.....	Fish, ice and domestic	{ Springs and Clear creek
5 4 69	1.50	450	15	Earth	400 00	.....	Irrigation and domestic	Clear creek
5 4 69	2.50	1,000	12	Earth . . . . .	.....	.....	Irrigation and domestic	Clear creek
N.E. 6 4 69	1.50	1,050	12	Earth . . . . .	.....	.....	Irrigation, stock and domestic	Clear creek
11 4 69	20	1,050	12	Adobe soil	2,250 00	.....	Irrigation and domestic	Clear creek
14,15 22,23 4 69	10.5	10.5	10.5	Earth . . . . .	.....	.....	Irrigation and domestic	Clear creek

STATEMENTS CONCERNING RESERVOIR SITES

UNIMPROVED IN DISTRICT NO. 7, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON Sec. T. S. R.W			Estimated area	Length of dam in feet about	Greatest depth of dam in feet about	Material convenient for construction	Estimated cost	Estimated capacity in cubic feet	Source of supply	REMARKS
31	1	68	7 acres	900	10	•	•	•	Clear creek	•
11	5	74	•	•	•	•	•	•	Chicago creek	Two thousand feet along creek
14	5	74	•	•	•	•	•	•	Chicago creek	Three thousand feet along creek
14	4	67	96 acres	•	•	•	•	36,959,000	•	•
Dollison	•	•	8 acres	1,000	7	•	•	300,000	Clear creek	•
25	2	68	•	•	•	6	•	•	Clear creek	•
30	1	68	8 acres	1,000	8	•	•	•	Clear creek	•
27	2	69	2 6-10 acres	•	•	•	•	359,395	Clear creek	•
15	4	70	•	•	•	•	•	•	53,675	Mt. Vernon gulch
24	2	68	20 acres	800	20	•	•	•	200,000	Clear creek
5	4	69	6 acres	3,000	25	•	•	•	2,600,000	Clear creek
5	4	69	4 acres	500	25	•	•	•	2,600,000	Clear creek
22	4	69	140 acres	1,200	24	•	•	•	Clear creek	•
16	4	69	7 acres	•	•	8	•	•	Clear creek	•

Water District No. 8—S. F. Couch, Commissioner, Littleton, Arapahoe County.

Mr. Couch reports for 1889, an unusual scarcity of water in the Platte river, but owing to opportune rains, the crops were generally good; 20,534 acres were irrigated directly from ditches, and 763 acres from seepage, the seepage water being mainly from the Northern Colorado Irrigation Co.'s canal; 48,232 acres are reported under ditch.

No serious difficulties were encountered in the distribution of water.

For 1890, the report shows 49,684 acres under ditch and 15,077 acres irrigated. The decrease in the amount of land irrigated this year, is attributed to the great scarcity of water, much of the land seeded receiving no water during the season. As a result the loss of grain crops under all ditches taking water from the smaller tributaries of the Platte, and under the Northern Colorado Irrigation Co.'s canal, was very serious, in many cases being entire failures, the average being about one-half a crop. Much difficulty was experienced in keeping head-gates closed, the English High Line especially having been frequently raised during the night, by unknown parties, and threatening notices placed thereon. An assistant was stationed at this gate, to stand guard, and little further interference followed.

Mr. Couch complains of a lack of rating flumes in several ditches, and head-gates so out of repair as to render the regulation of the water difficult and uncertain.

He advises that ditches carrying ten cubic feet of water per second and in excess, should be required to have a Superintendent or ditch-walker, to whom instructions could be given as to the opening and closing of head-gates at flood times.

The Commissioner's tabulated statement for 1890 will be found herein.

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION No. 1—DISTRICT No. 8.

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NAME	LOCATION	EXTENT	CLASS	VAL.	1725	1735	1745	1755	1765	1775	1785	1795	1805	1815	1825	1835	1845
George Dane Ditch25	30	4.50	20	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
¶ Murnmur Ditch	2	.....	.....	170	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
|| Pionueer Ditch	3.50	160	3.33	60	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Cherry Creek Ditch	2	.....	.....	195	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
¶ Cleona Ditch	3	140	1.50	50	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Parker Ditch	2	30	1.25	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
The Boss Ditch	3.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
** Gillman Ditch	2	60	.50	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
†† Fifty-Nine Ditch No. 1	2	170	1.50	80	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Parker Ditch No. 2	1.50	30	2	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rowley Ditch	2	135	2.50	160	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hertzoy Ditch	3	130	3	60	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montgomery Ditch	1.50	.....	.....	200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
** Semen Ditch	3.25	120	2.50	80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Barnes Ditch	1.50	170	3	160	70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Halcy Ditch	1	65	.5.50	200	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe Ditch	1.25	.....	.....	75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
* J. Byron Tucker Ditch75	200	1.50	100	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Schultz Ditch	3	210	2	200	140	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
John Jones Ditch	60	.....	.....

Freshest having washed out head-gate ditch has not been used.

* Not used this year on account of scarcity of water.

** Not used this year.

† To be used for town purposes; not used this year.

‡ Not used.

COMMISSIONER'S REPORT, A. D. 1890—Continued.

STATE ENGINEER.

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Is as far as I can ascertain Bear Creek, a tributary of West Plum.

RUMMING WITH FESCUE NOIR.

PRACTICALITIES

Practically not used this year on account of scarcity of water.
Net in use now.

Not used this year.

Not used this year; corn the crop raised the cause given.
* Does not seem to be in use now.

* Does not seem to be in use now.

COMMISSIONER'S REPORT, A. D. 1890—Continued.

STATE ENGINEER.

¶ Not used this year on account of want of water. Not decreed.

2 Not used thi

[Not used this year]
[Not used on account of scarcity of water.]
Storage.

COMMISSIONER'S REPORT, A. D. 1890—Concluded.

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	5	50	8	450	40	40	100	80	
The High Line Ditch50	60	.50	75	10	10	•	•	14
Garber Creek No. 2.50	75	.50	25	10	•	•	5	•
Stewart Ditch . . . . .	.50	120	.50	20	12	•	•	•	•
Sobey Ditch . . . . .	.75	2	100	.50	75	•	•	75	•
Birmingham Ditch.	2	100	5	50	32	•	•	5	•
The Burrows Ditch	2.25	100	2	80	30	•	•	25	•
George Dane Ditch. . . . .	.50	75	2	•	•	•	•	•	•
Perry Ditch . . . . .	.75	100	1	50	•	•	•	•	20
Crawford Ditch.	2.50	100	3.50	350	15	•	•	200	50
Cann Ditch No. 2.	1	60	.50	20	4	•	•	•	6
Goodrich Ditch.	1.50	•	2	75	•	•	•	75	50
† Upton T. Smith Ditch.	1	•	•	•	•	•	•	•	•
‡ The Deer Creek Cañon Ditch and Reservoir	2.50	70	2.50	250	60	15	•	•	•
The Northern Colo. Irrigation Co.'s Ditch . . .	45	126	146.82	30,000	3,600	1,800	58	1,900	200
|| The Shore Ditch	1.50	•	•	•	•	•	•	•	•
The East Side Ditch . . . . .	.75	100	.50	50	•	•	15	20	•
The Little Daisy Ditch . . . . .	.50	100	.33	25	•	5	15	•	•
The Monroe Ditch	2	50	1	100	15	•	80	•	•
Totals in district	267	•	341.19	49,684	6,495	3,427	3,918	4,759.50	758 15,077

* Not decreed.

† Not used this year on account of scarcity of water.
‡ Partly irrigated from ditch and partly from reservoir.

|| Not used on account of scarcity of water.

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 8, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, NOT HERETOFORE PUBLISHED.

NAME OF OWNER OF WELL	Total depth in feet	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE.				LOCATION	Present flow in minutes per hour	REMARKS
				First flow	Second flow	Third flow	Fourth flow			
John Bell	620	3½ { 5½ 4½ }	470 250 373 }	400 262	475 355	525 575	· · · ·	Sec. 33, T. 4 S., R. 68 W.	10	· · · ·
U. P. R. R	623	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	Sec. 33, T. 3 S., R. 68 W.	· · · ·	· · · ·
W. A. H. Loveland	355	· · · ·	· · · ·	200	340	· · · ·	· · · ·	NE ¼ Sec. 1, T. 4 S., R. 68 W.	· · · ·	Pump, 50 feet
Artesian Ice Co.	636	· · · ·	· · · ·	310	600	· · · ·	· · · ·	Sec. 4, T. 4 S., R. 68 W.	· · · ·	Small
Villa Park	· · · ·	· · · ·	· · · ·	200	400	500	· · · ·	Sec. 7, T. 4 S., R. 68 W.	· · · ·	Pump, 50 feet
J. L. Killie	360	3½	300	· · · ·	· · · ·	· · · ·	· · · ·	Sec. 7, T. 4 S., R. 68 W.	· · · ·	Pump, 100 feet
University Park	740	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	Sec. 25, T. 4 S., R. 68 W.	· · · ·	· · · ·
A. C. Fisk	700	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	Sec. 26, T. 4 S., R. 68 W.	· · · ·	Not used
Rosedale	627	3½	627	320	480	620	· · · ·	Sec. 27, T. 4 S., R. 68 W.	7	· · · ·
Jacob Jones	125	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	· · · ·	Sec. 34, T. 4 S., R. 68 W.	9	· · · ·
J. H. Nichol	450	· { 3 2 }	345	160	370	450	· · · ·	Sec. 1, T. 5 S., R. 68 W.	180	· · · ·
Charles Moore	675	3	650	350	650	· · · ·	· · · ·	Sec. 3, T. 5 S., R. 68 W.	2	· · · ·
Thomas Skerritt	640	2½	600	350	450	620	· · · ·	Sec. 3, T. 5 S., R. 68 W.	5	· · · ·

FIFTH BIENNIAL REPORT,

STATEMENTS CONCERNING ARTESIAN WELLS—Continued.

NAME OF OWNER OF WELL.	Total depth thereof	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE				LOCATION.	REMARKS.
				First flow	Second flow	Third flow	Fourth flow		
J. B. Mayers No. 4	520	...	...	72	...	...	...	Sec. 16, T. 5 S., R. 68 W	Mineral
F. W. Shuckert	601	None	...	250	350	500	580	Sec. 16, T. 5 S., R. 68 W	10
H. H. Shepard	500	2½	...	430	250	440	490	SW ¼ Sec. 16, T. 5 S., R. 68 W	2
W. G. Sprague	540	None	...	250	450	520	...	NW ¼ Sec. 16, T. 5 S., R. 68 W	6
Stark Nursery Co. No. 1	730	3½	2½	730	345	450	650	Sec. 16, T. 5 S., R. 68 W	3
Stark Nursery Co. No. 2	750	5½	4½	750	350	450	630	Sec. 16, T. 5 S., R. 68 W	5
David Linhart	560	None	...	250	350	540	...	Sec. 17, T. 5 S., R. 68 W	8
J. B. Mayers	243	2	118	70	240	...	...	Sec. 17, T. 5 S., R. 68 W	20
J. B. Mayers No. 2	510	3	150	350	450	...	...	Sec. 17, T. 5 S., R. 68 W	25
J. B. Mayers No. 3	520	3½	520	70	250	350	...	Sec. 17, T. 5 S., R. 68 W	10
Chauncy Olmsted	510	2½	440	90	250	450	500	Sec. 17, T. 5 S., R. 68 W	8
C. B. Patterson	600	3½	390	210	350	450	560	Sec. 17, T. 5 S., R. 68 W	10
Littleton school-house	510	3	30	243	...	...	...	SE ¼ Sec. 17, T. 5 S., R. 68 W	5
David Linhart	440	2½	400	250	420	Sec. 18, T. 5 S., R. 68 W	10
Chas. E. Hill	467	3½	248	254	281	314	333	Sec. 19, T. 5 S., R. 68 W	20

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Robert Spottswood	500	4	180	190	250	350	•	Sec. 19, T. 5 S., R. 68 W.	20
W. Bowles	378	2	378	112	378	•	NW. $\frac{1}{4}$ Sec. 20, T. 5 S., R. 68 W	4	
W. Bowles	525	•	•	150	•	•	Sec. 20, T. 5 S., R. 68 W	9	
W. Bowles	385	•	•	•	•	•	Sec. 20, T. 5 S., R. 68 W	31	
David Linhart	480	•	•	475	•	•	Sec. 20, T. 5 S., R. 68 W	15	
R. Gallup	536	•	•	•	•	•	Sec. 21, T. 5 S., R. 68 W	10	
Mr. G. H. Elliott	580	2 $\frac{1}{2}$	•	500	•	•	Sec. 21, T. 5 S., R. 68 W	8	
B. Mayers No. 4	530	3 $\frac{1}{2}$	510	350	450	500	•	Temperature 62 degrees	
B. Mayers	635	•	•	•	•	•	Sec. 21, T. 5 S., R. 68 W	5	
Geo. J. Burnett	547	2 $\frac{1}{2}$	520	350	520	520	•	Temperature 62 $\frac{1}{2}$ degrees	
W. Chapman	440	•	•	•	•	•	Sec. 21, T. 5 S., R. 68 W	10	
Peter Magnes	258	None	•	250	•	•	Sec. 21, T. 5 S., R. 68 W	10	
Geo. J. Burnett	540	2 $\frac{1}{2}$	•	520	•	•	Sec. 21, T. 5 S., R. 68 W	50	
H. Curtis, Sr	342	2 $\frac{1}{2}$	340	340	•	•	Sec. 22, T. 5 S., R. 68 W	20	
H. Curtis, Jr	328	2 $\frac{1}{2}$	328	250	300	•	Sec. 24, T. 5 S., R. 68 W	10	
John Curtis	630	2 $\frac{1}{2}$	550	250	300	600	•	Sec. 28, T. 5 S., R. 68 W	
H. Nelson	•	•	•	213	350	450	520	NW. $\frac{1}{4}$ Sec. 28, T. 5 S., R. 68 W	5
Evi Palmer	301	•	•	267	285	•	Sec. 28, T. 5 S., R. 68 W	10	
Frank Cayley	•	•	•	•	•	•	Sec. 29, T. 5 S., R. 68 W	9	
Peter Magnes	365	•	•	•	•	•	Sec. 30, T. 5 S., R. 68 W	36	
Peter Magnes	258	•	•	255	•	•	Sec. 30, T. 5 S., R. 68 W	12	
R. F. Price	•	•	•	•	•	•	Sec. 33, T. 5 S., R. 68 W	•	

STATEMENTS CONCERNING ARTESIAN WELLS—Concluded.

NAME OF OWNER OF WELL,	TOTAL DEPTH IN FEET	DIAMETER OF CASE IN INCHES	DEPTH OF FLOW BELOW SURFACE	LOCATION			REMARKS
				First flow	Second flow	Third flow	
J. M. Fox	597	2½	218	218	...	...	Sec. 6, T. 6 S., R. 68 W.
J. H. Pearce	442	3	440	80	440	...	Sec. 34, T. 6 S., R. 68 W.
George Manhart	710	2½	650	...	...	...	Sec. 14, T. 7 S., R. 68 W.
A., T. & S. F. R. R	740	5	200	350	450	600	Sec. 14, T. 7 S., R. 68 W.
— Jones	1,440	...	...	250	...	...	Sec. 36, T. 7 S., R. 68 W.
Ed. L. Chatfield	395	3½	65	175	250	...	Sec. 1, T. 6 S., R. 69 W.
William Shellabarger	630	2½	70	310	...	...	Sec. 11, T. 6 S., R. 69 W.
A., T. & S. F. R. R	540	5	200	500	...	...	Larkspur, T. 9 S., R. 67 ^½ W
H. W. Cottrell	600	{ 3½ 2½	200	250	580	...	Arapahoe county
H. B. Curtis	550	2½	500	250	525	...	Arapahoe county
Thomas Fitzgerald	750	2½	500	250	350	500	Arapahoe county
A. Latham	740	3½	650	400	660	720	Arapahoe county
John Quinlan	900	2	887	887	...	...	Douglas county
							10
							30
							Pump, 75 ft.—inexhaustible
							Pump, 150 feet
							1/4
							Pump, 116 feet
							.2
							5
							20
							7
							12

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 8, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

STATE ENGINEER.

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NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Little Grainger Ditch	South Platte river	Dec. 4, 1888	.....	.....	Deuer Water and Reservoir Company
The Nuckolls Ditch	Dry creek	Jan. 7, 1889	Dec. 20, 1888	7	F. & G. H. and J. M. & Ezra Nuckolls
Amended statement of the Nuckolls Ditch	Dry creek	Feb. 7, 1889	Dec. 20, 1888	7	F. & G. H. and J. M. & Ezra Nuckolls
The John F. Letner Ditch	Plum creek	Mar. 28, 1889	May 1, 1887	2	John F. Letner
The Middleton Ditch	Plum creek	Mar. 29, 1889	Mar. 13, 1888	7	John Burke
The John F. Letner Ditch, first enlargement	Plum creek	May 18, 1889	May 14, 1889	18	John F. Letner
The Melvin Gardens, Land and Irrigating Company's Ditch } The John Stein Ditch	{ A well or catch basin	May 27, 1889	April 10, 1889	Not stated	The Melvin Gardens, Land and Irrigation Co
The Spring Brauch Ditch	Plum creek	June 8, 1889	Oct., 1873	13.02	John Stein
The E. Cherry Creek Ditch, No. 1	) A spring brauch) of J. Cherry et al {	July 29, 1889	April 18, 1889	16	Estate of James Russell
The Fairview Ditch	East Cherry creek .	July 29, 1889	April 18, 1889	9	Estate of James Russell
The E. Cherry Creek Ditch, No. 2	East Cherry creek .	July 29, 1889	April 18, 1889	9	Estate of James Russell
The Castlewood Ditch	Not stated	Sept. 4, 1889	Not stated . . .	50	(Castlewood Ditch Co.), H. B. Chamberlain & Co
The Schutz Ditch	Deer creek	Sept. 28, 1889	Aug. 20, 1886	52	John C. Bertolette
Russellville gulch	Russellville gulch .	Jan. 7, 1890	..... 1872	2	Jacob Schutz

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Linhart Ditch No. 5	Dad Clark gulch	Feb. 15, 1890	Aug. 1, 1899	3	Eliza Linhart
The Palmer Lake Ditch	Cook creek	Mar. 1, 1890	Feb. 21, 1890	20	H. E. Wilson
The North Palmer Lake Ditch . . .	Unknown	Mar. 1, 1890	Feb. 26, 1890	4	H. E. Wilson
The Izard Ditch	Cherry creek	April 3, 1890	Mar. 9, 1890	4	Annie M. Izard and John E. Izard
The Arapahoe Canal	Cherry creek	April 23, 1890	Jan. 25, 1890	140	The Denver Water Storage Company
The North Palmer Lake Ditch or Pipe Line	Cook creek [No. 2]	May 8, 1890	Feb. 8, 1890	50	W. M. Younger, et al.
				20	
				10	
The Clark Lateral	Cherry creek	Sept. 20, 1890	Aug. 4, 1890	67.50	The Denver Water Storage Company

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 8, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

STATE ENGINEER:

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NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Denver Water and Reservoir Company's Reservoirs,	No. 1 { South Platte and Bear creek, Little Grainger, So. . . .	{ Arnett, Bear creek, Little Grainger, So. Platte	Dec. 4, 1888	Sept. 7, 1888	{ 980,062,942 223,872,560	{ Denver Water and Reservoir Company
The Windsor Reservoir	No. 5 Dutch creek	On the stream	Aug. 26, 1889	Aug. 17, 1889	92,000	George Able <i>et al.</i>
The Fairview Reservoir	Dry creek	On the stream	Sept. 28, 1889	Not stated	Not given	John C. Bertlette
The Wanconlah Reservoir	Deer creek	Fairview ditch	Oct. 21, 1889	Sept., 1888	5,000,000	{ Redstone Town Land and Mining Company
The Castlewood Reservoir	Bear Springs crk	On the stream	Feb. 12, 1890	Dec. 2, 1889	229,000,000	Denver Water Storage Co.
The Palmer Lake Park Reservoir.	Cherry creek	On the stream	Palmer Lake park	Feb. 21, 1890	50,000,000	H. E. Wilson
The North Palmer Lake Reservoir	Cook creek	Cook creek	Mar. 1, 1890	Feb. 26, 1890	10,000,000	
The North Palmer Lake Reservoirs	No. 1 Name unknown	No. Palmer Lake	On the stream	On the stream	10,450,000	
No. 2 Gard's cañon	No. 2 Gard's cañon	On the stream	May 8, 1890	Feb. 8, 1890	2,100,000	W. M. Younger <i>et al.</i>
No. 3 McClure's canon.	No. 3 McClure's canon.	On the stream			2,200,000	

STATEMENT CONCERNING RESERVOIRS—*Concluded.*

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Fairview Reservoir No. 2 . . .						
The Fairview Reservoir, enlargement of	Deer creek . . .	Fairview ditch . .	May 24, 1890	May 15, 1890	{ 5,000,000	John C. Bertollette
The Casa Grande Reservoir.	Not stated . . .	Not given . . .	Sept. 20, 1890	Aug. 14, 1890	{ 4,500,000	The Castle Rock Water Company
The Clark Reservoir	Cherry creek	Arapahoe canal .	Sept. 20, 1890	Aug. 12, 1890	{ 28,000,000 30,344,400	

STATEMENT CONCERNING EXISTING RESERVOIRS

IN WATER DISTRICT NO. 8, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON 1/4 SEC.	T. S. R. W.	Area in acres	Length of dam in feet	Greatest depth of dam in feet	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
43	4	67	2	.....	8	Earth	\$ 600 00	10,000,000	Irrigation
S.E. 10	6	69	16	900	6	Earth, rock .	500 00	8,000,000	Irrigation

{ Cottonwood & Cherry
Creeks by under-
ground flume

STATEMENTS CONCERNING RESERVOIR SITES

UNIMPROVED, IN DISTRICT NO. 8, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

$\frac{1}{4}$ Sec.	T. S.	R. W.	Estimated area	Length of dam in feet about	Greatest depth of dam in feet about	Material convenient for construction	Estimated cost	Estimated capacity in cubic feet	Source of supply	REMARKS
SW 10	6	69	15 acres	900	20	.....	.....	5,000,000	Deer creek,	
SW 10	6	69	.....	.....	.....	.....	.....	.....	Deer creek,	
NW 10	6	69	.....	.....	.....	.....	.....	.....	Deer creek,	

Water District No. 9—Frank Ewers, Commissioner, Morrison, Jefferson County.

Mr. Ewers reports for 1889, as having been called out April 22, and continued service for one hundred and seventeen days. He participates in the general complaint of Water Commissioners against poor head-gates and lack of rating flumes. He reports the enforcement of the order against running water in ditches exclusively for domestic uses, as giving general satisfaction, and resulting in a great saving of water.

For 1890, Mr. Ewers reports going on duty April 18, for the purpose of notifying ditch owners to construct proper head-gates and rating flumes, in accordance with instructions of the Superintendent of the Division, and further reports a general compliance on the part of the owners.

Streams were very low during the entire season, Turkey creek drying up entirely June 23, for the first time in years.

No difficulties were encountered in the distribution of water. Total service, one hundred and nineteen days.

Tabulated statement for 1890 is herewith submitted.

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION NO. 1—DISTRICT NO. 9.

NAME OF DITCH	Length thereof in miles.	Number of days water was carried therefrom.	Average amount of water carried during season of 1890 per cubic feet per second of time.	Number of acres that can be irrigated therefrom.	Number of acres of alfalfa irrigated therefrom.	Number of acres of other than alfalfa irrigated therefrom.	Number of acres of natural grasses irrigated therefrom.	Number of acres of other crops irrigated therefrom.	Number of acres irrigated from seepage.	Total number of acres irrigated in district.
The McBroom Ditch	1.50	115	• • • •	163	43	40	15	35	• • • •	• • • •
The Simonton Ditch	3.25	121	• • • •	432	170	32	133	87	• • • •	• • • •
The Hodgson Ditch	2.25	82	• • • •	179	10	35	25	49	• • • •	• • • •
The Warrior Ditch.	4.50	149	• • • •	960	464	143	67	249	• • • •	• • • •
The Pioneer Union Ditch.	3.75	151	• • • •	660	181	231	47	191	• • • •	• • • •
The Olson & Bell Ditch	1.25	45	• • • •	191	9	• • • •	25	107	• • • •	• • • •
The Hindry Ditch	3	65	• • • •	170	134	11	• • • •	• • • •	• • • •	• • • •
The Lawn Ditch . . . . .	.75	9	• • • •	10	• • • •	• • • •	• • • •	5	• • • •	• • • •
The Spickerman Ditch	1	30	• • • •	45	12	• • • •	33	• • • •	• • • •	• • • •
The Lewis & Strouse Ditch	3	72	• • • •	152	122	• • • •	• • • •	30	• • • •	• • • •
The Strouse Ditch . . . . .	.50	14	• • • •	20	• • • •	15	• • • •	• • • •	• • • •	• • • •
The Spickerman Lower Ditch . . . . .	.75	7	• • • •	15	15	• • • •	• • • •	• • • •	• • • •	• • • •

The Spickerman Middle Ditch . . . . .	.75	8		20	12	8		
The Arnett Ditch	9	119		1,272	614	195	210	253
The Churn Ditch		18		7	7	8		
The Fischer Ditch . . . . .	.75	3		37	4		25	
The Bergen Ditch	1			20	15		5	
The Independent High Line Ditch	3			105				
The Ward & Kendrick Ditch	6					40	15	
The Ewan Ditch	14	12		652	215	20	68	100
The McBroom Transfer Ditch . . . . .	.50				7	5		
Totals in district	1.75	37		70	40		20	
	65.25			5,599	2,215	742	761	1,193

No water run since April 19, 1890.

RESERVOIRS.

[†] No water run in 1890.

COMMISSIONER'S REPORT, A. D. 1890—Concluded.

NAME OF RESERVOIR	Number of acres of alfalfa irrigated that can be irrigated from the reservoir		Number of acres of alfalfa irrigated that can be irrigated from the reservoir		Number of acres of alfalfa irrigated that can be irrigated from the reservoir		Number of acres of alfalfa irrigated that can be irrigated from the reservoir		Number of acres of alfalfa irrigated that can be irrigated from the reservoir		Number of acres of alfalfa irrigated that can be irrigated from the reservoir		
	Number of acres of natural grasses from which seeded grasses are harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	Number of acres of other than alfalfa irrigated from which seeded grass is harvested	
The Kendrick Reservoir No. 2	160	50	30	·	·	·	·	·	·	·	·	·	·
The Kendrick Reservoir No. 3	160	60	·	·	·	·	·	100	·	·	·	·	·
The Morgan Supply Company's Reservoirs:	·	·	·	·	·	·	·	·	·	·	·	·	·
Deane	·	225	125	·	·	·	·	100	·	·	·	·	·
*Johnson	·	120	·	·	·	·	·	100	·	·	·	·	·
*Grant	·	120	43	·	·	·	·	·	·	·	·	·	·
No. 6	·	10	·	·	·	·	·	10	·	·	·	·	·
No. 7	·	80	·	·	·	·	·	80	·	·	·	·	·
Totals in district	4,111	1,065	268	185	1,683	1,683	1,683	4,911	·	·	·	·	·

* Filled from Morgan Supply Company's Ditch.

STATE ENGINEER.

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STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 9, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OR WILL	Total depth thereto in feet	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE			LOCATION	Present flow in minutes	REMARKS.
				First flow	Second flow	Third flow			
Joseph Hodgson	75	..	..	..	..	..	..	1½	..
Howard	300	41	..	..	..	..	..	5	..
Holyoke & McBroom	613	50	..	..	..	..	..	..	Well has failed
Isaac McBroom	190	..	..	..	..	..	..	4	..
John McBroom	200	135	..	..	..	..	..	6	..

STATEMENT CONCERNING DITCHES

IN DISTRICT NO. 9, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL,	Stream from which water is taken	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Ward Ditch, enlargement of.	Bear creek	Dec. 3, 1888	March 1, 1888	18.35	W. S. Ward <i>et al</i>
The Knight Ditch	Bear creek	May 23, 1889	June 25, 1879	8	James Knight
The Arnett and Harriman Ditch, third enlargement of	Bear and Turkey creeks	July 29, 1889	April 30, 1889	138.20	Joseph W. Bowles
The Bear Ditch	Turkey creek	Dec. 4, 1888	Sept. 7, 1888	174.70	
The Arnett Ditch, enlargement of	Bear creek	Dec. 4, 1888	Sept. 7, 1888	316.50	Denver Water & Reservoir Company
The Cub Ditch				322.29	
The Feeder Ditch				60.03	
The Arnett Ditch, enlargement of	Bear creek	March 4, 1889	Dec. 5, 1889	102	The Arnett Ditch Company
The Mount Vernon Supply Ditch.	Mt. Vernon gulch .	May 27, 1890	May 26, 1890	27.85	Robert A. Strain

STATEMENT CONCERNING RESERVOIRS—*Concluded.*

NAME OF RESERVOIR	NAME OF stream supplying water thereto	Name of ditch leading water thereto	DATE OF filing in State Engineer's office	TIME OF commencement of work thereon	CAPACITY claimed in cubic feet	NAME OF CLAIMANT
The W. C. Henry Reservoir	Bear Creek	Arnett Ditch	March 4, 1890 Dec. 5, 1889	5,1889	9,900,000	W. C. Henry
The Stickford Reservoir	{ "A" "B" }	Bear Creek	Arnett Ditch	March 4, 1890 Dec. 5, 1889	{ 3,575,000 183,750 }	J. D. Stickford
Henry W. Lake's Reservoirs	{ "A" "B" "C" "D" }	Bear Creek	Arnett Ditch	March 4, 1890 Dec. 5, 1889	{ 13,939,200 3,920,400 653,400 1,396,800 }	H. W. Lake
H. B. Coy's Reservoirs	{ No. 1 No. 2 No. 3 }	Bear Creek	Arnett Ditch	March 4, 1890 Dec. 5, 1889	{ 2,189,280 653,400 1,306,800 }	H. B. Coy
Bowles Lake (so called)	Bear Creek	Arnett Ditch	March 4, 1890 Dec. 5, 1889	165,000,000	8,712,000	Joseph W. Bowles
Bowles No. 2	Bear Creek	Arnett Ditch	March 4, 1890 Dec. 5, 1889	5,227,000		
Reservoir No. 2						

*Water District No. 23—M. R. Hanlin, Commissioner,
Fairplay, Park county.*

Mr. Hanlin was called out May 15, 1890, and continued in service until November 3, a total of one hundred and twenty-one days, and employed an assistant five days.

He reports an abundance of water from all ditches, excepting some diverting from Jefferson, Tarryall and Four Mile creeks, the greatest scarcity being in Jefferson creek.

Mr. Hanlin has a large district, and two hundred and nine ditches to regulate.

He reports seventy-seven thousand one hundred and twenty-three acres irrigated from three hundred and one and one-half miles of ditches, all of which amount, excepting about two hundred and fifty acres, was in natural grasses. He expresses the opinion that water is decreed to the ditches largely in excess of their capacities, and suggests an official measurement of all ditches and lands irrigated under the same; also, that a certain quantity of water, to be fixed by law, be allowed to each one hundred acres, not exceeding the quantity decreed to each ditch.

Following will be found his statistical statement for 1890:

The Rock Creek Ditch	1	79	160	160
The Stevens Ditch No. 1 . . . . .	.10	69	10	10
The Stevens Ditch No. 2 . . . . .	.10	69	5	5
The Ratcliff Ditch No. 2	1	80	30	30
The Miller & Chapman Ditch . . . . .	.50	73	250	250
The Sigafus Ditch	5	89	1,720	1,720
The Haver Ditch No. 1 . . . . .	.75	71	60	60
The Anderson Ditch No. 3 . . . . .	.75	66	450	450
The Alden & Milligan Ditch	1.50	60	360	355
The Chappella Ditch . . . . .	.375	68	80	80
The Kister Sweet Ditch	2.66 $\frac{2}{3}$	91	730	730
The Daniel Fyffe Ditch	1	84	200	200
The Stevens Ditch No. 3 . . . . .	.50	69	30	30
The Reinhardt Ditch No. 1 . . . . .	.75	82	400	400
The Brownlow & Stevens Ditch	2	65	640	640
The Pruden Ditch . . . . .	.75	60	100	100
The Troppe Ditch . . . . .	.12 $\frac{1}{3}$	69	25	25
The Stevens Ditch No. 4 . . . . .	.50	69	30	30
The Burns & Sessions Ditch	2.25	92	760	760
The Raudall & Nicholls Ditch	2	90	1,200	1,200
The Borden Ditch No. 2	1.25	80	180	180
The Mary G. Borden Ditch . . . . .	.50	80	35	35

COMMISSIONER'S REPORT, A. D. 1890.—*Continued.*

NAME OF DITCH.

NAME OF DITCH.	Length thereof in miles	Average amount of water can be trifled with each acre from time of second or first cutting season of 1890 in cubic feet per acre per year	Number of acres that can be trifled with each acre from time of second or first cutting season of 1890 in cubic feet per acre per year	Number of acres of seeded grasses of seeded alfalfa irrigated three times per year	Number of acres of seeded grasses of other crops trifled with each acre from time of second or first cutting season of 1890 in cubic feet per acre per year	Number of acres of seeded grasses of other crops trifled with each acre from time of second or first cutting season of 1890 in cubic feet per acre per year	Total number of acres irrigated three times per year
The Demick Ditch	1.50	91	880	880	540	540	1,520
The Fehringier Ditch No. 1	2	88	200	200	20	20	200
The Crozier & Hawthurst Ditch	1.50	79	150	150	175	175	150
The Wadley Ditch No. 1 . . . . .	.50	90	20	20	20	20	20
The Wadley Ditch No. 2	2	90	120	120	117	117	120
The Weed Ditch	1.25	93	150	150	150	150	150
The Ratcliff Ditch No. 3	1.06 $\frac{1}{4}$	80	35	35	35	35	35
The Parker & Bonis Ditch	1.33 $\frac{1}{3}$	78	120	120	120	120	120
The Brubaker Ditch	5	91	640	640	640	640	640
The Parmalee & Shoemaker Ditch No. 1	3	89	400	400	395	395	395
The Anderson Ditch No. 2	1.25	82	300	300	300	300	300
* The Saddler Ditch		1.33 $\frac{1}{3}$	940	940	50	50	50
The Wadley Ditch No. 3 . . . . .		.66 $\frac{2}{3}$	90	90	320	320	320
The Baker & Lilley Ditch	2.50	89					

The Tarryall Ditch	1	94	• • •	160	• • •	160
The Michigan Ditch . . . . .	.50	87	• • •	80	• • •	80
The Halthusen Ditch . . . . .	.50	93	• • •	40	• • •	40
The Dunbar Ditch	1.50	87	• • •	400	• • •	400
The Hawhurst Ditch	1	89	• • •	100	• • •	100
The McManus Ditch	1.25	90	• • •	100	• • •	100
The Holst Ditch No. 1 . . . . .	.12½	76	• • •	150	• • •	150
The Hubbard Ditch	1.50	92	• • •	360	• • •	360
The Lee Ditch No. 1 . . . . .	.62½	81	• • •	40	• • •	40
The Parnalee & Shoemaker Ditch No 3	.60	91	• • •	100	• • •	100
The Island Ditch . . . . .	.02	78	• • •	60	• • •	60
The Haver Ditch No. 2 . . . . .	.50	87	• • •	80	• • •	80
The Balm of Gilead Ditch . . . . .	.75	60	• • •	160	• • •	160
The Foster Ditch	4.33½	89	• • •	1,160	• • •	1,160
The Reinhardt Ditch No. 4	1	86	• • •	80	• • •	80
The Crozier & Taylor Ditch	1.50	91	• • •	160	• • •	160
The Holst & Packer Ditch	1.50	76	• • •	200	• • •	200
The Milligan Ditch	1	89	• • •	100	• • •	100
The Lee Ditch No. 2 . . . . .	.12½	81	• • •	6	• • •	6
The Lavack Ditch	2.50	93	• • •	220	• • •	220
The Hot Springs Ditch	6.25	93	• • •	3,000	• • •	3,000

* Not used this year.

COMMISSIONER'S REPORT, A. D. 1890--Continued.

STATE ENGINEER.

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WATER COMMISSIONER'S REPORT, A. D. 1890—*Continued.*

NAME OF DITCH	Length thereof in miles	Average amount of water carried during second season of 1890 in cubic feet per second of time	Number of days water was carried therefrom	Number of acres that can be irrigated three times	Number of acres of alfalfa irrigated three times	Number of acres of seeded grasses other than alfalfa irrigated three times	Number of acres of non-turf grasses irrigated three times	Number of acres irrigated from other sources irrigated three times	Number of acres irrigated from seepage	Number of acres irrigated in ditches
The Slater Ditch . . . . .	.50	89	...	440	...	...	...	...	...	...
The Dunbar Ditch No. 2 . . . . .	.50	77	...	100	...	...	...	...	...	...
The Petrie Ditch	3	89	...	400	...	...	...	...	...	...
The Ratcliff Ditch No. 4 . . . . .	.50	80	...	12	...	...	...	...	...	...
The Holthusen Ditch No. 1 . . . . .	.25	67	...	40	...	...	...	...	...	...
The Ratcliff Ditch No 5 . . . . .	.64	79	...	15	...	...	...	...	...	...
The Parker Ditch	3	72	...	480	...	...	...	...	...	...
The Pierce Ditch	1.50	68	...	160	...	...	...	...	...	...
The Heely Ditch No. 1	1.37½	61	...	100	...	...	...	...	...	...
The Heely Ditch No. 2 . . . . .	.20	61	...	40	...	...	...	...	...	...
The Session Ditch	1.50	72	...	250	...	...	...	...	...	...
The Souders & Wolf Ditch No. 2 . . . . .	.25	62	...	15	...	...	...	...	...	...
The Dunbar Ditch No. 2	1	71	...	140	...	...	...	...	...	...
The Gibsoq Ditch . . . . .	.50	80	...	100	...	...	...	...	...	...

The Skelton Ditch	72	200	200
The Thompson Ditch	79	2,000	2,000
2 The Anderson Ditch	71	640	640
3 The Reinhardt Ditch No. 2	67	320	320
The Reinhardt Ditch No. 3	66	320	320
The Harris Ditch	71	320	320
The Love & Rayner Ditch	63	160	160
The Peabody Ditch No. 2	61	120	120
The D. F. Miller Ditch No. 1	71	400	400
The W. R. Head Ditch No. 3	74	95	95
The W. R. Head Ditch No. 4	74	100	100
The Anderson & Brewer Ditch	81	480	480
The Dunbar Ditch No. 1	78	400	400
The Lilley & Harriman Ditch	87	320	320
The Western Ditch	83	3,800	3,775
The Drake Ditch	47	90	25
The Thoburg Ditch	62	300	90
The Radford & Wright Ditch	62	100	300
The Garden Ditch	62	15	100
The Lasell Ditch	73	440	15
The Ratcliff Ditch No. 6	80	10	440
The Ratcliff Ditch No. 7	80	10	10

COMMISSIONER'S REPORT, A. D. 1890—*Continued.*

NAME OF DITCH	Length thereof in miles	Average amount of water carried during season of 1890 in cubic feet per second of time	Number of days water was car- ried therefrom that can be traced there- from	Number of acre's of alluvia trig- gered three- fold from seced grasses other than al- kaline trig- gered therefrom	Number of acre's of natural grass trig- gered therefrom of other crops than grasses trig- gered therefrom	Number of acre's of other crops trig- gered therefrom of grasses trig- gered therefrom	Total number of acres trig- gered from soil	Number of acre's secpage triggered from soil	Total number of acres trig- gered in dis- trict
The Little Channel Ditch	1.25	71	•	100	•	•	•	•	•
The Craig Ditch . . . . .	.50	75	•	320	•	•	320	•	•
The Bonnell Ditch	1.75	71	•	360	•	•	360	•	•
The Rogers South Ditch	2	82	•	300	•	•	300	•	•
The Weston Ditch	3.8	69	•	500	•	•	500	•	•
The Ratcliff No. 8 Ditch . . . . .	.50	80	•	20	•	•	20	•	•
The Ratcliff No. 9 Ditch . . . . .	.50	73	•	20	•	•	20	•	•
The Devine Hill Ditch . . . . .	.333	81	•	760	•	•	760	•	•
The East Side Ditch . . . . .	.60	79	•	250	•	•	250	•	•
The Park Ditch	1.50	73	•	120	•	•	120	•	•
The Rayner & Edmondson No. 1 Ditch . . . . .	.25	81	•	500	•	•	500	•	•
The Mickles Ditch . . . . .	.60	63	•	100	•	•	100	•	•
The Rayner & Edmondson No. 5 Ditch	1-35	81	•	500	•	•	500	•	•
The Rayner & Edmondson No. 3 Ditch . . . . .	.50	81	•	500	•	•	500	•	•

The Litner Ditch . . . . .	.50	83	320	320
The Redman Ditch	1.125	71	60	60
The Rayner & Edmondson No. 4 Ditch .	.02	81	60	60
The D. F. Miller Ditch . . . . .	.75	78	180	180
The Four Mile Ditch	1.50	71	40	40
The Harrington South Ditch . . . . .	.50	79	600	600
The Rickards Lower Ditch . . . . .	.20	81	50	50
The Sheep Rock Ditch	1	10	920	920
The St. Charles Ditch . . . . .	.375	67	50	50
The Dudley Ditch . . . . .	.875	81	60	60
The O'Brien Ditch . . . . .	.75	80	60	60
The Schattinger Ditch . . . . .	.75	63	80	80
The Weaver No. 2 Ditch . . . . .	.375	66	25	25
The W. H. Miller Ditch . . . . .	.50	71	25	25
The Beaver Ditch	7	74	960	960
The Rebecca Ditch . . . . .	.375	72	50	50
The Park Gulch Ditch . . . . .	.25	64	30	30
The Harland Extension Ditch . . . . .	.333	60	40	40
The Lee No. 3 Ditch . . . . .	.625	61	10	10
The Mexican Ditch	1	72	200	200
The Lee No. 4 Ditch . . . . .	.75	61	10	10
The Chubb Ditch	3.50	..	1,500	1,500

COMMISSIONER'S REPORT, A. D. 1890—*Concluded.*

NAME OF DITCH	Length thereof in miles	Number of days water was carried therein	Average amount of water carried during season of 1890 in cubic feet per second of time	Number of acres that can be irrigated therefrom	Number of acres of alfalfa irrigated three times	Number of acres of grasses irrigated three times	Number of acres of natural grasses from which crops have been gathered three times	Number of acres of other crops from which crops have been gathered three times	Total number of acres irrigated in district
					specie		specie		
The Kenosha Ditch	2	71	648	648	1,985	15	•	•	•
The Harrington and Richards Ditch .	6.0625	74	2,000	•	•	•	•	•	•
The Nelson High Creek Ditch . . . . .	.75	50	120	•	•	•	•	•	•
The McCartney Ditch	5	73	940	•	•	•	•	•	•
The Link Ditch	1.75	84	700	•	•	•	•	•	•
The Island Ditch . . . . .	.875	81	100	•	•	•	•	•	•
The Hartsell Four-Mile Ditch	1.125	72	350	•	•	•	•	•	•
The W. R. Head No. 2 Ditch . . . . .	.25	77	10	•	•	•	•	•	•
The Montag and Truax Ditch	1.50	83	320	•	•	•	•	•	•
The Alkaline Ditch	1.0625	72	140	•	•	•	•	•	•
The Peabody No. 3 Ditch	1	65	100	•	•	•	•	•	•
The Souders and Wolf No. 4 Ditch20	63	20	•	•	•	•	•	•
The Sacramento Ditch	2.25	71	840	•	•	•	•	•	•
The Como Jim Ditch25	83	500	•	•	•	•	•	•

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STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 23, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE YET BEEN ISSUED.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT.
The Gibbs Ditch	Marvin creek	Jan. 15, 1889	Oct. 26, 1888	17.50	Arthur W. Gibbs
The Brookside Ditch	Clay creek	May 4, 1889	April 29, 1889	18	M. Caffrey and J. H. Crowell
The Park Ditch	Hildebrandt creek	May 4, 1889	April 20, 1889	18.30	M. Caffrey and J. H. Crowell
The Alderbrook Ditch	Alderbrook	Aug. 3, 1889	July 15, 1889	1.43	Wm. Garsten and Frederick W. Hartley
The Manitou Park Water System Ditch No. 1	Loy's creek	Aug. 25, 1889	May 27, 1889	1	W. H. Hoagland, <i>et al.</i>
The Manitou Park Water System Ditch No. 2	E. & W. branches of Trout creek	Aug. 26, 1889	May 27, 1889	.80	W. H. Hoagland, <i>et al.</i>
The East Ditch	{ Elk creek	Oct. 2, 1889	{ April, 1889	7.50	Mary E. Emmitt, <i>et al.</i>
The West Ditch	{ The Standinger Ditch	{ Oct. 7, 1889	{ Sept., 1888	4.12	Wilhelm Holthusen
The Holthusen Ditch	Tarryall creek	Oct. 9, 1889	June, 1882	5	Charles Wheeler
The Wheeler Ditch, No. 1	Trout creek	Oct. 14, 1889	Oct. 2, 1889	6.20	W. H. Funk
The Spring Ditch	Unnamed creek	Oct. 14, 1889	Oct. 2, 1889	6	W. H. Funk
The Salt Creek Ditch	Salt creek	Oct. 14, 1889	Oct. 2, 1889	6	W. H. Funk
The Funk Ditch	Unnamed creek	Oct. 14, 1889	Oct. 2, 1889	4	W. H. Funk
The Valley Meadow Ditch	Trout creek	Oct. 24, 1889	Not stated	4.60	Geo. W. Barrou

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The Fremont Ditch	Tarryall creek	Nov. 7, 1889	Spring, 1887	45	Samuel Lasel
The Lower Kenosha Ditch	Kenosha gulch	Nov. 25, 1889	Oct. 1, 1889	25	M. F. Case and S. S. Caruthers
The Citizens Water Company's Feed Pipe Lines	N. & S. forks of S. Platte river. }	Dec. 28, 1889	Oct. 1, 1889	90	The Citizens Water Company
Taylor's Jefferson Creek Ditch	Jefferson creek	July 14, 1890	June 13, 1890	8	Samuel Taylor
The Deadman's Gulch Ditch	Deadman's gulch			28	
The Beaver Gulch Ditch	Beaver gulch.			24	
The Inlet Ditch	Guerney gulch	July 24, 1890	July 15, 1889	55	David Baker, James Moynahan and Williard R. Head
The Baker Outlet Ditch	Baker reservoir			17	
The Main Outlet Ditch	Baker reservoir			37	
The TomWithersDitch or PipeLine Extension of The Boynton Ditch	A spring	July 31, 1890	July 3, 1885	.99	Thomas Withers
'The Waterfall Ditch, No 1.	No. 1, Rule creek	Sept. 13, 1890	June 9, 1890	3	Daniel Staffa
'The Waterfall Ditch, No 2.	No. 2,			3	
'The Waterfall Ditch, No. 3	Waterfall gulch		June 18, 1876		
'The Fern Ditch	Fern gulch.	Sept. 13, 1890	June 18, 1876	12	
'The Buttress Ditch	Buttress gulch				
'The Spring Gulch Ditch	Spring gulch.				
'The Mendenhall Ditch	Mendenhall creek	Oct. 15, 1890	June, 13, 1878	5*	Castle Lake Resort Company
				12	

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 23, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Lake Antero Reservoir . . .	South Platte river . . .	On the stream . . .	Feb. 8, 1889	Nov. 15, 1888	2,214,323	{ C. M. Coover, Gordon Land <i>et al.</i>
The Citizens' Water Comp'y's Reservoir	N & S. F's S. Platte	Comp's Pipe Line . . .	Dec. 28, 1889	Oct. 1, 1889	1,336,989,400	. . . . . The Citizen's Water Co.
The Lake Antero Reservoir . . .	South Platte river . . .	On the stream . . .	Mar. 20, 1890	Sept. 19, 1889	2,214,323,684	{ The Antero Reservoir and Land Company.
The Baker Reservoir	Deadman's, Beaver & Guernsey Gulch's	Inlet Ditch	July 24, 1890	July 15, 1889	\$8,050,000	. . . . . David Baker <i>et al.</i>
The Lidderdale Reservoir . . .	South Platte river . . .	On the stream . . .	Oct. 14, 1890	July 15, 1890	32,000,000 George W. Frost

STATEMENT CONCERNING DITCHES

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IN WATER DISTRICT NO. 23 (SOUTH PARK), GIVING THE DATE AND ORDER OF PRIORITY, AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, AS THEY HAVE BEEN ESTABLISHED BY THE DECREE OF COURT OF THE FOURTH JUDICIAL DISTRICT. FROM THE CERTIFIED COPY OF THE DECREE, AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH, CANAL, OR RESERVOIR.	Stream from which water is taken	Date of appropriation	Cubic feet per second decreed to each priority and previous to each appropriation		Cubic feet maximum capacity, as determined by actual gaugings as described in decree of court of each reservoir or canal to which priority is given	Cubic feet per second previously appropriated in district and previous to each priority	Order of priority in district
			Summation of each priority and previous to each appropriation	Cubic feet per second to each priority			
The Beery Ditch	Four Mile creek	June 15, 1861	39.49	39.49	1		
The Trout Creek Ditch	Trout creek	July 1, 1862	{ Entire flow }	39.49	2		
The Borden Ditch	{ Tarryall creek through { Mill ditch }	May 1, 1866	10	10	39.49	3	
The Crosier Ditch	House creek	May 1, 1866	{ Entire flow }	39.49	4		
The Mill Ditch	Tarryall creek	Aug. 1, 1866	43.46	43.46	49.49	5	
The Guiraud Ditch	Middle Fork of S. Platte	July 1, 1867	48.97	48.97	49.49	6	
The Casion Ditch	Middle Fork of S. Platte	July 15, 1867	57.59	57.59	7.65	92.95	
The Small Ditch	Middle Fork of S. Platte	May 1, 1868	1.32	1.32	15	141.92	7
The Four Mile Ditch	Four Mile creek	June 1, 1868	15	15	15	199.51	8
The Prince Ditch	Middle Fork of S. Platte	Aug. 1, 1868	10	10	O. K.	215.83	10
The Wilkin Ditch	Tarryall creek	May 15, 1871	10	10	225.83	11	

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH, CANAL OR RESERVOIR	Stream from which water is taken	Date of appropriation	Cubic feet per second per sec- ond dredged to each proriority and dredged to each proriority cees to each ditch, as de- termined by ac- tual maximum capacity, as de- termined by ac- tual gauges			Cubic feet per second per sec- ond dredged to each proriority and dredged to each proriority cees to each ditch, as de- termined by ac- tual maximum capacity, as de- termined by ac- tual gauges	Cubic feet per second per sec- ond dredged to each proriority and dredged to each proriority cees to each ditch, as de- termined by ac- tual maximum capacity, as de- termined by ac- tual gauges	Cubic feet per second per sec- ond dredged to each proriority and dredged to each proriority cees to each ditch, as de- termined by ac- tual maximum capacity, as de- termined by ac- tual gauges	Cubic feet per second per sec- ond dredged to each proriority and dredged to each proriority cees to each ditch, as de- termined by ac- tual maximum capacity, as de- termined by ac- tual gauges	Cubic feet per second per sec- ond dredged to each proriority and dredged to each proriority cees to each ditch, as de- termined by ac- tual maximum capacity, as de- termined by ac- tual gauges
			in district							
The Ratcliff Ditch No. 1	Ratcliff's gulch	May 1, 1872	.60	.....	.....	235.83	12			
The Hopson Ditch	Unnamed creek	May 15, 1872	5.40	.....	.....	236.43	13			
The Rock Creek Ditch	Rock creek	June 15, 1872	2.70	.....	.....	241.83	14			
The Stevens Ditch No. 1	Little Trout creek	July 1, 1872	2	.....	.....	244.53	15			
The Stevens Ditch No. 2	Little Trout creek	Sept. 1, 1872	2	.....	.....	246.53	16			
The Ratcliff Ditch No. 2	Rock creek	May 20, 1873	4.21	.....	.....	248.53	17			
The Miller & Chapman Ditch	Middle Fork of S. Platte	May 23, 1873	10	10	.....	252.74	18			
The Sigafus Ditch	Middle Fork of S. Platte	May 25, 1873	25	25	17.14	262.74	19			
The Haver Ditch No. 1	South Fork of S. Platte .	June 25, 1873	24.32	.....	.....	287.74	20			
The Anderson Ditch No. 3	Middle Fork of S. Platte	July 1, 1873	13.40	.....	.....	312.06	21			
The Alden & Milligan Ditch	Four Mile creek	Aug. , 1873	15	.....	.....	325.46	22			
The Chapelle Ditch	South Fork of S. Platte .	Sept. 1, 1873	6	.....	.....	O. K.	23			
The Kester Sweet Ditch	South Fork of S. Platte .	June 1, 1874	25.39	.....	.....	O. K.	24			
The Daniel Fyffe Ditch	Four Mile creek	June 1, 1874	6	371.85	25			
The Stevens Ditch No. 3	Little Trout creek	June 1, 1874	2	377.85	26			

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The Rock Creek Ditch, first enlargement	Rock creek	June 1, 1874	2.30	5	• • •	379.85	27
The Reinhardt Ditch No. 1	Four Mile creek	June 11, 1874	36	• • •	• • •	382.15	28
The Brownlow & Stephens Ditch	Four Mile creek	June 19, 1874	21.44	• • •	• • •	418.15	29
The Pruden Ditch	Pruden creek	June 15, 1874	13.50	• • •	• • •	439.59	30
The Troppe Ditch	Tarryall creek	July 1, 1874	1.05	• • •	• • •	453.09	31
The Stevens Ditch No. 4	Little Trout creek	July 1, 1874	2	• • •	• • •	454.14	32
The Burns & Sessions Ditch	Jefferson-creek	Oct. 1, 1874	27	• • •	• • •	456.14	33
The Randall & Nicholas Ditch	Michigan creek	Oct. 14, 1874	48	• • •	• • •	483.14	34
The Borden Ditch No. 2	Tarryall creek	Nov. 1, 1874	9.46	• • •	• • •	531.14	35
The Mary G. Borden Ditch	Tarryall creek	Nov. , 1874	6	• • •	• • •	540.60	36
The Lemick Ditch	Michigan creek	April 12, 1875	14	14	• • •	546.60	37
*The Fehringter Ditch No. 1	Middle Fork of S. Platte	April 20, 1875	17.90	• • •	• • •	560.60	38
The Crozier & Hauxhurst Ditch	Jefferson creek	April 25, 1875	21.24	• • •	• • •	578.50	39
The Vadley Ditch No. 1	Trout creek	May 1, 1875	4.78	• • •	• • •	599.74	40
The Vadley Ditch No. 2	Trout creek	May 1, 1875	11.66	• • •	• • •	604.52	41
The Weed Ditch	Middle Fork of S. Platte	May 1, 1875	20	• • •	• • •	616.18	42
The Sigafus Ditch, first enlargement	Middle Fork of S. Platte	May 1, 1875	25	50	17.14	636.18	43
The Ratcliff Ditch No. 3	Rock creek	May 1, 1875	4.06	• • •	• • •	661.18	44
The Packer & Bonis Ditch	Tarryall creek	May 15, 1875	1.60	1.60	• • •	665.24	45
The Brubaker Ditch	Jefferson creek	May 15, 1875	17.51	• • •	• • •	666.84	46
The Parmelee & Shoemaker Ditch No. 1	South Fork	May 20, 1875	30.54	30.54	O. K.	684.35	47
The Anderson Ditch No. 2	Middle Fork	May 25, 1875	10.45	• • •	• • •	714.89	48

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH, CANAL OR RESERVOIR	Stream from which water is taken	Date of appropriation	Order of priority in district	
			Cubic feet per second prevail- ingly appropri- ated in district	Cubic feet per second de- termined by actual gaugings
The Sadler Ditch	Middle Fork of So. Platte	May, 1875	49	49
The Wadley Ditch No. 3	Trout creek	June 1, 1875	3.25	725.34
The Baker and Lilley Ditch	Deadman's gulch	June 1, 1875	14.60	774.34
The Tarryall Ditch	Tarryall creek	June 15, 1875	7.90	50
The Michigan Ditch	Michigan creek	June 30, 1875	3.16	777.59
The Holthusen Ditch	No Name creek	July 1, 1875	1.31	51
The Dunbar Ditch	Tarryall creek	April 5, 1876	27	792.19
The Hauxhurst Ditch	Jefferson creek	April 25, 1876	12	52
The McManus Ditch	Tarryall creek	May 1, 1876	20	800.09
The Prince Ditch, first enlargement	Middle Fork of So. Platte	May 10, 1876	45.60	53
The Holst Ditch No. 1	Tarryall creek	May 15, 1876	8.78	803.25
The Hubbard Ditch	South Fork of So. Platte	May 22, 1876	19	804.56
The Lee Ditch No. 1	Rock creek	June 1, 1876	1.08	843.56
The Parmelee and Shoemaker Ditch No. 3	South Fork of So. Platte	June 15, 1876	30.48	936.94
The Island Ditch	South Fork of So. Platte	June 30, 1876	12.67	938.02
				62
				968.50
				63

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The Haver Ditch No. 2	July 1, 1876	29.98	July 1, 1876	29.98	15	15	981.17	64
The Balm of Gilead Ditch	July 15, 1876	13.50	Balm of Gilead creek	July 15, 1876	13.50	13.50	1,011.15	65
The Foster Ditch	July, 1876	42	Middle Fork of So. Platte	July, 1876	42	42	1,024.65	66
The Reinhart Ditch No. 4	Aug. 1, 1876	6.90	Middle Fork of So. Platte	Aug. 1, 1876	6.90	6.90	1,066.65	67
The Crozier and Taylor Ditch	Oct. 1, 1876	31.74	Michigan creek	Oct. 1, 1876	31.74	31.74	1,073.55	68
The Sigafus Ditch, second enlargement	May 10, 1876	10	Middle Fork of So. Platte	May 10, 1876	10	60	17.14	1,105.29
The Holst and Packer Ditch	Dec. 15, 1876	11.70	Tarryall creek	Dec. 15, 1876	11.70	11.70	1,115.29	70
The Milligan Ditch	May 1, 1877	17.55	Four Mile creek	May 1, 1877	17.55	17.55	1,126.99	71
The Lee Ditch No. 2	May 1, 1877	.50	Rock creek	May 1, 1877	.50	.50	1,144.54	72
The Packer and Bontis Ditch, first enlargement	May 14, 1877	4.60	Tarryall creek	May 14, 1877	4.60	6.20	1,145.04	73
The Lavack Ditch	May 15, 1877	8	{ Waste water from the Cincinnati Ditch.	May 15, 1877	8	8	1,149.64	74
The Hot Springs Ditch	May 15, 1877	28	South Fork of So. Platte	May 15, 1877	28	28	1,157.64	75
The Parmelee and Shoemaker Ditch No. 2	June 1, 1877	44.30	South Fork of So. Platte	June 1, 1877	44.30	44.30	1,185.64	76
The Central Ditch	June 1, 1877	33	Middle Fork of So. Platte	June 1, 1877	33	33	1,229.94	77
The Franks Ditch	June 15, 1877	37.59	South Fork of So. Platte	June 15, 1877	37.59	37.59	1,262.94	78
The Rock Creek Ditch No. 1	June 30, 1877	1.35	Rock creek	June 30, 1877	1.35	1.35	1,300.53	79
The Lavack Ditch No. 2	July 1, 1877	3	Quackenasp gulch	July 1, 1877	3	3	1,301.88	80
The Fritz Ditch	July 1, 1877	24	Middle Fork of So. Platte	July 1, 1877	24	24	1,304.88	81
The Crooked Creek Ditch	Crooked creek	1877	{ Entire flow	April 1, 1878	1877	1877	1,304.88	82
The Ohler Gulch Ditch	Onler gulch	1877	{ Entire flow	April 1, 1878	1877	1877	1,304.88	83
The Fehringer Ditch No. 2	Middle Fork of So. Platte	13.40	13.40	April 20, 1878	13.40	13.40	1,328.88	84
The Donovan Ditch	Four Mile creek	45	45	May 15, 1878	45	45	1,342.28	85

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH, CANAL, OR RESERVOIR	Stream from which water is taken	Date of appropriation	Order of priority in district	
			Cubic feet per second, each ditch, carried or reserved	Actual maximum capacity, as de- termined by ac- tual gaugings
The Harland Ditch	Tarryall creek	May 20, 1878	27	1,387.28
The Lavack Ditch, first enlargement	{ Waste water from the Cincinnati ditch	May 28, 1878	10	1,414.28
The Baker Ditch	Guernsey gulch	June 15, 1878	{ Entire flow	87
The Miller and Chapman Ditch, first enlargement	Middle fork South Platte	June 20, 1878	2	1,416.28
The Taylor Ditch	Michigan creek	July 18, 1878	13.50	90
The Randall Ditch	Michigan creek	Aug. 1, 1878	27	1,431.78
The Binkley Ditch No. 2	Twelve Mile creek	Aug. 1, 1878	20	92
The Burlingame Ditch	South fork South Platte	Aug. 10, 1878	27	23.55
The Nelson Ditch	Pennsylvania creek	April 1, 1879	27	1,478.78
The Main or Hotel Ditch	South fork South Platte	April 5, 1879	29	93
The Thompson and Radcliff Ditch	South fork South Platte	April 12, 1879	27	1,561.78
The Holst Ditch No. 2	Tarryall creek	April 30, 1879	11.70	97
The O'Neil Ditch	Tarryall creek	May 10, 1879	28.83	1,588.78
The Rogers North Ditch	Middle fork South Platte	May 15, 1879	84	98
The Anchor Ditch	Jefferson creek	May 20, 1879	21.40	1,629.31

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The Elisha Alden Ditch	Middle fork South Platte	May 21, 1879	57.09	30.25	1,734.71	101
The Weed Ditch	Middle fork South Platte	June 1, 1879	13.50	•	•	1,791.80
The Cincinnati Ditch,	Michigan creek	June 20, 1879	13.50	•	•	1,805.30
The Spring Branch Ditch	A spring	July 1, 1879	{ Entire flow	•	•	103
The Rayner and Edmondson Ditch No. 2	Middle fork South Platte	July 15, 1879	25	7	1,818.80	105
The Henry Ditch	Mountain creek	July 25, 1879	1	•	•	1,843.80
The Binkley Ditch	{ East branch Twelve { Mile creek	Sept. 1, 1879	25	4.46	1,844.80	107
The W. R. Head Ditch	Jefferson creek	Sept. 1, 1879	27	•	•	1,869.80
The Borden Ditch, first enlargement	{ Tarryall creek through { Mill ditch	1879	5	15	•	1,866.80
The Whitten Ditch	Michigan creek	Mar. 15, 1880	15	•	•	1,901.80
The Peabody Ditch	Tarryall creek	April 20, 1880	3	•	•	1,916.80
The Weaver Ditch No. 1	South fork South Platte .	May 1, 1880	1.35	•	•	1,919.80
The Rogers Ditch	South fork South Platte .	May 10, 1880	42.74	•	•	1,921.15
The Platte Station Ditch	South fork South Platte .	May 10, 1880	9	7.72	1,963.89	115
The Slater Ditch	Tarryall creek	May 20, 1880	27	•	•	1,972.89
The Dunbar Ditch No. 3	Tarryall creek	May 30, 1880	4	•	•	1,999.89
The Petrie Ditch	Tarryall creek	June 1, 1880	27	•	•	2,003.89
The Ratcliff Ditch No. 4	Rock creek	June 1, 1880	3.16	•	•	2,030.89
The Holthausen Ditch No. 1	{ Waste water of the { Hopsen ditch	June 1, 1880	1.35	•	•	2,034.05
The Parryee and Shoemaker Ditch No. 1, first enlargement	South fork South Platte .	June 1, 1880	9.30	39.84	•	2,035.40
- The Ratcliff Ditch No. 5	Rock creek	June 9, 1880	3.16	•	•	2,044.70
The Packer Ditch	Tarryall creek	June 20, 1880	12	•	•	2,047.86

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH, CANAL OR RIVER	Stream from which water is taken	Date of appropriation	Cubic feet per second needed to supply canal or ditch, as determined by actual maximum capacity, as determined by actual gaugings			
			Cubic feet per cubic foot of ditch, as determined by actual maximum capacity, as determined by actual gaugings	Second priority	Previously applied	In district
The Pierce Ditch	South Fork of So. Platte	June, 1880	55	... .	20.18	2,059.86
The Heeley Ditch No. 1	W. br. of Twelve Mile ck	July 1, 1880	11	... .	9.20	2,114.86
The Heeley Ditch No. 2	E. br. of Twelve Mile ck	July 1, 1880	5.50	... .	3.45	2,125.86
The Sessions Ditch	Michigan creek	July 31, 1880	13.50	... .	... .	2,131.36
The Souders and Wolfe Ditch No. 2	South Fork of So. Platte	Aug. 1, 1880	1.86	... .	... .	2,144.86
The Dunbar Ditch No. 2	Tarryall creek	Aug. 1, 1880	4.95	... .	... .	2,146.72
The Gibson Ditch	Michigan creek	Sept. 15, 1880	1.60	1.60	... .	2,150.77
The Skelton Ditch	Michigan creek	Nov. 1, 1880	10	... .	... .	2,152.37
The Demick Ditch, first enlargement	Michigan creek	April 1, 1881	10	24	... .	2,162.37
The Randall Ditch, first enlargement	Michigan creek	April 1, 1881	27	54	... .	2,172.37
The Thompson Ditch	Middle Fork of So. Platte	April 2, 1881	31	... .	O. K. .	2,199.37
The Anderson Ditch	Middle Fork of So. Platte	April 29, 1881	54.05	... .	... .	2,230.37
The Reinhardt Ditch No. 2	High creek	May 1, 1881	8.92	... .	... .	2,284.42
The Reinhardt Ditch No. 3	High creek	May 1, 1881	8.92	2,293.34
The Harris ditch	Four Mile creek	May 1, 1881	16.45	2,302.26

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The Love & Rayner Ditch	Middle Fork of So. Platte	May 8, 1881	8.16	• • •	• • •	• • •	2,318.71	139
The Peabody Ditch No. 2	Tarryall creek	May 10, 1881	4	• . .	• . .	• . .	4,326.81	140
The D. F. Miller Ditch No. 1	Middle Fork of So. Platte	May 10, 1881	126.20	• • •	• • •	• • •	2,330.81	141
The W. R. Head Ditch No. 3	Jefferson creek	May 10, 1881	2.63	• • •	• • •	• • •	2,457.01	142
The W. R. Head Ditch No. 4	Jefferson creek	May 15, 1881	2.63	• • •	• • •	• • •	2,459.64	143
The Plate Station Ditch, first enlargement	South Fork of So. Platte	May 15, 1881	2.45	11.45	7.72	2,462.27	144	
The Anderson & Brewer Ditch	Tarryall creek	June 1, 1881	23.35	• • •	• . .	• . .	2,464.72	145
The Dunbar Ditch No. 1	Tarryall creek	Aug. 15, 1881	27	• • •	• • •	• • •	2,488.07	146
The Lilley & Harriman Ditch	Jefferson creek	Sept. 17, 1881	12	• • •	• • •	• • •	2,515.07	147
The Western Ditch	Middle Fork of So. Platte	Oct. 1, 1881	66	• • •	• • •	• • •	2,527.07	148
The Drake Ditch	South Fork of So. Platte	Oct. 10, 1884	6.27	• • •	O. K. .	• • •	2,593.07	149
The Denick Ditch, second enlargement	Michigan creek	Mar. 1, 1882	10	34	• • •	• • •	2,599.34	150
The Thiborg Ditch	Fr. br. of Twelve Mile creek	Mar. 20, 1882	15.50	• • •	1.75	2,609.34	151	
The Radford and Wright Ditch	Twelve Mile creek	Mar. 21, 1882	15	• • •	• • •	• • •	2,624.84	152
The Garden Ditch	Twelve Mile creek	Mar. 23, 1882	11	• • •	• • •	• • •	2,639.84	153
The Lassell Ditch	Michigan creek	May 1, 1882	12	• • •	• • •	• • •	2,650.84	154
The Ratcliff Ditch No. 6	Rock creek	May 1, 1882	2.05	• • •	• • •	• • •	2,662.84	155
The Ratcliff Ditch No. 7	Rock creek	May 1, 1882	2.05	• • •	• • •	• • •	2,664.89	156
The Little Channel Ditch	Middle Fork of So. Platte	May 1, 1882	8.10	• • •	• • •	• • •	2,666.94	157
The Craig Ditch	Jefferson creek	May 5, 1882	8.65	• • •	• • •	• • •	2,675.04	158
The Bonnell Ditch	Middle Fork of So. Platte	May 8, 1882	27	27	• • •	• • •	2,683.69	159
The Rogers South Ditch	Middle Fork of So. Platte	May 15, 1882	84	• • •	• • •	• • •	2,710.69	160

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH, CANAL, OR RESERVOIR	Stream from which water is taken	Date of appropriation	Cubic feet per second decreed to each stream or reservoir to each section of ditch, canal or reservoir, as determined by actual maximum capacity, as determined by previous gaugings		
			Cubic feet per second decreed to each section of ditch, canal or reservoir, as determined by previous gaugings	and previously appropriated in district	Order of priority
The Weston Ditch	Beaver creek	May 16, 1882	31.45	• • • • •	2,794.69 161
The Ratcliff Ditch No. 8	Rock creek	May 21, 1882	4.32	• • • • •	2,826.14 162
The Ratcliff Ditch No. 9	Rock creek	May 21, 1882	4.10	• • • • •	2,830.46 163
The Divine Hill Ditch	Middle Fork of S. Platte	May, 1882	49	• • • • •	2,834.56 164
The East Side Ditch	W. branch of 12-Mile cr.	June 1, 1882	18.70	• • • • •	2,883.56 165
The Park Ditch	Middle Fork of S. Platte	June 10, 1882	60	• • • • •	2,902.26 166
The Rayner & Edmondson Ditch No. 1	Middle Fork of S. Platte	June 10, 1882	20	• • • • •	2,962.26 167
The Mikles Ditch	Willow creek	June 10, 1882	20.55	• • • • •	2,982.26 168
The Rayner & Edmondson Ditch No. 5	Middle Fork of S. Platte	June 14, 1882	20	• • • • •	3,002.81 169
The Rayner & Edmondson Ditch No. 3	Middle Fork of S. Platte	June 15, 1882	5.85	• • • • •	3,022.81 170
The Litmer Ditch	Jefferson creek	June 15, 1882	2	• • • • •	3,028.66 171
The Redmon Ditch	South Fork of S. Platte	June 20, 1882	13.40	• • • • •	3,030.66 172
The Rayner & Edmondson Ditch No. 4	Middle Fork of S. Platte	June 28, 1882	2	• • • • •	3,044.06 173
The D. F. Miller Ditch	Middle Fork of S. Platte	July 5, 1882	15.76	• • • • •	3,046.06 174
The Gibson Ditch, first enlargement	Michigan creek	July 25, 1882	1.10	2.70	3,061.82 175

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The Four Mile ditch	Four-Mile creek	Aug. 20, 1882	\$40	• • • •	• • • •	• • • •	• • • •	3,662.92	176
The Harrington South Ditch	Middle Fork of S. Platte	Sept. 15, 1882	43	• • • •	• • • •	• • • •	• • • •	3,068.32	177
The Rickards Lower Ditch	Middle Fork of S. Platte	Sept. 15, 1882	45	• • • •	• • • •	• • • •	• • • •	3,111.32	178
The Sheep Rock Ditch	Jefferson creek	Nov. 1, 1882	11.70	• • • •	• • • •	• • • •	• • • •	3,156.32	179
The St. Charles Ditch	Michigan creek	April 25, 1883	6	• • • •	• • • •	• • • •	• • • •	3,168.02	180
The Dudley Ditch	Four-Mile creek	May 10, 1883	16.21	• • • •	• • • •	• • • •	• • • •	3,174.02	181
The O'Brien Ditch	Middle Fork of S. Platte	May 20, 1883	6.50	• • • •	• • • •	• • • •	• • • •	3,190.23	182
The Shaffinger Ditch	Michigan creek	June 1, 1883	2.16	• • • •	• • • •	• • • •	• • • •	3,196.73	183
The Weaver Ditch No. 2	South Fork of S. Platte	July 1, 1883	1	• • • •	• • • •	• • • •	• • • •	3,198.89	184
The W. H. Miller Ditch	Michigan creek	Oct. 15, 1883	2	• • • •	• • • •	• • • •	• • • •	3,199.89	185
The Litner ditch, first enlargement	Jefferson creek	Nov. 13, 1883	4	6	• • • •	• • • •	• • • •	3,201.89	186
The Beaver Creek Ditch	Beaver creek	Dec. 28, 1883	16	• • • •	• • • •	• • • •	• • • •	3,205.89	187
The Rebecca Ditch	Michigan creek	May 1, 1884	5	• • • •	• • • •	• • • •	• • • •	3,221.89	188
The Park Gulch Ditch	Park gulch	May 8, 1884	6.08	• • • •	• • • •	• • • •	• • • •	3,226.89	189
The Four-Mile Ditch, first enlargement	Four-Mile creek	May 11, 1884	3.75	• • • •	• • • •	• • • •	• • • •	3,232.97	190
The Harlan Extension Ditch	{ Waste water from the Harlan ditch }	May 15, 1884	4.32	• • • •	• • • •	• • • •	• • • •	3,236.72	191
The Lee Ditch No. 3	Rock creek	May 15, 1884	.37	• • • •	• • • •	• • • •	• • • •	3,241.04	192
The Mexican Ditch	South Fork of S. Platte	May 17, 1884	13	• • • •	• • • •	• • • •	• • • •	3,241.41	193
The Lee Ditch No. 4	Rock creek	May 21, 1884	.37	• • • •	• • • •	• • • •	• • • •	3,254.41	194
The Chubb Ditch	Green's lake	June 1, 1884	91.52	• • • •	• • • •	• • • •	• • • •	3,254.78	195
The Kenosha Ditch	Kenosha creek	July 8, 1884	8	• • • •	• • • •	• • • •	• • • •	3,346.30	196
The Harrington & Rickards Ditch	Middle Fork of S. Platte	Oct. 15, 1884	94	• • • •	• • • •	• • • •	• • • •	3,354.30	197

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH, CANAL, OR RESERVOIR	Stream from which water is taken	Date of appropriation	Cubic feet per second to each priority and section, central or reservoir fees to each ditch, as determined by actual maximum gaugings		
			Cubic feet per second in each priority and section, as determined by previous gaugings	Cubic feet per second in each priority and section, as determined by previous gaugings	Order of priority in district
The Nelson High Creek Ditch	High creek	Mar. 15, 1885	10	7	198
The McCartney Ditch	Tarryall creek	May 20, 1885	75	7	3,448.30
The Link Ditch	Tarryall creek	May 20, 1885	19	7	3,458.30
The Island Ditch	Middle Fork of S. Platte	May 20, 1885	8.11	7	3,538.30
The Hartsel Four Mile Ditch	Four-Mile creek	June 8, 1885	22	7	3,552.30
The W. R. Head Ditch No 2	Jefferson creek	June 10, 1885	.37	7	201
The Montag and Truax Ditch	Tarryall creek	June 15, 1885	25	7	3,560.41
The Alkaline Ditch	Middle Fork of S. Platte	July 1, 1885	27	7	202
The Peabody Ditch No 3	Tarryall creek	May 15, 1886	10	7	3,582.41
The Souders and Wolf Ditch No. 4	South Fork of S. Platte	June 12, 1886	3.21	7	203
The Sacramento Ditch	Sacramento creek	July 27, 1886	60	7	3,607.78
The Cono Jim Ditch	Middle Fork of S. Platte	Oct. 1, 1886	84	7	205
The Haver Ditch No. 3	South Fork of S. Platte	May 1, 1887	20.47	7	206
The Peet Lower Ditch	Four-Mile creek	May 15, 1887	35	7	207
The "Ditch" Ditch	Middle Fork of S. Platte	May 24, 1887	50	7	208

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The Souders and Wolfe Ditch No. 6	South Fork of S. Platte	May 25, 1887 11.68 	O. K. 3,897.46 213		
The Souders and Wolfe Ditch No. 3	South Fork of S. Platte	June 5, 1887 | 2.17 | . . . . .	. . . . . | 3,909.14 | 214	
The Souders and Wolfe Ditch No. 5	South Fork of S. Platte	June 20, 1887 | 2.55 | . . . . .	. . . . . | 3,911.31 | 215	
The Trevan Upper Ditch	Sacramento creek	June 27, 1887 | 30 | . . . . .	. . . . . | .70 | 3,913.86 | 216	
The John Radford Ditch	Twelve-Mile creek	July 1, 1887 | 12 | . . . . .	. . . . . | . . . . . | 3,943.86 | 217	
The Bonnell Ditch, first enlargement	Middle Fork of S. Platte	May 15, 1888 | 6.75 | 33.75 | . . . . .	. . . . . | 3,955.86 | 218	
The Trevan Lower Ditch	Sacramento creek	July 9, 1887 | 30 | . . . . .	. . . . . | . . . . . | 3,962.61 | 219	
The Weaver Ditch No. 3	South Fork of S. Platte	July 12, 1887 | 1.35 | . . . . .	. . . . . | . . . . . | 3,992.61 | 220	
The W. H. Miller Ditch No. 2	Michigan creek	April 20, 1888 | 1.35 | . . . . .	. . . . . | . . . . . | 3,993.96 | 221	
The Burlingame Ditch No. 2	South Fork of S. Platte	June 1, 1888 | 1.62 | . . . . .	. . . . . | . . . . . | 3,995.31 | 222	
The Burlingame Ditch No. 3	South Fork of S. Platte	June 10, 1888 | 1.62 | . . . . .	. . . . . | . . . . . | 3,996.93 | 223	
The Peart Upper Ditch	Four-Mile creek	June 15, 1888 | 30 | . . . . .	. . . . . | .5 | 3,998.55 | 224	
The Hopson Ditch, first enlargement	Unnamed stream . . . . .	. . . . . | .60 | 6 | . . . . .	. . . . . | . . . . . | 4,028.55 | 225
The Hubbard Ditch No. 2	South Fork of S. Platte	June 15, 1888 | 30 | . . . . .	. . . . . | . . . . . | 4,029.15 | 226	
The Jefferson Lake Ditch	Jefferson lake	June 25, 1888 | 546 | . . . . .	. . . . . | . . . . . | 4,059.15 | 227	
The Ohler Ditch	Jefferson creek	June 25, 1888 | 30 | . . . . .	. . . . . | . . . . . | 4,605.15 | 228	
Total in district 4,635.15

*Water District No. 46—C. F. Staples, Commissioner,
Hebron, Larimer county.*

Water District No. 46 consists of all lands irrigated by water taken from that portion of the North Platte river, above the mouth of Michigan creek, and from the streams draining into the said portion of the North Platte river.

The water-rights of this district not having been adjudicated, the Commissioner did not attempt a distribution of the water, and, therefore, has no report to make.

STATEMENT CONCERNING DITCHES

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IN DISTRICT NO. 46, RELATIVE TO WHICH STATEMENTS HAD BEEN FILED IN THE STATE ENGINEER'S OFFICE, UNDER THE HEAD OF "MISCELLANEOUS" (NORTH PARK, ETC.), PRIOR TO APRIL 17, 1889, THE DATE OF THE FORMATION OF THIS DISTRICT, AND NOW TRANSFERRED TO THE PROPER DISTRICT.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Eureka Ditch	Arapahoe Creek	Nov. 15, 1887	Sept. 8, 1887	55	William G. McLen and Charles Bock
The Arapahoe Ditch	Arapahoe Creek	Jan. 27, 1888	Jan. 25, 1888	12	R. B. and W. W. Spaulding
The Park Ditch	Lake Creek	Jan. 20, 1888	June 6, 1888	11	Montie Blivins
The Montie Ditch	Lake Creek	June 20, 1888	Sept. 16, 1885	11	Montie Blivins
The Wolfer Ditch	Roaring Fork	July 24, 1888	April 11, 1888	9	A. Wolfer
The 909 Ditch	Big Grizzly River	Sept. 4, 1888	June 1, 1885	3	James Murphy
The Nairn Ditch	Little Grizzly River	Oct. 1, 1888	June 15, 1885	28	John Riach, <i>et al</i>
The Edith Ditch	Cheyenne Creek	Oct. 4, 1888	May 1, 1886	10	Frank F. Hodgson and Geo. A. Hodgson
The Dora Ditch	Cheyenne Creek	Oct. 30, 1888	May 1, 1887	Not given	James Leade, Geo. A. Hodgson
The Rocky Ditch	Arapahoe Creek	Oct. 30, 1888	May 1, 1888	40	W. J. Trouncell, Robert M. Davids
The Timber Ditch	Hill Creek	Oct. 30, 1888	Oct. 1, 1884	Not given	John Edwards
The Burke Ditch	Buffalo Creek	Nov. 20, 1888	Aug. 1, 1888	23	Robt. Burke, R. G. Floyd, D. M. Hanson
The Wisconsin Ditch	Buffalo Creek	Nov. 20, 1888	May 15, 1887	40.50	R. G. Floyd, D. M. Hanson
The Marr Ditch No. 1	Big Grizzly River	Nov. 22, 1888	Spring, 1877	Not given	William Marr

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office.	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Marr Ditch No. 2	Little Grizzly River	Nov. 2, 1888	Spring, 1883	Not given	William Marr
The Castle Ditch	Big Grizzly River	Nov. 22, 1888	April 15, 1885	About 41	Geo. W. Bailey, Dennis O'Brien
The Mallon Ditch	Roaring Fork	Nov. 26, 1888	April 20, 1888	Not given	Barney Mallon
The Spicer Ditch	Big Grizzly River	Dec. 1, 1888	May 13, 1883	28	Montie Blivins
The Moore Ditch No. 4	Platte River	Dec. 14, 1888	Not stated	7.81	Dan'l L. Moore
The Independence Ditch	Lake Creek	Dec. 31, 1888	July, 1873	208,33	N. H. Meldrum, W. F. Scribner
The Polled Angus	Buffalo Creek	Jan. 4, 1889	May 16, 1887	20	R. G. Floyd, D. M. Hauson
The Newcomb Ditch	Little Grizzly River	Jan. 22, 1889	August, 1884	Not given	Geo. Newcomb
The Little Grizzly Ditch	Little Grizzly River	Feb. 2, 1889	Not stated	9	William McConaughy
The Darling Ditch	Little Grizzly River	Feb. 7, 1889	May 1, 1887	Not given	A. W. Darling
The Independent Ditch	North Fork River	April 11, 1889	June 6, 1888	63	Charles A. Brands, <i>et al</i>

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 46, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE,
FROM APRIL, 17, 1889, THE DATE OF THE FORMATION OF THIS DISTRICT, TO DECEMBER 1, 1890.

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NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Staples Ditch No. 1	Little Grizzly river .	April 22, 1889	May 15, 1887	Not given	. . . . . C. F. Staples
The Slack Ditch	Buffalo creek	April 25, 1889	Nov. 13, 1887	20	Daniel A. McIsaac <i>et al.</i>
The Butler Ditch	Beaver creek	April 27, 1889	May 23, 1888	8	Hiram P. Butler
The Bennett and Leshuer Ditch	Little Grizzly river .	May 1, 1889	April 1, 1889	12	William Bennett and Leshuer
The New Ross Ditch.	Buffalo creek	May 25, 1889	Mar. 23, 1889	8	James Taylor
The Seymour Ditch No. 1	Big Grizzly river .	June 4, 1889	Not stated	5.02	Henry Seymour
The Seymour Ditch No. 2	Big Grizzly river .	June 4, 1889	Not stated	5.02	. . . . . Henry Seymour
The Lone Pine Ditch No 1	Lone Pine creek .	June 4, 1889	May 1, 1889	5	Chas. W. Brown and Fred Knoth
The Mitchell Ditch	Cheyenne creek	June 4, 1889	May 1, 1888	35	. . . . . John Mitchell <i>et al.</i>
The Mabel Dow Ditch	Lawrence creek .	June 15, 1889	June 4, 1889	11	Jacob J. Tritt
The Log Cabin Ditch	North Fork river .	June 15, 1889	May 2, 1889	8	John F. McCasland
The Legal Tender Ditch.	North Fork river .	June 15, 1889	June 6, 1888	14	Chas. Brauds
The Butler Ditch No. 2	North Cheyenne c.k	July 5, 1889	June 1, 1887	5	H. P. Butler
The Hodgson Ditch	Cheyenne creek .	July 2, 1889	April 10, 1889	8	Geo. A. Hodgson

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH OR CANAL,	Stream from which water is diverted	Date of filing in State Engineer's office	Date of com- mencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Mellen Ditch	Buffalo creek . . .	July 11, 1889	May 3, 1887	5	William G. Mellen
The Coburn Ditch,	No Name creek . .	July 17, 1889	June 27, 1889	2	John Coburn
The Willow Ditch	Arapahoe creek . .	Aug. 1, 1889	May 1, 1887	20	Joseph Murphy
The West Fork Ditch	North Fork river . .	Aug. 26, 1889	May 29, 1884	43	William Norell <i>et al</i>
The Victor Ditch.	North Fork river . .	Aug. 26, 1889	Aug. 15, 1889	43	John W. Riggan <i>et al</i>
The New Ross Ditch.	Buffalo creek . . .	Sept. 16, 1889	Mar. 23, 1889	8	James Taylor
The Lorena Ditch	North Platte river .	Sept. 23, 1889	April 25, 1886	14	George Maувille
The Ute Ditch	Ute creek	Sept. 23, 1889	Sept. 11, 1889	14	William Y. Harvison
The Clifton Ditch	Buffalo creek . . .	Sept. 25, 1889	May 1, 1887	3	Addison C. Ridings
The Addison Ditch	Buffalo creek . . .	Sept. 25, 1889	June 15, 1885	14	Addison C. Ridings
The Antelope Ditch	S. Fork LittleGrizzly	Sept. 28, 1889	May 15, 1886	14	Thomas J. Taylor and Theodore L. Cook
The Peterson Ditch No. 1 . . .	Big Grizzly river . .	Sept. 30, 1889	June 1, 1882	21	Elias Peterson <i>et al</i>
The Peterson Ditch No. 2 . . .	Big Grizzly river . .	Sept. 30, 1889	July, 1883	16	Elias Peterson <i>et al</i>
The Damfino Ditch	Big Grizzly river . .	Oct. 3, 1889	May 15, 1885	31	Lars Larson and R. M. David & Co.
The Koping Ditch	Big Grizzly river . .	Oct. 3, 1889	May 1, 1883	13	A. W. Westholm
The Chedsey Ditch No. 1 . . .	Skull creek	Oct. 9, 1889	July 1683	14	H. C. Chedsey <i>et al</i>
The Larson Ditch	Big Grizzly river . .	Oct. 3, 1889	May 10, 1889	10	Lars Larson

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The Chedsey Ditch No. 2	S. fork Little Grizzly	Oct. 9, 1889	June 1, 1889	20	
The Chapman Ditch	S. fork Little Grizzly	Oct. 9, 1889	May 1, 1886	Not given	
The Butler Ditch No. 4	Cheyenne creek . . .	Oct. 9, 1889	May 1887	14	
The Butler Ditch No. 3	N. fork Cheyenne creek	Oct. 9, 1889	June 1, 1884	12	
The Ernest Ditch or Canal	Cheyenne creek . . .	Oct. 9, 1889	May 15, 1889	14	
The Jennie Ditch	S. fork Little Grizzly	Oct. 11, 1889	June 25, 1885	20	
The Mutual Ditch	Big Grizzly river.	Oct. 13, 1889	Aug. 30, 1888	115	
The Davids Ditch	Arapahoe creek . . .	Oct. 18, 1889	Oct. 4, 1889	26	
The Lawrence Ditch No. 1	Indian creek	Oct. 24, 1889	April 12, 1887	6	
The Lawrence Ditch No. 2	Arapahoe creek . . .	Oct. 24, 1889	April 25, 1886	3	
The Marr Ditch No. 1	Little Grizzly river.	Nov. 1, 1889	April 10, 1883	33	
The Marr ditch No. 2	Big Grizzly river . . .	Nov. 1, 1889	May 1, 1887	30	
The Pleasant Valley Ditch	North Fork river . . .	Nov. 1, 1889	Oct. 18, 1889	39	
The Castle Ditch	Big Grizzly river . . .	Nov. 2, 1889	April 15, 1885	41	
The Nile Ditch	North Platte river . . .	Nov. 2, 1889	May 1, 1888	Not given	
The Norris Ditch	Roaring Fork	Nov. 4, 1889	June 1, 1889	Not given	
The Van Patten Ditch	Buffalo creek	Nov. 6, 1889	April 20, 1888	Not given	
The Arapahoe Ditch, amend. stnt.	Not given	Nov. 25, 1889	April 1, 1885,	Not given	
The Badger State Ditch	Coyote creek	Nov. 30, 1889	June 16, 1884	4	
The Addison Ditch	Buffalo creek	Nov. 30, 1889	Sept. 15, 1883	14	
The Clifton Ditch	Buffalo creek	Nov. 30, 1889	May 7, 1887	3	
The Spicer Ditch, enlarg. & ext'n	Big Grizzly river . . .	Dec. 6, 1889	Mar. 3, 1889	18	James Taylor and James Macfarlane

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Mitchell Ditch	Cheyenne creek	Dec. 26, 1889	May 1, 1888	25	John Mitchell <i>et al</i>
The Luck Penny Ditch	Beaver creek	Dec. 27, 1889	May 1, 1889	10	Sikes Haskins <i>et al</i>
The Little Nellie Ditch, enlarg'm't	North Fork river	Jan. 24, 1890	April 1, 1886	11	John W. Rigen
The Higho Ditch No. 1	Roaring Fork	Mar. 6, 1890	April 18, 1889	9	Helen Wolfer and Edward Norris
The Cochrane Ditch	Coyote creek	April 14, 1890	April 20, 1887	3	John M. Cochrane
The Slack Ditch	Buffalo creek	April 19, 1890	Nov. 13, 1887	20	Daniel McIsaac <i>et al</i>
The Roaring Ditch	South Roaring Fork	May 9, 1890	Oct. 7, 1889	35	John Mitchell <i>et al</i>
The Castle Ditch, enlarg. & ext'n	Big Grizzly river	May 19, 1890	April 25, 1888	36	James Macfarlane
The Slack and Weiss Ditch	Vinegar creek	Aug. 23, 1890	June 3, 1890	4	John Slack and Andrew Weiss
The Lyndon Ditch.	North Buffalo creek	Oct. 2, 1890	Sept. 28, 1890	Not given	L. H. Lyndon

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 45, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Slack & Weiss Reservoir	Vinegar creek . . .	Slack & Weiss . . .	Aug. 23, 1890	June 3, 1890	1,119,208	John Slack and Andrew Weiss

Water District No. 47—W. D. Beckwith, Commissioner, Walden, Larimer County.

Water District No. 47 consists of all lands in the State of Colorado irrigated by water taken from that portion of the North Platte river between Water District No. 46 and the State line of Colorado, and from streams draining into the said portion of the North Platte river, and from Granite and Encampment creeks, and the streams draining into the said creeks.

There being no decrees for this District, the Commissioner was not called out.

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STATEMENT CONCERNING DITCHES

IN DISTRICT NO. 47, RELATIVE TO WHICH STATEMENTS HAD BEEN FILED IN THE STATE ENGINEER'S OFFICE, UNDER THE HEAD OF "MISCELLANEOUS" (NORTH PARK, ETC.), PRIOR TO APRIL 17, 1889, THE DATE OF THE FORMATION OF THIS DISTRICT, AND NOW TRANSFERRED TO THE PROPER DISTRICT.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Troy Ditch	Owl creek	May 31, 1888	April 7, 1888	13	Charles E. Quincy
The North Park Ditch	Michigan river	June 20, 1888	April 9, 1888	14	Montie Blevins
The Donelson Ditch	Little Willowcreek	June 28, 1888	May 4, 1888	23	W. F. Donelson
The Essex Ditch	Schoolcreek	July 2, 1888	June 4, 1888	14	Aretas D. Walloer
The Ward Ditch No. 1	Illinois creek	July 5, 1888	April 5, 1888	12	M. C. Ward, H. C. Boston
The Ward Ditch No. 2	Illinois creek	July 5, 1888	April 5, 1888	7	M. C. Ward, H. C. Boston
The Soldiers' Home Creek	Owl creek	July 23, 1888	May 29, 1885	11	Thomas Vils
The Bern Ditch	Big Government c'k	July 23, 1888	June 29, 1888	12	Casper Fox, Peter Fox
The Custer Mountain Ditch	Michigan river	July 28, 1888	April 18, 1888	28	Edmund Graves, James Graves
The Hubbard Ditch No. 1	Illinois creek	July 31, 1888	Dec. 1, 1887	10	Edward R. Hubbard
The Hubbard Ditch No. 2	Illinois creek	July 31, 1888	June 1, 1888	10	Edward R. Hubbard
The Old S. C. Ditch	Michigan river	Aug. 25, 1888	July 31, 1888	112	Geo. W. Seifert
The Buckeye Irrigating Ditch	Michigan river	Sept. 6, 1888	Not stated	Not given	W. F. Fisher, Geo. S. Fletcher
The Col. Davis Ditch No. 1	Michigan river	Sept. 6, 1888	Not stated	Not given	Collin E. Davis

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH	Stream from which water is diverted	Date of filing in state Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT	
					Geo. Birkett	August Speck <i>et al</i>
The Bonnerang Ditch	Michigan river	Sept. 25, 1888	Sept. 14, 1888	14	• • • • •	• • • • •
The Owl Creek Ditch	Owl creek	Sept. 29, 1888	June 15, 1876	28	• • • • •	• • • • •
The Poverty Flat Ditch No. 2 . .	Michigan river	Oct. 9, 1888	Sept. 26, 1888	34	• • • • •	Salem M. Hardy
The Kiowa Ditch	Michigan river	Oct. 16, 1888	Sept. 14, 1886	11	• • • • •	• • • • •
The Lost Treasure Ditch	Michigan river	Oct. 23, 1888	Sept. 27, 1888	132	• • • • •	Gilbert Hayes <i>et al</i>
The Lowland Ditch	Owl creek	Oct. 23, 1888	June 10, 1884	Not given	• • • • •	Gilbert Haynes, Carl D. Muller
The Bostwick Ditch	Michigan river	Nov. 6, 1888	May 17, 1887	About 8	• • • • •	Samuel E. Bostwick
The Edith Ditch	Michigan river	Nov. 6, 1888	June 15, 1886	Same	• • • • •	Samuel E. Bostwick
The Lowland Ditch, entl. & ext'n .	Owl creek	Nov. 9, 1888	Oct. 30, 1888	About 7	• • • • •	Sam Carden
The Home Ditch No. 1	Illinois river	Nov. 13, 1888	May 6, 1883	16	• • • • •	J. H. Greene, A. W. Greene
The Home Ditch No. 2	Illinois river	Nov. 13, 1888	June 10, 1885	11	• • • • •	J. H. Greene, A. W. Greene
The Poquette Ditch	Michigan river	Nov. 19, 1888	Not stated	• • • • •	• • • • •	Louis G. Poquette
The Roll Ditch	Jack creek	Nov. 20, 1888	Not stated	• • • • •	• • • • •	L. P. Roll
The Pinkham Ditch	Pinkham creek	Nov. 22, 1888	Not stated	• • • • •	• • • • •	James O. Pinkham
The Stevenson Ditch No. 1	Willow creek	Nov. 22, 1888	Not stated	• • • • •	• • • • •	Edward P. Stevenson
The Stevenson Ditch No. 2	Willow creek	Nov. 22, 1888	Not stated	• • • • •	• • • • •	Edward P. Stevenson
The Stevenson Ditch No. 3	Willow creek	Nov. 22, 1888	Not stated	• • • • •	• • • • •	Edward P. Stevenson

The Brennan Ditch	Sand creek	Nov. 28, 1888	Not stated	Susan Brennan
The Hunter Ditch No. 1	Pinkham creek	Nov. 28, 1888	Not stated	Jennie H. Hunter
The Hunter Ditch No 2	Pinkham creek	Nov. 28, 1888	Not stated	Jennie H. Hunter
The Cronter Ditch No. 1	Illinois river	Dec. 14, 1888	June 5, 1887	C. W. Cronter A M Hill, G. S. Hill
The Cronter Ditch No. 2	Illinois river	Dec. 14, 1888	Sept. 25, 1888	C. P. Cronter, A. M. Hill, G. S. Hill
The Moore Ditch No. 1	Government creek	Dec. 14, 1888	Spring, 1884	Daniel L. Moore
The Moore Ditch No. 2	Michigan river	Dec. 14, 1888	Spring, 1885	Daniel L. Moore
The Moore Ditch No. 3	Michigan river	Dec. 14, 1888	Spring, 1888	Daniel L. Moore
The Kelley ditch	Pinkham creek	Feb. 2, 1889	Summer, 1887	J. J. Walker, J. L. & John W. Kelley
The Seneca Ditch	Michigan river	Feb. 2, 1889	April 12, 1887	Benton Miles
The Matthews Ditch	Michigan river	Mar. 18, 1889	Oct., 1884	Reid Matthews
The Salem Ditch	Willow creek	Mar. 27, 1889	May 5, 1881	Arthur H. Pomroy
The Accommodation Ditch	Jack creek	Mar. 28, 1889	July 15, 1887	Peter Monroe <i>et al.</i>
The Newport Ditch	Pinkham creek	April 5, 1889	July 15, 1881	Edward Leeds
The Col. Davis Ditch No. 1, amended statement of	Michigan river	April 13, 1889	Oct. 15, 1887	Collin E. Davis

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES.

IN WATER DISTRICT No. 47, RELATIVE TO WHICH PLATS AND STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE FROM APRIL 17, 1889 (THE DATE OF THE FORMATION OF THIS DISTRICT), TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Olive Ditch	Illinois river	April 22, 1889	April 9, 1889	7	Charles Snyder
The Shearer Ditch	Little Willow creek	April 25, 1889	April 16, 1885	11	William J. Shearer
The Shearer Ditch No. 2	Little Willow creek	April 25, 1889	Mar 22, 1885	11	William J. Shearer
The Oklahoma Ditch	Illinois river	April 26, 1889	April 8, 1889	34	Monte Blevins
The Ruction Ditch	Michigan river	May 2, 1889	April 21, 1885	11	Monte Blevins
The East Lynne Ditch	Big creek	May 4, 1889	April 17, 1889	14	George O. Elmes and Albert Reed
The Ivy Ditch	Jack creek	May 18, 1889	May 14, 1888	8	William L. Riddle and Lafrance P. Roll
The Walden Ditch	Michigan river	May 29, 1889	May 12, 1885	11	F. A. Barber and Hugh Griffith
The Lower Walden Ditch	Michigan river	May 29, 1889	May 12, 1885	11	Hugh Griffith
The Phillips Ditch	Deer creek	May 29, 1889	July 21, 1886	5	Charles Phillips
The Mansfield Ditch No. 1	Michigan river	June 4, 1889	April 1, 1886	6	William Mansfield
The Mansfield Ditch No. 2	Michigan river	June 4, 1889	April 15, 1888	1.30	William Mansfield
The Willow Ditch	Owl Mountain spring	June 10, 1889	May 29, 1889	5	Mrs. O. L. Brocker
The Timber Line Ditch	Big creek	June 11, 1889	April 18, 1889	8	Henry P. Baugh and George Eckhardt

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The Alkali Flat Ditch	Akali Flat spring	June 13, 1889	May 20, 1889	5	Monte Blevins
The Carpenter Ditch	Canadian river	June 22, 1889	April 9, 1889	14	Frank G. Carpenter
The Phelan Ditch	McKenzie creek	June 22, 1889	April 9, 1889	7	Charles J. Phelan
The Monroe Ditch	Illinois river	June 22, 1889	May 5, 1885	14	Peter F. Monroe
The Government Ditch No. 1 . . .	Government creek	June 25, 1889	Aug. 1, 1884	5	Benjamin Cross and George F. Scott
The Government Ditch No. 2 . . .	Government creek	June 25, 1889	Oct. 1, 1885	23	Benjamin Cross et al
The Park Neck Ditch	Camp creek	July 11, 1889	June 12, 1888	7	A. W. Lawrence
The Howard Ditch	Big Willow creek	Aug. 6, 1889	June 1, 1888	28	H. L. Howard et al
The Hard Work Ditch	Pinkham creek	Aug. 6, 1889	July 15, 1889	13.09	Mary L. Moore et al
The John S. Sutton Ditch	Jack creek	Aug. 12, 1889	May 15, 1889	13	John S. Sutton and George W. Hinch
The Gillett Ditch No. 1	Muddy creek	Aug. 17, 1889	May 16, 1887	56.50	Leslie Gillett
The Gillett Ditch No. 2	Clear creek	Aug. 17, 1889	July 11, 1889	68	Leslie Gillett
The Gillett Ditch No. 3	Willow creek	Aug. 17, 1889	July 11, 1889	40	Leslie Gillett
The Ponroy Ditch No. 1	Canadian river	Aug. 17, 1889	April 1, 1887	56.50	Leslie Gillett
The Sidduth Ditch No. 1	Cabin creek	Aug. 17, 1889	June, 1886	11.50	David F. Sudduth
The Lost Ditch	Willow creek	Aug. 23, 1889	June 11, 1889	15	Charles Dow
The Park View Ditch	Illinois river	Sept. 11, 1889	June 16, 1887	6	Charles Snyder
The Huckleberry Ditch	Big creek	Sept. 18, 1889	Aug. 31, 1889	15.63	Edward I., Wheeler
The Plainwell Ditch	Big creek	Sept. 18, 1889	May 27, 1887	14	Edward I. and Robert I., Wheeler
The Lizzie Ditch	Elk creek	Sept. 25, 1889	May 15, 1888	4	Robert G. Kerr
The Boyer Ditch	Canadian river	Sept. 25, 1889	June 15, 1887	11	Franklin Boyer
The Give-a-Dam Jones	Canadian river	Sept. 25, 1889	Sept. 16, 1889	39	George M. Bassett et al

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH	Stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Toledo Ditch	Allen creek	Sept. 25, 1889	May 31, 1889	15	William Kerr
The Oxford Ditch	Government creek	Sept. 25, 1889	Sept. 25, 1887	5	William Payne
The Carlton Ditch	Michigan river	Sept. 28, 1889	May 15, 1889	13	H. C. Hilliard
The Seneca Ditch, enlargement	Michigan river	Sept. 30, 1889	Sept. 1, 1887	Not given	Charles H. Cowdrey
The Hi-lo Ditch No. 1	Michigan river	Oct. 1, 1889	April, 1883	Geo. Birrell and D. L. Moore	
The White Ditch	West Branch Indiana creek	Oct. 2, 1889	June 19, 1889	8	William H. White
The Ish Ditch	W. Br. Big Willow creek	Oct. 5, 1889	June 17, 1887	5	John L. Ish and James W. Sutton
The William Kerr Ditch No. 1	Elk creek	Oct. 5, 1889	May, 1885	20	William Kerr and Robert G. Kerr
The Rattler Ditch	W. Br. Big Willow creek	Oct. 5, 1889	June 1, 1888	• • • • •	Sterling P. Isle; and John L. Ish
The Maggie Ditch No. 1	Allen creek	Oct. 5, 1889	April, 1887	11	William Kerr
The No. 1 Ditch	J.-ck creek	Oct. 7, 1889	June 1, 1888	8	William L. Riddle and M. C. Wythe
The Sanborn Ditch	Indian river	Oct. 7, 1889	Sept. 26, 1887	28	Augustus R. Dwinnell <i>et al</i>
The Bennett-Hubbard Ditch	A spring	Oct. 7, 1889	Sept. 5, 1882	3	P. H. Van Clea and W. H. Hubbard
The Wycoff Ditch	W. Br. Big Willow creek	Oct. 7, 1889	May 17, 1889	8	David P. Wycoff and Sterling P. Ish
The Leonard Ditch	Illinois river	Oct. 8, 1889	Aug. 15, 1884	8	John C. Howard
The Ottawa Ditch	Illinois river	Oct. 8, 1889	April 15, 1888	5	John C. Howard
The Slew Ditch	Illinois river	Oct. 8, 1889	Oct. 25, 1887	5	William L. Howard

The Cochran Ditch	Big Willow creek	Oct. 7, 1889	July 15, 1882	2.50	Henry H. Shomber
The Kerr Ditch	Little Willow creek	Oct. 7, 1889	May 15, 1882	5	Henry H. Shomber and Joseph Wyckoff
The Snide Ditch	Little Willow creek	Oct. 7, 1889	July 1, 1885	2.50	Henry H. Shomber
The Hi-ho Ditch No. 1	Michigan river	Oct. 8, 1889	April, 1883	20.80	George Birkett
The Overland Ditch	Michigan river	Oct. 9, 1889	June 3, 1887	53	John A. Howard and Michael Conners
The Munroe Ditch	Illinois river	Oct. 9, 1889	May 5, 1885	13	Peter Munroe
The Poverty Flat Ditch No. 2	Michigan river	Oct. 10, 1889	Sept. 26, 1888	34	Salem H. Hardy
The School Section Ditch	East Fork Willow creek	Oct. 10, 1889	May 15, 1888	4	Henry H. Hawkins and Cleon K. Mallonee
The James W. Sutton Ditch No. 2	E. Fork Big Willow creek	Oct. 12, 1889	May 15, 1886	5	James W. Sutton and Nannie Sutton
The Alma Ditch No. 1	Michigan river	Oct. 15, 1889	July 1, 1889	20	Norman R. McDonald
The Buckye Ditch No. 1	Michigan river	Oct. 15, 1889	April 15, 1885	16	George S. Fletcher and W. S. Fisher
The Enlargement of the same	Michigan river	Oct. 15, 1889	Sept. 11, 1889	•	W. F. Fisher and George S. Fletcher
The Champion Ditch No. 1	Michigan river	Oct. 15, 1889	April 29, 1888	21	Collin E. Davis
The Everhard & Baldwin Ditch	Illinois river	Oct. 21, 1889	May 24, 1887	50	Edwin D. Baldwin
The Pioneer Ditch	Illinois river	Oct. 21, 1889	Aug. 8, 1884	35	Edwin D. Baldwin
The Martin Ditch No. 1	Michigan river	Oct. 22, 1889	June 1, 1888	18	William Martin
The Mathews Eastern Ditch	Michigan river	Oct. 22, 1889	Sept. 20, 1888	15	James Mathews
The End o Mile Ditch	Illinois river	Oct. 23, 1889	June 1, 1883	2	Charles Snyder
The Stevenson Ditch No. 2	Willow creek	Oct. 23, 1889	May 1, 1887	8	Edward P. Stevenson
The Stevenson Ditch No. 3	Willow creek	Oct. 23, 1889	June 1, 1886	6	Edward P. Stevenson
The Weed Ditch	Illinois river	Oct. 23, 1885	June 1, 1884	1	Sam Weed
The Kerr Ditch	Willow creek	Oct. 25, 1889	June 15, 1882	5	Joseph E. Wykoff

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Poverty Flat Ditch	Michigan river	Oct. 25, 1889	May 10, 1888	60	Salem M. Hardy
The Kermode Ditch	Canadian river	Oct. 26, 1889	April 15, 1889	10	Griffith Kermode
The Yokum Ditch No. 1	Sherman creek	Nov. 4, 1889	Spring, 1885	• • • • •	The Knox-Percheron Horse Company
The Yokum Ditch No. 2	Sherman creek	Nov. 4, 1889	Spring, 1885	• • • • •	The Knox-Percheron Horse Company
The Crouter Ditch No. 1	Illinois river	Nov. 11, 1889	June 5, 1887	40	G. S. Hill
The Hill and Crouter Ditch	Illinois river	Nov. 11, 1889	Sept. 25, 1888	65	G. S. Hill
The Upland Ditch	Illinois river	Nov. 11, 1889	Nov. 6, 1889	12	William H. Snyder
The Rhea Ditch	Big Beaver creek	Nov. 13, 1889	May 20, 1887	• • • • •	Cooke Rhea
The Slew Ditch	Illinois river	Nov. 13, 1889	Oct. 25, 1887	5	William L. Howard
The Stevenson Ditch No. 2, ex tension and enlargement	Willow creek	Nov. 13, 1889	May 1, 1889	7	William L. Howard
The Bona Fide Ditch No. 2	Canadian river	Nov. 14, 1889	April 25, 1887	15	William H. Winscom
The Park Ditch	Illinois river	Nov. 14, 1889	May 12, 1888	14	Taylor B. Geer and Howard B. Dirlam
The Cleveland Ditch	Michigan river	Nov. 18, 1889	April 20, 1887	14	Otho M. Dunham
The Old S. C. Ditch, amended statement	Michigan river	♦ Nov. 18, 1889	July 31, 1888	• • • • •	George W. Seifert
The Walker Ditch No. 1	Pinkham creek	Nov. 25, 1889	May 15, 1884	11	James J. Walker
The Leonard Ditch	Illinois river	Nov. 29, 1889	Aug. 15, 1884	8	John C. Howard
The Ottawa Ditch	Illinois river	Nov. 29, 1889	April 15, 1888	5	John C. Howard

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The Stevenson Ditch No. 4	Willow creek	Nov. 29, 1889	Aug. 15, 1888	10	
The Crystal Spring Ditch	Crystal Spring	Dec. 19, 1889	May 15, 1887	3	Edward P. Stevenson
The Moore Ditch No. 1	Government creek	Dec. 26, 1889	May 15, 1884	8	William F. Fisher
The Moore Ditch No. 2	Michigan river	Dec. 26, 1889	May 15, 1885	30	Joseph A. Moore
The Moore Ditch No. 3	Michigan river	Dec. 26, 1889	May 15, 1885	24	Joseph A. Moore
The Moore Ditch No. 4	Red Cañon creek	Dec. 26, 1889	May 15, 1887	3-50	Joseph A. Moore
The Dulaney Ditch	Cooa creek	Dec. 28, 1889	Aug. 10, 1886	5	David E. Dulaney
The Spaulding Ditch	Pinkham creek	Jan. 7, 1890	May 27, 1887	...	J. Smith Spaulding
The Ferdinand Ditch, amended } statement	Cabin creek	Jan. 15, 1890	June 3, 1886	...	James F. Bush
The Harvison Ditch	Meldrum creek	Jan. 20, 1890	May 12, 1887	4	William Y. Harvison
The Flying Dutchman Ditch	Illinois river	May 7, 1890	June 1, 1884	26	Charles W. Snyder
The Wyckoff Ditch	Little Willow creek	May 19, 1890	June 14, 1887	15	Edgar J. Wyckoff and William V. Wyckoff
The Wales Ditch	Michigan river	May 23, 1890	May 14, 1890	80	John Griffith
The Hard Work Ditch	Pinkham creek	June 2, 1890	July 19, 1889	15	Mary L. Moore
The Moore Ditch	Pinkham creek	June 2, 1890	Sept. 1, 1887	15	Mary L. Moore
The Michigan High Line Ditch	Michigan river	June 2, 1890	...	John Howard <i>et al</i>	
The J. W. Sutton Ditch	East Fork Big Willow creek	June 4, 1890	May 20, 1882	40	James W. Sutton
The Big Willow Ditch, enlargem't	Big Willow creek	June 4, 1890	May 15, 1889	...	Francis S. Preston
The Livingstone Ditch	Government creek	June 6, 1890	May 1, 1885	...	T. John Payne
The Stevenson Ditch No. 4, en- largement and extension	Willow creek	Aug. 2, 1890	Nov. 1, 1889	15	Charles Dow
The Ish Ditch, enlargement	West Branch Big Willow c'k	Oct. 3, 1890	May 26, 1890	12-60	Anna E. Willis

Water District No. 48—No Commissioner appointed.

Water District No. 48 consists of all lands in the State of Colorado, irrigated by water taken from the Big Laramie river, and from the streams draining into the said river.

Water District No. 64—A. F. Spoor, Commissioner, Sterling, Logan County.

Mr. Spoor reports, for 1889, that irrigation began March 13, with an abundance of water, and that more water was used during the succeeding two months than the entire previous season. About the first of May the Platte river became very low, but on May 20 were followed by a heavy flow in the river until June 25. Pawnee creek had seven floods during the season from which a large supply was obtained and more water ran to waste than was used in irrigation.

Complaint is made of a dirt dam across Big Beaver creek by which the water is diverted in flood times on to the barren prairie to the great damage of several ditches dependent on this stream for much of their water.

The season was a decided improvement over that of 1888 in water supply, and the crops were fairly good.

Mr. Spoor was employed 83 days in 1889.

For 1890, a statistical statement was submitted, but no further details.

Mr. Spoor having removed from the district and engaged in other business, R. J. Patterson was appointed December 2, 1890, on the recommendation of the Commissioners of Logan county, to fill the vacancy.

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION NO. 1—DISTRICT NO. 64.

STATE ENGINEER.

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STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT No. 64, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OF WELL	Total depth thereof, in feet	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE				LOCATION	Present flow gallons per minute	REMARKS
				First flow	Second flow	Third flow	Fourth flow			
Sterling	210	8	96	202	...	...	...	Sec. 32, T. 8 N., R. 52 W	...	Pump, 2 feet
Town of Sterling . . .	245	...	245	...	...	...	...	Sec. 32, T. 8 N., R. 52 W.	...	...

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 64, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Spring Creek Ditch	Spring Creek	June 15, 1889	Sept., 1888	1.50	Jacob H. Gelnett

Water District No. 65—No Commissioner appointed.

Water District No. 65 consists of all lands in the State of Colorado irrigated by water taken from the Middle and North Forks of the Republican river, from Sandy and Frenchman's creeks, and from the tributaries of those streams.

STATEMENT CONCERNING DITCHES

IN DISTRICT No. 65, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Name of stream from which water is taken	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Wray Ditch	Republican river . . .	Jan. 3, 1889	Oct. 4, 1888	36	Wm. L. Campbell
The Laird Ditch	Republican river	Jan. 15, 1889	Oct. 20, 1888	36	Wm. L. Campbell
The —— Eleven Ditch	N. Fork of Republican	July 26, 1890	April 26, 1888	Not given	Joseph W. Bowles

WATER DIVISION No. 2,

ARKANSAS DIVISION.

John W. McDaniel, Superintendent of Irrigation; residence, Napesta, Colorado.

The Superintendent of Division No. 2 reports his inability to make a complete statement, from the fact that in many districts water rights have not been adjudicated, and hence Water Commissioners have not been on duty to collect data.

In relation to decrees in certain districts, he recites as follows:

District No. 11—Comprehensive and efficient decrees were ordered during the June term of the District Court of this year (1890), and received by me in August following—too late for decretal orders during the irrigating season.

District No. 12—Decrees were issued for canals from—

Beaver creek, in April, 1887.

Hardscrabble creek, in October, 1888.

Adobe creek, in October, 1888.

Mineral creek, in October, 1888.

Four-Mile creek, in October, 1888.

Four-Mile creek, in April, 1890. Supplemental.

(Exceptions to be filed and evidence for revision or modification to be completed by February 1, 1891.)

Flint creek, in April, 1890.

District No. 13—There are six decrees in Custer county, obtained by individual suits during the years 1881 to 1886, inclusive.

No Water Commissioner appointed.

Districts Nos. 14 and 15—Priorities were decreed on the St. Charles and Greenhorn creeks in 1880-4.

Supplemental and revisionary testimony, and the matter of priorities, embracing the whole District, has been in the hands of a referee during the past five years, but the constructing of new and extensive canals has retarded a report. I am informed, however, that report will be made at this November term of court, at Pueblo.

District No. 16—Full and comprehensive decrees were ordered in this District in June, 1889. I am informed, however, that the matter is to be re-opened for revisionary testimony.

Districts Nos. 17, 18, 19, 66 and 67—Are without decretal orders regarding priorities, but I am informed that the matter has been referred, and that reports may be expected before the next irrigating season.

Decrees—The earlier decrees are notably deficient in the absence of specific detail, particularly that of a measured flow of water, the entire acreage of a person being given, regardless of how much land may be situated above any possibility of irrigation from the canal in question.

Decrees are given above the capacity of canal; and decrees, as well as canal capacity, may exceed the area of land actually covered.

The opportunities for contesting litigation are innumerable through faulty and insufficient decrees, and should have remedy by legislation providing specifications in detail necessary to a judicial decree.

A class of people which can least afford litigations, and having fully complied with all legal formalities in giving testimony before referees, should be spared the results of incompetency.

I should state, however, that the later decrees are specified and complete in nearly all matters connected therewith.

Reports of Water Commissioners—The reports of Water Commissioners, as transmitted to you, are meagre in detail, and comprising less of fact than of varied and insufficient estimate.

Causes of Inefficiency—The causes for this are varied and may be classed as, a lack of comprehension of official requirements; a disinclination or inability to comply therewith; the incompleteness of canals in the matter of head-gates, locks and measuring flumes; the notable absence and need of Water Commissioners in some localities, through the accounts of County Commissioners in limiting the time necessary for a proper performance of official duties, etc., and a refusal to audit and pass the proper bills, and, in some cases, absolute inefficiency.

You will note that in some instances no reports whatever have been rendered, although I forwarded specific instructions and urgent request to each Commissioner the first of October. In one instance the County Commissioners refused to sanction the expenditure necessary to collect data. In another instance, when parties were requested to give information as to crops, use of water etc., they imagined it to be for use against their water rights, and where any information was given we may presume upon its exaggeration.

Instructions to Officers—I would suggest in the first place, that comprehensive and specific instructions by circular be sent to each Superintendent and Water Commissioner at the commencement of the irrigating season, for the collection of requisite data during the

exercise of his official duties, and which shall be the result of personal investigation instead of a hasty and imperfect estimate at the end of the season; and further, that the laws regarding head-gates, locks and special facilities should be enforced by specific orders from the State Engineer.

Legislation—The system of State control over the use of water as now existing, is inoperative in the fact that the Superintendents and Commissioners are not sufficiently responsible as State officers to the State Engineer; since sufficient service can only be obtained by a careful and vigilant superintendence, and by a complete and entire responsibility to the official head of the State department. Therefore, I would recommend legislation by the Assembly of 1891 to revise and re-enact laws regarding Water Superintendents and Commissioners.

All officers subordinate to the State Engineer should be appointed upon and through his recommendation and with reference to their especial fitness for the position; with provision for removal for cause. The officers should also be recognized and paid by the State through a special tax levied upon each of the respective counties and duly apportioned in the State treasury.

The work is inoperative in many localities through a mistaken idea of economy on the part of the County Commissioners and from other causes; and in the matter of accounts it is of common occurrence that it may take a year to obtain a county warrant good for 80 to 90 per cent. at most; and there are some counties in this division who through the County Commissioners absolutely refuse to recognize any claim only through suit at law.

In making the salaries payable by the State the accounts should be subject to the auditorship and approval of the Superintendent and the State Engineer, thereby making all irrigation officials responsible to him and promoting greater efficiency.

Indirectly referring to the foregoing causes affecting this report, and the fact that in the Arkansas Valley canals for the irrigation of lands remote from the river are just reaching completion, I am unable to give any satisfactory account of the duty of water and the matter of seepage.

Seepage—That the seepage is very material is beyond question, and where canals traverse the mesas through favorable or porous soils I have no hesitancy in estimating the amount (while the canals are new and before they have become puddled) to be 5 per cent., and believe it to be more under favorable conditions. Small ditches have been utilized entirely from seepage upon outlying slopes; and where canals are contiguous the supply of water to the lower has naturally been augmented by the higher one.

Under the Rocky Ford Canal there was a very limited area of land affected by seepage until the construction of the Catlin Canal (outlying), after which the area *below the Rocky Ford Canal* was very materially augmented with none in space between.

Quite a large area of land in the Arkansas valley may be said to be damaged by seepage, but the general opinion seems to be that ditching or blind trenches will reclaim nearly all of it.

Seepage from canals taken from the Arkansas river is very material in holding water in reservation, returning it later to the river and thereby tending to equalize the supply.

Water was turned into the Bent-Otero Canal for four days and then shut off; and seepage streams scarcely diminished in volume were running two weeks later, no further supply being given.

Underflow—Illustrating the immense underflow of the river, a well at Las Animas supplying the town, 20 feet in diameter and 30 feet deep, has a capacity of 1,100,000 gallons every 24 hours.

Reservoirs—Regarding reservoirs, while there are some very large ones projected, the actual utility has not yet been demonstrated. I am informed that while the projected reservoirs may have a valuable practicability, the capacity of the ditches supplying them are limited to the needs of the land, and that the full capacity of the canals during flood times will not admit of deflection of water for storage.

Evaporation—During the prevalence of hot dry winds of early spring and summer, the evaporation of still water lashed into spray will amount to quite 4 inches in depth.

It is possible a small proportion of this is due to seepage, but the estimate is intended to allow for that, water being supplied to offset.

I have the honor to remain,

Very respectfully,

Your obedient servant,

JOHN W. McDANIEL,
Superintendent Division No. 2.

NEPESTA, COLORADO, }
Nov. 20, 1890. }

Water District No. 10—Thos. Shideler, Commissioner, Colorado Springs.

No report.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 10, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Name of stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Strong Ditch	Monument creek	Jan. 2, 1889	Not stated	22	Julia H. Strong
The Hunt & McClellan Pipe Line	Douglas creek	Jan. 14, 1889	Nov. 12, 1888	2.33	C. T. R. McClelland
The Banning & Mathews Ditch	Cheyenne creek	Jan. 16, 1889	Nov. 12, 1888	28	W. M. Banning and Albert Matthews
The Frank Smith Ditch	Monument creek	Feb. 21, 1889	Jan. 30, 1889	4	Frank Smith
The Baby Green Ditch	Monument creek	Feb. 21, 1889	Jau. 31, 1889	4	J. W. Green
The Curlew Ditch	Monument creek	Feb. 21, 1889	Jau. 29, 1889	13	Frank Smith and J. W. Green
The Straw Ditch, enlargement No. 1	Fountain creek	April 15, 1889	Dec. 28, 1888	5.70	John Irvine, Jr.
The Corman Ditch No. 2	The King ditch	May 2, 1889	April 15, 1889	7.80	A. B. Corman
The Martin & McGovney Ditch	Monument creek	May 4, 1889	Feb. 1, 1889	(?) 232.00	F. I. Martin and A. A. McGovney
The Austin Bluff City Feeder No. 1	N. Fork Monument c'k	May 8, 1889	Jau. 15, 1889	4.70	{ The Austin Bluffs Land & Water Co.
The Waterworks Feeder No. 2	West Monument creek	May 8, 1889	Not stated		

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No. 1 . . .	North Cheyenne creek	May 13, 1889	Feb. 12, 1889	13
No. 2 . . .	Bear creek	May 13, 1889	Feb. 21, 1889	17.50
No. 3 . . .	Bear creek	May 13, 1889	Feb. 21, 1889	4.70
No. 4 . . .	Sand creek	May 13, 1889	Mar. 11, 1889	7.94
The East Colorado Springs Land and Water Supply Company's Ditch	Sand creek	May 13, 1889	Mar. 11, 1889	The East Colorado Springs Land and Water Supply Company
No. 5 . . .	Sand creek	May 13, 1889	Mar. 11, 1889	60
No. 6 . . .	Reservoir No. 1	May 13, 1889	Mar. 18, 1889	10.50
No. 7 . . .	Reservoir No. 2	May 13, 1889	Mar. 18, 1889	10.50
The Brookside Spring Ditch	The Brookside spring	May 17, 1889	May 2, 1889	6.10
The Mayo Ditch	Swamp on owner's land	May 20, 1889	Mar. 7, 1889	21.50
The Springdale Ditch	Natural spring	July 6, 1889	April 11, 1889	5
The Cottonwood Springs Ditch	Cottonwood spring run	Aug. 2, 1889	May 4, 1889	5
The Keno Ditch	South Beaver creek	Aug. 3, 1889	May 10, 1889	6.76
The Spring Run Ditch	Spring run	Aug. 5, 1889	May 9, 1889	7.30
The Darr Ditch	Cheyenne slough	Aug. 19, 1889	April, 1880	2
The Arapahoe Ditch, extension of	Beaver creek	Oct. 4, 1889	1885	19.57
The Green Mountain Falls Town Improvement Company's Water System	Fountain creek	Oct. 4, 1889	Aug. 29, 1889	11.60
The Wheeler Ditch	Fountain creek	Oct. ~ 9, 1889	July 15, 1889	6.20
The Alley Ditch	A spring in 25, 14, 67	Oct. 24, 1889	Oct. 18, 1889	3.36
The Arapahoe Ditch	West Br. Beaver creek	Oct. 24, 1889	June, 1868	19.57
The Monitor Ditch	Monument creek	Oct. 24, 1889	June, 1868	19.57
The Cozzens Ditch No. 1.	Smith creek	Nov. 8, 1889	. . . . .	{ . . . . . H. S. Roberts
The Cozzens Ditch No. 2.	Smith creek	Nov. 8, 1889	June, 1870	10.18
				Sarah A. Reynolds

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Reynolds Ditch No. 2	Smith creek	Nov. 8, 1889	Aug. 21, 1889	9.16	• • • • • Sarah A. Reynolds
The Monument Pipe Line	South Beaver creek	Nov. 19, 1889	Nov. 19, 1889	.76	• • • • • The Town of Monument
The Sheep Creek Pipe Line	Sheep creek	Nov. 29, 1889	• • •	.52	• • • • • Thos. T. Palgrove
The Lion Creek Pipe Line	Lion creek	Nov. 29, 1889	Oct., 1889	.63	
The East Colorado Springs Land and Water Company's Ditch { No. 8 and Pipe Line	Sand creek	Dec. 7, 1889	Sept. 10, 1889	15	{ The East Colorado Springs Land and Water Supply Company.
The Ute Pass Ditches	No. 1 { Fountain creeks No. 2 }	Dec. 19, 1889	Sept. 29, 1889 { Sept. 24, 1889	16 36.76	• • • • • Nathan S. Culver
The Yankee Girl			Oct. 7, 1889	6.50	
The North Star .	Ditch and Pipe Line .		Oct. 7, 1889	6.50	
The South Star .	Lion creek	Jan. 4, 1890	Dec. 16, 1889	6.50	
The Welch . . .			Dec. 15, 1889	6.50	
The Spring . . .			Dec. 15, 1889	6.50	
The Enterprise Ditch	Monument creek	Jan. 13, 1890	Dec. 26, 1889	31.35	• • • • • The Enterprise Ditch Company
The Keystone Ditch	Sand creek	Feb. 8, 1890	Jan. 28, 1890	5.66	• • • • • Harry Q. D. McCurdy
The Simmons Pipe & Ditch Line	Sand creek	Feb. 15, 1890	Dec. 7, 1889	5.25	• • • • • John Simmons

The Wigwam Underground Ditch Pipe Line	Fountain creek, etc .	Mar. 24, 1890	Dec. 27, 1899	50	
The Wheeler Ditch No. 1	Trout creek	Mar. 31, 1890	June, 1882	6.20	Charles Wheeler
The North Colorado Springs Land & Improvement Company's Ditch.	Monument creek . . .	May 5, 1890	Sept. 13, 1889	22	{ The North Colorado Springs Land & Improvement Company
The Loomis Ditch	Dry gulch	May 8, 1890	Mar. 14, 1890	205	{ O. S. Loomis
The Teachout Ditch	Monument creek . . .	May 12, 1890	April 4, 1890	2.37	H. M. Teachout
The Newton & Roberts Pipe Line . . .	{ Waste, seepage and spring waters . . . }	May 20, 1890	Mar. 1, 1890	50	Jas. E. Newton & Eugene W. Roberts
Amended statement of same	Same	June 10, 1890	Mar. 1, 1890	Same	Same
The J. W. Green Ditch	Kettle creek	June 11, 1890	April 11, 1890	2.37	James W. Green
The Amber Ditch and Pipe Line . . .	Unnamed	June 18, 1890	April 29, 1890	3.74	Henry Ambler
The Gover Ditch	Talcot Gulch creek .	July 8, 1890	June 16, 1890	4.20	Mary E. Gover
Auxiliary Pipe and Ditch Line to The Ambler Pipe Line and Ditch	Unnamed	July 18, 1890	June 5, 1890	2.37	Henry Ambler
The Newton Ditch	Springs	Aug. 18, 1890	May 29, 1890	4.50	The Newton Lumber Company
The Arroyo Ditch	Springs	Aug. 22, 1890	Aug. 29, 1889	2.90	Charles A. Lansing
The Tom Wanless Ditch, underground feeders to	{ Underground flow of the Fountain valley }	Oct. 15, 1890	Sept. 17, 1890	3.98	William M. Strickler
The Ute Pass Land & Water Company's Water System	{ Middle Fork of the Fountain qui Bonille }	Oct. 15, 1890	July 17, 1890		The Ute Pass Land & Water Co
The Chilcott Ditch, branch of and feeder to	Natral lake & springs .	Nov. 8, 1890	July 30, 1890	3	. The Chilcott Ditch Company

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 10, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Banning & Matthews Storage Reservoirs	Cheyenne creek .	Banning and Matthews	Jan. 16, 1889	Nov. 12, 1888	3,500	{ W. M. Banning and Al. Matthews
The Overland Heights Land, Town and Improvement Co's Reservoir	S. Br. Fountain crk	Comp'ny's pipe line	Jan. 31, 1889	Oct. 29, 1888	208,360	{ The Overland Heights Land, Town and Improvement Company
No. 1					330,000	
No. 2					207,000	
No. 3					207,000	
No. 4					334,000	
No. 5					334,000	
No. 6	Springs,	Reservoirs directly over springs	April 8, 1889	Mar. 15, 1889	12,500	. Timothy E. Johnson
No. 7					12,500	
No. 8					12,500	
No. 9					12,500	
No. 10					12,500	
No. 11					660,000	{ (No. 11, old reservoir enlarged)
The Lake Moraine Storage Reservoir	Ruxton creek & Lake Moraine	On the stream	May 9, 1889	Feb. 14, 1889	22,580,000	. City of Colorado Springs

The East Colorado Springs Land and Water Supply Company's Reservoir No. 1	Sand creek . . .	{ Company's ditch and pipe line }	May 13, 1889	Mar. 18, 1889	23,995,210	{ The East Colo. Springs Land and Water Supply Company }
The North Colo Springs Reservoir . . .	Monument creek . .	On the stream . .	Oct. 14, 1889	Sept. 13, 1889	20,000,000	. . . . . Louis R. Ehrich
The Wigwam Reservoir	Wigwam creek . .	Same	Mar. 24, 1890	Dec. 27, 1889	6,000	. . . . . Gordon Land Austin Bluff Ld. & Water Co
The Austin Bluff Reservoir	W. Monument c'ek . .	Same	Mar. 26, 1890	Oct. 16, 1889	12,932,985	. . . . . The North Colo. Springs Land & Improv'm't Co.
The North Colo. Springs Land and Improvement Co's Reservoir	Monument c'ek . .	Company's ditch	May 5, 1890	Sept. 13, 1889	20,000,000	. . . . . James E. Newton and E. W. Robe
The Newton & { No. 1 } Reservoirs { No. 2 } { No. 3 }	{ Waste, Seepage and Spring waters }	Pipe line . .	May 21, 1890	Mar. 1, 1890	{ 70,000 393,325 412,750 }	. . . . . A. S. Pope
Amended Statement of the same	Same	Same	June 10, 1890	Same	Same . . . . .	. . . . . Same
The Pike View Reservoir	A spring & flood	Feeder ditch . .	May 21, 1890	Oct. 1, 1888	275,654	. . . . .
The Newton & Reservoirs { No. 1 } { No. 2 }	Springs	Feeder ditch . .	Aug. 18, 1890	May 20, 1890	{ 124,000 352,000 }	{ The Newton Lumber Co.
The Frizzell & Reservoirs { No. 1 } { No. 2 }	French's creek . .	On stream . . .	Oct. 1, 1890	. . . . . . . . .	{ 1,724,500 gals 2,672,000 gals }	. . . . . William Frizzell
The Cottonwood Creek Reservoir	Cottonwood creek	On stream . . .	Oct. 4, 1890	July 10, 1890	10,081,000	. . . . . Louis R. Ehrich <i>et al.</i>
The Lake Joy Storage Reservoir	{ Fontaine qui Bouille	Tom Wanless . .	Oct. 15, 1890	Mar. 1, 1890	5,220,000	. . . . . William M. Strickler

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING EXISTING RESERVOIRS

IN WATER DISTRICT NO. 10, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON Sec. T.S. R.W.			Area in acres	Length of dam in feet	Greatest depth of dam in feet	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
21	12	67	...	115	...	Earth	...	26,000	Irrigation and domestic	{ N. Fk W Mon- ument creek.
36	12	67	2,57	44	18	Stone&earth	\$ 5,000 00	600,000	Irrigation, domestic and ice	W. Monum't crk
36	12	67	6,64	...	...	Earth	...	1,200,000	Irrigation, domestic and ice	W. Monum't ork
25	12	68	35	360	...	Earth&stone	14,000 00	12,932,085	Domestic and irrigation	W. Monum't crk
27	13	65	...	450	...	Earth	...	500 00	Domestic and irrigation	Bierstadt creek
2 and 3	13	67	...	150	9	Earth&stone	1,000 00	100,000	Domestic and irrigation	Stream unnam'd
23	13	67	1,36	...	...	Earth	...	1,000 00	Domestic and irrigation	Stream unnam'd
26	13	68	...	200	9	Earth&stone	1,000 00	60,000	Domestic and irrigation	Spring & floods
11	14	66	...	...	...	Earth	...	275,654	Domestic and irrigation	{ South Fork of Fountain creek
31	14	66	...	...	...	Earth	...	208,360	Domestic	Ruxton creek
31	14	66	...	...	...	Earth	...	23,905,210	Irrigation and domestic	So. Spring creek
35	14	66	11	3,800	15	Earth	...	2,000 00	Irrigation and domestic	So. Spring creek
12	14	67	2	200	14	Earth	...	2,300 00	Irrigation and domestic	Cheyenne creek
								475,000	Irrigation . . . . .	...
								8,933,333	Irrigation . . . . .	...
								200 00	Irrigation	Springs

13	14	67	4.64	•••••	Earth	•••	1,500	00	1,205,280	Ice pond	••••• Bear creek	
25	14	67	.75	•••••	Earth	•••	1,000	00	330,000	Irrigation and domestic	Natural Springs	
25	14	67	.50	•••••	Earth	•••	1,000	00	207,000	Irrigation and domestic	Natural Springs	
25	14	67	.50	•••••	Earth	•••	1,000	00	207,000	Irrigation and domestic	Natural Springs	
25	14	67	.91	•••••	Earth	•••	1,000	00	334,000	Irrigation and domestic	Natural Springs	
25	14	67	.91	•••••	Earth	•••	1,000	00	334,000	Irrigation and domestic	Natural Springs	
25	14	67	.50 x 50	•••••	10 Earth	200	00	12,500	12,500	Irrigation, domestic and other lawful purposes	Natural Springs	
25	14	67	.50 x 50	•••••	10 Earth	200	00	12,500	12,500	Irrigation, domestic and other lawful purposes	Natural Springs	
25	14	67	.50 x 50	•••••	10 Earth	200	00	12,500	12,500	Irrigation, domestic and other lawful purposes	Natural Springs	
25	14	67	.50 x 50	•••••	10 Earth	200	00	12,500	12,500	Irrigation, domestic and other lawful purposes	Natural Springs	
25	14	67	.50 x 50	•••••	10 Earth	200	00	12,500	12,500	Irrigation, domestic and other lawful purposes	Natural Springs	
25	14	67	.50 x 50	•••••	10 Earth	200	00	12,500	12,500	Irrigation, domestic and other lawful purposes	Natural Springs	
25	14	67	1.87	•••••	Barth	•••	1,000	00	660,000	Irrigation and domestic	Cheyenne creek	
25	14	67	.73	•••••	5 Earth	500	00	160,635	160,635	Irrigation and domestic	Cheyenne creek	
25	14	67	1.50	•••••	10 Earth	200	00	•••••	•••••	Irrigation and domestic	Cheyenne creek	
36	14	67	•••••	•••••	1,150	8	Earth	•••	250,000	Ice and irrigation	Cheyenne creek	
36	14	67	•••••	•••••	550	•••	Earth	•••	2,000	Irrigation and domestic	Brookmoor	
36	14	67	•••••	•••••	427	•••	Earth	23,712	00	1,880,000	Irrigation and domestic	{ Spring Run
25	14	68	•••••	•••••	1,000	•••	Earth&rock	•••	54,000,000	Irrigation and domestic	Brookmoor	
and {	14	68	800	•••••	800	•••	Earth&rock	6,490	00	40,800,000	Irrigation and domestic	{ Spring Run
36	14	68	100	•••••	100	•••	Earth&rock	2,200	00	34,000,000	Irrigation and domestic	Brookmoor
and {	14	69	•••••	•••••	150	•••	Earth&rock	1,500	00	2,400,000	Irrigation and domestic	Big-horn and Sackett creeks.
36	14	69	300	•••••	300	•••	Earth&rock	1,700	00	2,100,000	Irrigation and domestic	Big-horn and Sackett creeks.
			500	•••••	500	•••	Earth&rock	6,600	000	6,600,000	Irrigation and domestic	Big-horn and Sackett creeks.

STATEMENT CONCERNING RESERVOIRS—*Concluded.*

LOCATION ON Sec. T. S. R. W.	Area in acres	Length of dam in feet	Greatest depth of dam in feet	Material used in construction	Estimated cost	Capacity in cubic feet	Purpose for which water is stored	SOURCE OF SUPPLY
24 14 69	250	.....	Earth&stone	\$ 1,000 00	10,000,000	Irrigation and domestic	Branch of Beaver creek
24 14 69	800	.....	Earth&stone	2,500 00	60,000,000	Irrigation and domestic	Branch of Beaver creek
21 15 66	Earth . . .	5,000 00	21,500,000	Irrigation	Fountain creek
16 16 66	Earth . . .	2,500 00	8,702,600	Irrigation and domestic	Little Fountain creek

STATEMENTS CONCERNING RÉSERVOIR SITES

UNIMPROVED IN DISTRICT NO. 10, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON Sec. T. S. R.W			Estimated area in acres	Length of dam in feet about	Greatest depth of dam in feet about	Material convenient for construction	Estimated cost	Estimated capacity in cubic feet	Source of supply	REMARKS	
NW	35	14	67	12	500	28	.....	\$ 5,000 00	5,000,000	Cheyenne creek
NE	8	17	65	10	700	10	Earth . . . . .	.....	{ Thos. Wanlews Ditch	.....
SW	17	14	66	70	2,200	15	.....	6,000 00	59,000,000	City water supply
SE	32	14	68	.....	800	30	.....	12,000 00	60,000,000	Beaver creek
	21	14	68	.....	385	30	.....	.....	22,580,000	Ruxton creek & Lake Moraine
	SE	3	14	67	20	1,300	10,000 00	9,000,000	Camp creek
	25	14	67	1½	.....	10	Earth	200 00	.....	Cheyenne creek
	34	13	65	8	750	.....	.....	.....	230,000	Bierstadt creek

STATEMENTS CONCERNING ARTESIAN WELLS

IN WATER DISTRICT No. 16, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OR WELL	Total depth thereof in feet in inches	Diameter of case in feet	Length of case in feet	DEPTH OF FLOW BELOW SURFACE				LOCATION	REMARKS
				First flow	Second flow	Third flow	Fourth flow		
City of Colorado Springs.	1,120							T. 14 S., R. 66 W	{ Abandoned on account of disagreement of city council

Water District No. 11—S. K. Sterling, Commissioner, Brown's Cañon, Chaffee county.

Mr. Sterling reports for the year 1890, having been called out August 11, and that he gave 45 days service, with nine days additional for an assistant.

He states that much water is wasted by the continuous flooding of meadows during the season, and to the injury of the land and crops; that 211 ditches have carried water, irrigating in alfalfa, 1,145 acres; seeded grasses, 2,422 acres; natural meadows, 3,994 acres; and all other crops, 7,491 acres; lawns and trees, 580 acres, and 480 acres irrigated from seepage; total acreage cultivated and irrigated, 15,647 acres, with an abundant supply of water for all purposes.

Mr. Sterling reports much difficulty in regulating the distribution of water to small ditches from want of proper head-gates, and suggests a provision of law, authorizing the Water Commissioner to deny all water to such ditches as are not provided with suitable head-gates, after due notice to the owners thereof, until they are properly equipped.

COMMISSIONERS REPORT, A. D. 1890.

DIVISION NO. 2—DISTRICT NO. 11.

NAME OF DITCH	Length thereof in miles	Number of days water was carried	Average amount of water carried during season of 1890 in cubic feet, per second of time	Number of acres that can be irrigated therebyfrom	Number of alfalfa irrigated therefrom	Number of acres of sedded grasses irrigated therefrom	Number of acres of sedded grasses irrigated than alfalfa from other than alfalfa	Number of acres of natural grasses irrigated therefrom	Number of acres irrigated from other crops irrigated three times	Soil	Number of acres irrigated from seepage	Number of acres irrigated in districts	Number of acres irrigated in districts
The Trout Creek Ditch . . . . .	.25	120	1,200,000	1,200	1,200	1,200	1,200	1,200	1,200	50	50	50	50
The Leesneagh Ditch	1.50	145	1,500,000	1,500	1,500	1,500	1,500	1,500	1,500	70	70	70	70
The Thompson Ditch	1	105	1,050,000	1,050	1,050	1,050	1,050	1,050	1,050	75	75	75	75
The Gilliland Ditch . . . . .	.25	90	900,000	90	90	90	90	90	90	60	60	60	60
The Three Mile Ditch	3.25	90	3,250,000	3,250	3,250	3,250	3,250	3,250	3,250	80	80	80	80
The Smith Ditch . . . . .	.25	110	250,000	250	250	250	250	250	250	15	15	15	15
The Herrington Ditch	4	165	1,650,000	1,650	1,650	1,650	1,650	1,650	1,650	55	55	55	55
The Tennessee Ditch	2	90	180,000	180	180	180	180	180	180	50	50	50	50
The Prior Right Ditch	1	150	150,000	150	150	150	150	150	150	15	15	15	15
The Mahan Ditch . . . . .	.50	180	50,000	180	180	180	180	180	180	15	15	15	15
The Evans Ditch . . . . .	.50	105	50,000	105	105	105	105	105	105	38	38	38	38
The McFarland Ditch . . . . .	.75	180	75,000	180	180	180	180	180	180	6	6	6	6
The Pioneer Ditch	2.50	90	2,500,000	2,500	2,500	2,500	2,500	2,500	2,500	2	2	2	2
										4	4	4	4
										240	240	240	240
										113	113	113	113

* Not used this season.

† Not in use this season.

COMMISSIONER'S REPORT, A. D. 1890—Continued.

The Williams and Hamm Ditch	5	210	•	•	•	82	5	5	65
The Frautz Ditch	3	45	•	•	•	20	•	•	135
3 The Briscoe Ditch	3.50	150	•	•	•	18	•	•	50
The Wolf and Neerland Ditch	2.50	120	•	•	•	•	25	•	476
The McPherson and Burnett Ditch	1.50	120	•	•	•	•	10	•	22
The Williams Ditch . . . . .	.50	60	•	•	•	82	5	•	65
The Hutchinson Ditch . . . . .	.75	150	•	•	•	5	•	•	29
The Rhoades Ditch	1	120	•	•	•	•	•	•	15
The Weber Ditch No. 2 . . . . .	.25	180	•	•	•	•	•	•	28
The Edwards Ditch No. 1 . . . . .	.25	60	•	•	•	•	•	•	21
The Hutchinson Ditch No. 2 . . . . .	.75	150	•	•	•	5	•	•	29
The McKenna Ditch	4	75	•	•	•	8	•	•	39
The Champ Ditch	1	90	•	•	•	•	7	8	13
The Dickman Ditch Nos. 1 and 2	1.50	120	•	•	•	•	10	•	50
The Arkansas Valley Irrigating Co.'s Ditch	2.50	120	•	•	•	5	50	•	210
The Sand Creek Ditch	5	150	•	•	•	•	•	•	5
The Hot Creek Ditch . . . . .	.25	180	•	•	•	•	•	•	6
The South Arkansas Water Works and Irrigation Co.'s Ditch	3	240	•	•	•	5	•	•	10
The Laughoff Ditch	2.50	90	•	•	•	•	•	•	40
The Missouri Park Ditch	7	180	•	•	•	149	15	8	971
The Abbott Placer Ditch	2	75	•	•	•	•	245	40	•

* Not used this season.

COMMISSIONER'S REPORT, A. D. 1890—Continued.

* Not in use this season.

COMMISSIONER'S REPORT, A. D. 1890—Continued.

NAME OF DITCH	Length thereof in miles	Number of days water was carried threelfin	Average amount of water carried during season of irrigating per cubic foot per second of time	Number of acres that can be irrigated that can be irrigated threeelfin	Number of acres of alfalfa irrigated threelfin	Number of acres of seeded grasses irrigated thereelfin	Number of acres of seedbed grasses irrigated thereelfin	Number of acres of natural grasses irrigated thereelfin	Number of acres of crops irrigated thereelfin	Number of acres irrigated from seepage	Total number of acres irrigated in district
The Rosedale Ditch . . . . .	.25	180	150	17	1	43	40	15	150	21	28
The Hoosier Ditch	1	180	120	17	1	43	40	15	150	21	28
The High Ditch . . . . .	.75	150	120	17	1	43	40	15	150	21	28
The Rhodes North Side Ditch	1	120	120	17	1	43	40	15	150	21	28
The Ahern Ditch	1.50	120	120	17	1	43	40	15	150	21	28
The Silver Creek Ditch	2	120	120	17	1	43	40	15	150	21	28
The Harvard Ditch	2	120	120	17	1	43	40	15	150	21	28
The Mountain Ditch . . . . .	.50	120	120	17	1	43	40	15	150	21	28
The Link & Irving Irrigating Ditch	3	150	120	17	1	43	40	15	150	21	28
The Pision Cañon Ditch . . . . .	.50	180	120	17	1	43	40	15	150	21	28
The Little Anna Ditch . . . . .	.50	135	120	17	1	43	40	15	150	21	28
The Fehling Ditch	1	160	120	17	1	43	40	15	150	21	28
The Boots & Hinton Ditch	1.50	120	120	17	1	43	40	15	150	21	28
The Ouray Ditch	5	180	120	17	1	43	40	15	150	21	28

The Pancost Ditch	3	150	245	40	25
The Half Moon Ditch	2	75	245	40	15
The Thompson & O'Donnell Ditch	2	180	245	40	25
The Owens Ditch . . . . .	.50	150	245	40	30
The Up Hill Ditch . . . . .	.50	120	245	40	25
The El Campus Ditch	• • •	• • •	• • •	• • •	• • •
The Murphy Ditch	2.50	120	25	25	• • •
The Anderson Ditch	3.50	150	6	55	• • •
The Bowen Ditch	6	120	250	29	29
The Eastman Ditch . . . . .	.75	120	250	29	15
The Anderson Ditch	3	150	250	29	15
The Johnson Ditch	3	150	250	29	35
The Lippard Ditch	• • •	• • •	• • •	• • •	• • •
The Kraft Ditch	3	120	250	29	62
The Murray Ditch	2.50	90	250	29	5
The Salida Ditch	8	210	250	29	5
The Steel & Contawine Ditch	4	180	250	29	150
The Mayhall Ditch	3	120	250	29	55
The Michigan Ditch	1	150	250	29	12
† The State Reformatory Ditch	1.50	• • •	7	• • •	• • •
The Fish and Newcomb Ditch	1	120	• • •	• • •	15

* Not used this season.

† Not in use this season.

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The St. Kivan Ditch75	60	100	
The De Mary Ditch	50	..
The Foster Ditch	20	..
The Holtzer Ditch25	60	10	..
The Steavans and Little Placer Ditch . . . . .	..	..	..	5
The France Ditch . . . . .	.50	60	25	..
The Stalky Ditch . . . . .	.75	60	35	..
The Dexter Ditch . . . . .	.50	45	50	..
The Sproat Ditch . . . . .	.25	60	..	8
The Eggleston Ditches Nos. 1 and 2 . . . . .	.50	180	8	27
The Stagner Ditch . . . . .	.75	150	..	10
The Pritchard Ditch	1	150	..	10
The Fletcher Ditch . . . . .	.50	195	..	15
The Four Weeks Ditch . . . . .	.75	60	100	..
Totals in district	301.25	..	1,382	4,172
			2,739	7,933
				485
				16,795

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 11, GIVING THE DATE AND ORDER OF PRIORITY, AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, AS THEY HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE FOURTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE, AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH, CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second and appropriated in district, Franklin or reservoir		Summarization of de- cree to each priority and decreed to sec- ond priority	Cubic feet per sec- ond appropriated in district	Order of priority in district
			Cubic feet per sec- ond appropriated in district	Cubic feet per sec- ond appropriated in district			
The Trout Creek Ditch	Trout creek	Nov. 28, 1864	3.20	.....	.....	.....	1
The Leesmeagh Ditch	Cottonwood creek	Nov. 30, 1864	4	.....	.....	3.20	2
The Thompson Ditch	Cottonwood creek	Dec. 19, 1864	4	.....	.....	7.20	3
The Gililand Ditch No. 1	Brown's creek	Sept. 30, 1865	1	.....	.....	11.20	4
The Smith Ditch No. 1	Brown's creek	Sept. 30, 1865	.60	.....	.....	12.20	5
The Three Mile Ditch	Three Mile creek	Nov. 30, 1865	.60	.60	.....	12.80	6
The Harrington Ditch	South Arkansas river	Mar. 10, 1866	3.24	3.24	3.24	13.40	7
The Tennessee Ditch	South Arkansas river	April 30, 1866	5.40	.....	.....	16.64	8
The Prior Right Ditch	Cottonwood creek	April 30, 1866	2	.....	.....	22.04	9
The Mahan Ditch	Cottonwood creek	April 30, 1866	1	24.04	10
The Evans Ditch	Brown's creek	April 30, 1866	3.20	25.04	11

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The McFarland Ditch	Three Mile creek	April 30, 1866	.40	28.24	12
The Pioneer Ditch	Brown's creek	May 17, 1865	6.58	6.58	28.64	13
22 The Gorrel Ditch.	North Cottonwood creek	May 31, 1866	4	.....	35.22	14
The Cottonwood Irrigating Ditch	Cottonwood creek	July 31, 1866	6	.....	39.22	15
The Burnett Ditch	South Arkansas river	Dec. 31, 1865	3.90	.....	45.22	16
The Boon Ditch No. 1	South Arkansas river	May 1, 1867	1.60	.....	49.12	17
The Chalk Creek Mill Ditch.	Chalk creek	May 31, 1867	16	.....	50.72	18
The Noland Ditch	South Arkansas river	Nov. 16, 1867	3.60	.....	66.72	19
The Bray Ditch.	North Cottonwood creek	Dec. 31, 1867	3.20	.....	70.32	20
The Gililand Ditch No. 2	Brown's creek	Dec. 31, 1867	.86	.....	73.52	21
The Harrington Ditch, second appropriation	South Arkansas river	Jan. 2, 1868	2.14	5.38	74.38	22
The Cameron Ditch	N. fork of So. Arkansas river	Jan. 10, 1868	9	.....	76.52	23
The Smith Ditch No. 2.	Brown's creek	April 30, 1868	2.60	.....	85.52	24
The Fhrhart and Bertschy Ditch	Brown's creek	May 10, 1868	6.40	.....	88.12	25
The Pioneer Ditch, second appropriation	Brown's creek	May 31, 1868	1.31	7.89	94.52	26
The Three Mile Ditch, second appropriation	Three Mile creek	Dec 31, 1868	2.60	3.20	95.83	27
The McPherson Ditch	South Arkansas river	April 30, 1869	1	.....	98.43	28
The Mundlein Ditch No. 1.	South Arkansas river	Nov. 30, 1869	1.80	.....	99.43	29
The Nash Ditch	Brown's creek	Dec. 31, 1869	.80	.....	101.23	30
The Huntzicker Ditch	Cochetopa creek	Dec. 31, 1870	.70	.....	102.03	31
The Green Gulch Ditch	Green Gulch creek	Nov. 30, 1871	1	.....	102.73	32
The Boon Ditch No. 2	Pass creek	Nov. 30, 1871	1.40	.....	103.73	33

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH, OR CANAL	Stream from which water is taken	Date of appropriation	Order of priority in district		
			Cubic feet per second pre- viously appro- priated in dis- trict	Cubic feet per acre-foot re- served in each ditch, annual or cesses to each ditch, annual or reservoir	Summation of de- crees to each ditch, annual or reservoir
The Empire Creek Ditch	Empire creek	Dec. 31, 1871	6.40	.....	105.13
The Maxwell Ditch.	Cr. chelopa creek	Dec. 31, 1871	.80	.....	111.53
The Huey Ditch No. 1	Dry creek	April 30, 1872	1.20	.....	112.33
The Huey Ditch No. 2	Dry creek	April 30, 1872	1.20	.....	113.53
The White Ditch No. 2	South Arkansas river	May 1, 1872	1.60	.....	114.73
The White Ditch No. 3	South Arkansas river	Not definite	1.60	.....	116.33
The Trout Creek Company's Ditch	Cottonwood creek	Dec. 17, 1872	20	.....	117.93
The Ronk Ditch	North Coltonwood creek	Dec. 31, 1872	2	.....	137.93
The Froelick Ditch	Buffalo creek	Dec. 31, 1872	.20	.....	139.93
The Gilliland Ditch No. 3	Brown's creek	Dec. 31, 1872	2.21	.....	140.13
The Cottonwood Irrigation Ditch, second appropriation	Cottonwood creek	Dec. 31, 1872	13	19	142.34
The Mundlein Ditch No. 2	Green Gulch creek	March 1, 1873	1.74	.....	155.34
The Harrington Ditch, third appropriation	South Arkansas river	May 31, 1873	.62	6	157.08
The White Ditch	South Arkansas river	May 31, 1873	1.60	157.79
The Spaulding Ditch	Squaw creek	Dec. 31, 1873	.60	159.30

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The Weber Ditch No. 1	Three Mile creek	Dec. 31, 1873	.40	159.90	48
The Hensie Ditch No. 1	Cochetopa creek	Dec. 31, 1873	.30	160.30	49
The Hensie Ditch No. 2	Pass creek	Dec. 31, 1873	.20	160.60	50
The White Ditch No. 1	South Arkansas river	May 1, 1874	4	160.80	51
The Supply Ditch.	Cottonwood creek	May 12, 1874	3.20	164.80	52
The Cottonwood and Maxwell Creek Ditch.	Cottonwood creek	May 31, 1874	13	168	53
The Morrison Creek Ditch	Morrison creek	August 31, 1874	3.20	181	54
The Hill and Sprague Ditch	South Arkansas river	Jan. 22, 1875	6.40	184.20	55
The McGee Ditch	Trout creek	April 30, 1875	.14	190.60	56
The Four Mile Ditch	Four Mile creek	May 31, 1875	3.20	190.74	57
The Williams and Hamm Ditch	Arkansas river.	Dec. 31, 1875	16	193.94	58
The Frantz Ditch	Chalk creek	Dec. 31, 1875	6.40	209.94	59
The Briscoe Ditch.	South Arkansas river	Nov. 18, 1876	1.80	216.34	60
The McPherson and Burnett Ditch	South Arkansas river	Nov. 30, 1876	2	218.14	61
The White Ditch No. 2, second appropriation	South Arkansas river	March 31, 1877	1	220.14	62
The White Ditch No. 3, second appropriation	South Arkansas river	March 31, 1877	1.60	221.14	
The Wolf and Neerland Ditch	Cottonwood creek	April 1, 1877	8.14	222.74	
The Williams Ditch.	Arkansas river.	April 30, 1877	1	230.88	
The Hutchison Ditch	South Arkansas river	May 31, 1877	3	231.88	
The Rhoades Ditch	Trout creek	June 30, 1878	.20	234.88	
The Weber Ditch No. 2	Three Mile creek	June 30, 1878	3.20	235.08	67
The Tennessee Ditch, second appropriation	South Arkansas river	Dec. 31, 1878	2.40	236.28	68

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second of water priorities creed to each ditch, canal or reservoir		
			Cubic feet per second per district or priorities creed to each ditch, canal or reservoir	Cubic feet per second per district or priorities creed to each ditch, canal or reservoir	Cubic feet per second per district or priorities creed to each ditch, canal or reservoir
The Edwards Ditch No. 1	N. Fork of So. Arkansas river	Mar. 31, 1879	.10	• • •	240.68
The Hutchinson Ditch No. 2	South Arkansas river	May 31, 1879	1	• • •	240.78
The McKenna Ditch	North Cottonwood creek	May 31, 1879	6.40	• • •	241.78
The Champ Ditch	South Arkansas river	April 1, 1880	1.60	• • •	248.18
The Dickman Ditch No. 1	Bear creek	April 30, 1880	.60	• • •	249.78
The Dickman Ditch No. 2	Bear creek	April 30, 1880	.60	• • •	250.38
The Brisco Ditch, second appropriation	South Arkansas river	April 30, 1880	2	3.80	250.98
The Arkansas Valley Irrigation Canal Company's Ditch	Cottonwood creek	May 1, 1880	18.05	• • •	252.98
The Sand Creek Ditch	Sand creek	May 31, 1880	.60	• •	271.03
The Hot Creek Ditch	Hot creek	June 1, 1880	.61	• • •	271.63
The South Arkansas Waterworks and Irrigation Co.'s Ditch	South Arkansas river	July 17, 1880	8	• • •	272.24
The Laughoff Ditch	Arkansas river	Sept. 8, 1880*	4.80	• • •	280.24
The Missouri Park Ditch and Extension	South Arkansas river	Nov. 15, 1880	10 ,	• • •	285.04
The Abbott Placer Ditch	Willow creek	Mar. 10, 1881	2	• • •	295.04
The Paine Ditch	South Arkansas river	Mar. 15, 1881	.80	• • •	297.04

The Poncha Springs Acequia Ditch	South Arkansas river	Mar. 23, 1881	5.82	297.84	83
The Willow Dale Ditch	Chalk creek	Mar. 30, 1881	3.30	303.66	84
The Del Monte Irrigating Ditch	Poncha creek	Mar. 31, 1881	7.20	306.96	85
The Willow Creek Ditch	Willow creek	April 15, 1881	1.60	314.16	86
The Sites Ditch No. 1	Little Willow creek	April 30, 1881	.80	315.76	87
The Edward's Ditch No. 2	N. Fork South Arkansas river	May 1, 1881	.22	316.56	88
The Upper Ditch	Half-Moon creek	May 7, 1881	4.80	316.78	89
The Mitchell Ditches Nos. 1, 2, 3 and 4	Willow creek	May 31, 1881	1.39	321.58	90
The Bisceoe Ditch, third appropriation	South Arkansas river	May 31, 1881	2.20	6	91
The Noland Ditch, second appropriation	South Arkansas river	May 31, 1881	2.40	6	92
The Harmony Ditch	Arkansas river	June 30, 1881	1	327.48	93
The Five-Mile Ditch	Trout creek	Nov. 30, 1881	.20	328.48	94
The Abbott Placer Ditch, second appropriation	Willow creek	Nov. 30, 1881	1	3	95
The McFadden Ditch.	McFadden creek	Jan. 9, 1882	3.20	329.68	96
The Spring Ditch	Morris creek	Jan. 31, 1882	1	332.86	97
The Riverside Ditch and Allen Extension	Arkansas river	Feb. 22, 1882	1	333.88	98
The Helena Ditch	Arkansas river	March 1, 1882	1	334.88	99
The McPhelemy Ditch	North Cottonwood creek	March 1, 1882	1	335.88	100
The North Fork Ditch	N. Fork South Arkansas river	March 13, 1882	18.60	336.88	101
The Niles Brothers Ditch	Four-Mile creek	March 23, 1882	2.40	355.48	102
The Wolf & Neerland Ditch, second appropriation	Cottonwood creek	March 30, 1882	1	357.88	103
The Richardson, Nelson & Wilmot Ditch	North Cottonwood creek	April 10, 1882	1	358.88	104

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH, CANAL OR RESERVOIR	Stream from which water is taken	Date of appropriation	Cubic feet per second appropriated to each property and decree to each priority	Cubic feet per second appropriated to each canal or ditch, channel or reservoir to each priority	Cubic feet per second appropriated to each priority in districts	Order of priority
The Isaac W. Edwards Ditch	North Fork So. Arkansas river	April 11, 1882	.50	.....	359.88	105
The Missouri Park Ditch and Extension, second appropriation	South Arkansas river	April 15, 1882	30	40	360.38	106
The Edwards Ditch No. 2, second appropriation	North Fork So. Arkansas river	April 15, 1882	.68	.90	399.38	107
The Edwards Ditch No. 1, second appropriation	North Fork So. Arkansas river	April 15, 1882	.30	.....	391.06	108
The Abbott & Loper Ditch	Hall-moon creek	April 25, 1882	1	.....	391.36	109
The Sites Ditch No. 2	Little Willow creek	April 30, 1882	1.60	.....	392.36	110
The Midway Ditch	Maxwell creek	May 1, 1882	1	.....	393.96	111
The Six Mile Ditch	Trout creek	May 31, 1882	.13	.....	394.96	112
The Briscoe Ditch, fourth appropriation	South Arkansas river	May 31, 1882	5.40	.....	395.99	113
The Charlton Ditch	Jones gulch	June 7, 1882	8	.....	400.49	114
The Bartholemew Ditch	Frenchman creek	June 30, 1882	1	.....	408.49	115
The Bray Ditch	North Cottonwood creek	Sept. 28, 1882	3.20	.....	409.49	116
The Gordon Ditch	Three Mile creek	Sept. 30, 1882	1	.....	412.69	117
The Dry Field Ditch	Arkansas river	Oct. 23, 1882	6.20	413.69	118
South Arkansas river	South Arkansas river	Nov. 15, 1882	1	419.80	119

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The Lowland Ditch	South Arkansas river	Nov. 30, 1882	1	420.89	120
The Pinon Ditch	South Arkansas river	Nov. 30, 1882	1	421.89	121
The Owens Ditch	Pine creek	Nov. 30, 1882	1	422.89	122
The Mindlein Ditch No. 1, second appropriation	South Arkansas river	Dec. 31, 1882	.60	423.89	123
The Edwards Ditch No 1, third appropriation	North Fork So. Arkansas river	Jan. 1, 1883	.40	424.49	124
The Shamrock Ditch	Cottonwood creek	Feb. 21, 1883	1	424.89	125
The Hogue Ditch	South Arkansas river	March 10, 1883	1	425.89	126
The Eureka Ditch	Squaw creek	March 26, 1883	1.80	426.89	127
The Spring Creek Ditch	Spring creek	April 12, 1883	1	428.69	128
The Lowland Ditch, second appropriation	South Arkansas river	April 19, 1883	5.60	429.69	129
The Del Monte Irrigating Ditch No. 2	Little Cottonwood creek	April 30, 1883	1	435.29	130
The Rosedale Ditch	Poncha creek	May 29, 1883	.10	436.29	131
The Hoosier Ditch	North Fork So. Arkansas river	May 31, 1883	3.48	436.39	132
The Noland Ditch, third appropriation	South Arkansas river	May 31, 1883	.33	439.87	133
The High Ditch	North Fork So. Arkansas river	May 31, 1883	1	440.20	134
The Riverside Ditch and Allen Extension, second appropriat'n	Arkansas river	Aug. 9, 1883	9	441.20	135
The Bartholomew Ditch, second appropriation	Frenchman creek	Sept. 24, 1883	3	450.20	136
The Rhoades North Side Ditch	Trout creek	April 13, 1884	.20	453.20	137
The Hogue Ditch, second appropriation	South Arkansas river	Nov. 1, 1884	1	453.40	138
The Wolf & Neerland Ditch, third appropriation	Cottonwood creek	Dec. 31, 1884	1	454.40	139
The Green Gulch Ditch, second appropriation	Green Gulch creek	Dec. 31, 1884	2	455.40	140
The Wolf & Neerland Ditch, fourth appropriation	Cottonwood creek	March 1, 1885	1	456.40	141

STATEMENT CONCERNING DITCHES--Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second appropriated to each ditch, canal or reservoir		
			Summarization of de- crees to each ditch, canal or reservoir	Cubic feet per sec- ond decreed to each priority	Order of priority in district
The Aheru Ditch	Squaw creek	April 20, 1885	1	.....	457.40
The Silver Creek Ditch	North Cottonwood creek . . .	July 25, 1885	6.40	.....	458.40
The Aheru Ditch, second appropriation	Squaw creek	Sept. 4, 1885	2.20	3.20	464.80
The Harvard Ditch	Three-Mile creek	Sept. 21, 1885	1	.....	467
The Mountain Ditch	Three-Mile creek	Oct. 1, 1885	1	.....	468
The Link and Irving Irrigating Ditch	Chalk creek	Dec. 1, 1885	15.20	.....	469
The Spring Ditch, second appropriation	Morris creek	Jan. 8, 1886	1	.....	484.20
The McGee Ditch, second appropriation	Trout creek	April 30, 1886	.16	.30	485.20
The Piñon Cañon Ditch	Piñon Cañon creek	Sept. 1, 1886	1	.....	485.36
The Little Anna Ditch	Frenchman creek	Sept. 16, 1886	1	.....	486.36
The Newby and Bowring Ditch, fourth appropriation	South Arkansas river	Aug. 4, 1886	7	9.33	487.36
The Helena Ditch, second appropriation	Arkansas river	Nov. 27, 1886	19	20	494.36
The Fehling Ditch	Cottonwood creek	Dec. 31, 1886	1	.....	513.36
The Del Monte Irrigating Ditch No. 2, second appropriation	Little Cottonwood creek . . .	Jan. 8, 1887	.20	1.20	514.36
The Boots and Hinton Ditch	South Arkansas river	Mar. 15, 1887	1	514.56

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The Ouray Ditch	South Arkansas river	Mar. 31, 1887	I	515.56	157
The Gordon Ditch, second appropriation	Three-Mile creek	April 19, 1887	I	2	516.56	158
33 The Abbott and Loper Ditch, second appropriation	Half-Moon creek	May 7, 1887	5.40	6.40	517.56	159
The Pancost Ditch	North Cottonwood creek	May 10, 1887	2.80	.....	522.96	160
The Half-Moon Ditch	Half Moon creek	May 28, 1887	.30	.....	525.76	161
The Thompson and O'Donnell Ditch	Chalk creek	June 17, 1887	1	.....	526.06	162
The Owens Ditch	Dry creek	July 12, 1887	3.20	.....	527.06	163
The Up-Hill Ditch	North Cottonwood creek	July 16, 1887	2.40	.....	530.26	164
The Mountain Ditch, second appropriation	Three-Mile creek	Aug. 25, 1887	1.44	2.44	532.66	165
The El Campus Ditch	A gulch stream	Mar. 31, 1888	1	.....	534.10	166
The Murphy Ditch	Cochetopa creek	May 1, 1888	1	.....	535.10	167
The Harvard Ditch, second appropriation	Three-Mile creek	May 2, 1888	2.20	3.20	536.10	168
The Anderson Ditch	Pine creek	June 1, 1888	1	.....	538.30	169
The Hogan Ditch, third appropriation	South Arkansas river	June 1, 1888	2.30	4.30	539.30	170
The Riverside Ditch and Allen Extension, third appropriation	Arkansas river	July 6, 1888	16	26	541.60	171
The El Campus Ditch, second appropriation	A gulch stream	July 8, 1888	2.20	3.20	557.60	172
The Bowen Ditch	Chalk creek	Sept. 24, 1888	50.90	.....	559.80	173
The Eastman Ditch	Frenchman creek	Nov. 26, 1888	15.20	.....	610.70	174
The Hoosier Ditch, second appropriation	North Fork So Arkansas river	Nov. 30, 1888	1	.....	625.90	175
The Anderson Irrigating Ditch	Chalk creek	Mar. 1, 1889	1.50	.....	626.90	176
The Little Anna Ditch, second appropriation	Frenchman creek	April 9, 1889	2.20	3.20	628.40	177
The Ouray Ditch, second appropriation	South Arkansas river	May 31, 1889	3.20	.....	630.60	178

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH, OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second appropriated to each property			
			Summarized or detailed crees to each ditch, general or reservoir	Cubic feet per second appropriated in order of priority	Cubic feet per second appropriated in order of priority	Cubic feet per second appropriated in order of priority
The Ouray Ditch, third appropriation	South Arkansas river	June 4, 1889	9	13.20	633.80	179
The Johnson Ditch	Cottonwood creek	July 12, 1889	1	... . . . .	642.80	180
The Murphy Ditch, second appropriation	Cochetopa creek	August 12, 1889	3.80	4.80	643.80	181
The Spring Creek Ditch, second appropriation	Spring creek	August 13, 1889	.05	1.05	647.60	182
The Hoosier Ditch, third appropriation	North fork So. Arkansas river	Sept. 7, 1889	8.32	12.80	647.65	183
The Anderson Ditch, second appropriation	Pine creek	Sept. 30, 1889	3.80	4.80	655.97	184
The High Ditch, second appropriation	North fork So. Arkansas river	Nov. 21, 1889	1	2	659.77	185
The Lippard Enlargement of the South Arkansas Water Works and Irrigation Company's Ditch	South Arkansas river	Nov. 27, 1889	1.60	... . . . .	660.77	186
The Piñon Cañon Ditch, second appropriation	Piñon Cañon creek	Dec. 21, 1889	.70	1.70	663.37	187
The Arkansas river	South Arkansas river	Dec. 31, 1889	1	2	663.97	188
The Lippard Enlargement of the South Arkansas Water Works and Irrigation Company's Ditch, second appropriation	Cottonwood creek	March 11, 1890	1.60	2.60	664.07	189
The Johnson Ditch, second appropriation	Arkansas river	April 15, 1890	7	8	665.67	190
Total in district						672.67

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT No. 11, GIVING THE DATE, ORDER OF PRIORITY AND AMOUNT OF EACH APPROPRIATION FOR THE RESERVOIRS IN SAID DISTRICT, AS THE SAME HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE FOURTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF RESERVOIR	Stream from which water is taken	Name of ditch leading water thereto	Date of appropriation	Cubic feet per second of water decreed to each property	Cubic feet per second of water previously appropriated in district	Order of priority in district
				Cubic feet per second of water decreed to each property	Cubic feet per second of water previously appropriated in district	Order of priority in district
The Donnell Reservoir No. 1 (Boss Lake)	Boss Lake drainage	Feeder . . .	July 19, 1889	Not given	1	
The Donnell Reservoir No. 2	Lake Fork	Feeder . . .	July 19, 1889	4,704,480	2	

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. II, RELATIVE TO WHICH PLATS AND STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT.
The Huggins and Van Every Ditch	South Arkansas . . .	Jan, 11, 1889	Dec, 26, 1888	7	Geo. S. Huggins and William Van Every
The Everett Ditch No. 1 . . .	Harrington gulch .	Feb. 4, 1889	Jan. 29, 1889	3.50	P. C. Everett
The Eggleson Ditch No. 1 . . .	Springs	Feb. 5, 1889	April 20, 1885	1	W. K. Eggleson
The Eggleson Ditch No. 2 . . .	Waste water . . .	Feb. 5, 1889	May 14, 1887	2	W. K. Eggleson
The Kennedy Ditch	Long gulch	Feb. 7, 1889	Dec. 17, 1888	5.50	O. J. Kennedy
The Collins Ditch	North Cottonwood .	Feb. 13, 1889	Sept. 3, 1888	10	Jas. E. Wilkerson
The Criswell Ditch	Maxwell creek .	July 11, 1889	April 24, 1888	2	Geo. W. Criswell
The Bray and Mahon Ditch . . .	Cottonwood creek .	July 11, 1889	June 10, 1889	4.50	Hugh Mahon and Josiah T. Bray
The Buena Vista Ditch	Cottonwood creek .	July 18, 1889	Mar. 20, 1889	11.75	Francis McPhelmy
The Evans Ditch	S. Fork Cottonwood .	July 30, 1889	May 6, 1889	56	John G. Evans
The Mrs. Champ Ditch	Pass creek	Aug. 29, 1889	May 22, 1888	3	Mabel H. Champ
The Hepner Ditch	Empire creek . . .	Nov. 6, 1889	May 18, 1884	3	Mark Hepner
The Newcomb Ditch	Spring creek	Nov. 2, 1889	May, 1887	3.70	C. H. Newcomb
The Michigan Ditch enlargement	Cottonwood creek .	Nov. 30, 1889	Feb. 15, 1889	8.50	Chas. C. Bockhouse and John J. Wilbur
The Vickers Ditch	Schindler's gulch .	Jan. 13, 1890	April 1, 1884	3	Thomas Vickers

The Riverside Ditch, enlargement of the extension and the second extension of . . .	Arkansas river Arkansas river	Jan. 13, 1890 Feb. 7, 1890	June, 1888 Dec. 16, 1889	66 240	H. Julian Allen <i>et al</i> H. Julian Allen <i>et al</i>
The High Line Supply Ditch . . .	S. Arkansas river S. Arkansas river	Feb. 17, 1890 Feb. 17, 1890	Feb. 5, 1890	1.50	Nahum Swallows Joseph W. Taylor <i>et al</i>
The Swallows Ditch	Chalk creek Chalk creek	Feb. 17, 1890 Feb. 17, 1890	May 1, 1883	5	
The Walker Ditch	Clear creek Clear creek	Feb. 17, 1890 Mar. 12, 1890	Nov. 13, 1889 Oct. 14, 1889	13 4.52	Chris. Kirsch Max Dickmann and Mrs. Carrie Englebright
The Kirsch Ditch	Bear creek Cottonwood creek	Mar. 17, 1890 Mar. 26, 1887	Mar. 26, 1887	2.50	Bernard Pos
The Park Ditch	Long gulch	April 5, 1890	Jan. 30, 1890	1	Mary L. Overholt
The Pos Ditch	Arkansas river Arkansas river	April 7, 1890 April 7, 1890	March, 1882	20	P. M. Weston <i>et al</i>
The Rock Cliff Ditch	Arkansas river Arkansas river	April 7, 1890 May 9, 1890	June, 1881	15	J. H. Lewis <i>et al</i>
The Helena Ditch	Cottonwook creek	May 9, 1890	April 3, 1880	10.62	Francis McPheemy
The Harmony Ditch	Three Mile creek	Aug. 11, 1890	July 21, 1890	5	George W. Berriam
The Tip Top Ditch	Cochetope creek	Sept. 18, 1890	1882	3.50	Henry G. Henderson
The Last Chance Ditch	S. Arkansas river	Oct. 17, 1890	Prior to 1881	11.50	O. E. Harrington

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 11, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Cottonwood Lake Reservoir	South fork Cottonwood creek	On the stream . . .	July 30, 1889	May 6, 1889	6,294,048	John G. Evans
The Allen's Lake or Reservoir	Arkansas river . . .	Riverside Ditch . . .	.....	.....	9,424,800	.....
The Allen Reservoir No. 1 . . .	.....	.....	Jan. 13, 1890	June, 1888	720,000	Julian Allen and J. U. Gabathuler
The Allen Reservoir No. 2 . . .	Rain and flood waters . . .	Extensions . . .	.....	.....	4,712,000	.....
The Poncha Reservoir . . .	Poncha creek . . .	Feeder . . .	Jan. 28, 1890	Nov. 9, 1889	223,887.6	Louis R. Ehrich

Water District No. 12—James T. Locke, Commissioner, Cañon City.

Mr. Locke reports for the year 1890, 47 ditches taking water, an aggregate length of ditches of 85 miles, 1,292 acres in alfalfa, 110 acres in seeded grasses, 480 acres in natural grasses, and 2,268 acres in other crops; also, 170 acres irrigated from seepage.

COMMISSIONER'S REPORT; A. D. 1890.

DIVISION No. 2—DISTRICT No. 12.

The George Ditch	1	• • • • •	70	• • • • •	5	30	• • • • •	35	• • • • •	35	• • • • •
The Doris Ditch	2	20	2	60	10	15	* 35	35	10	10	• • • • •
2 The Kitridge Ditch No. 2	2	• • • • •	100	• • • • •	• • • • •	50	50	50	• • • • •	• • • • •	• • • • •
The Tremayne Br. os. Ditch No. 2	1	• • • • •	50	• • • • •	20	30	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •
The McIntire Ditch	1	30	.25	26	• • • • •	5	10	11	• • • • •	• • • • •	• • • • •
The Murphy Ditch . . . . .	.25	• • • • •	8	• • • • •	• • • • •	• • • • •	8	• • • • •	8	• • • • •	• • • • •
The Witcher Ditch No. 1	1	20	.25	40	• • • • •	• • • • •	20	20	20	• • • • •	• • • • •
The Drury Ditch	2	30	.25	30	• • • • •	• • • • •	10	20	20	• • • • •	• • • • •
The Watson Ditch No. 1	3	* 40	* 2	40	• • • •	10	10	20	20	• • • • •	• • • • •
The Paul's Ditch	2	• • • • •	34	• • • • •	5	* 20	9	9	• • • • •	• • • • •	• • • • •
The Tremayne Ditch No. 2	2	• • • • •	35	• • • • •	• • • • •	15	20	20	20	• • • • •	• • • • •
The Witcher Ditch No. 2	1	• • • • •	20	• • • • •	• • • • •	• • • • •	20	20	20	• • • • •	• • • • •
The Kitridge Ditch No. 2	2	20	2	125	• • •	10	75	40	25	• • • • •	• • • • •
The Watson Ditch No. 2	3	* 20	2	60	• • • •	10	35	15	10	• • • • •	• • • • •
The Second Leon Ditch . . . . .	.50	15	2	35	• • • •	15	20	• • •	• • •	8	• • • • •
The First Barnard Ditch . . . . .	.25	5	* .25	* 16	• • • •	10	4.50	1.50	3	3	• • • • •
The Kestle Ditch	1	10	.50	30	• • • •	5	* 10	* 15	• • • • •	• • • • •	• • • • •
The Tremayne Ditch No. 3	2	10	.50	10	• • • •	5	• • • •	5	• • • •	5	• • • • •
The Hardscrabble Ditch	2	* 120	1	* 75	40	• • • •	• • • •	* 35	• • • •	• • • •	• • • • •
The Burroughs Ditch	1	* 25	1	25	• • • •	• • • •	• • • •	25	• • • •	• • • •	• • • • •
The Coleman Ditch	3	* 140	* 2.50	* 265	• • • •	150	• • • •	115	• • • •	• • • •	• • • • •
The Harrington Ditch	5	* 60	2	* 200	120	• • • •	• • • •	80	• • • •	• • • •	• • • • •

COMMISSIONER'S REPORT, A. D. 1890—*Concluded.*

NAME OF DITCH	Length thereof in miles										Number of days water was carried during season of flooding	Average amount of water carried during second period of flooding	Number of acres of land that can be irrigated thereby from time of first irrigation	Number of acres of land that can be irrigated thereby from time of second irrigation	Number of acres of land that can be irrigated thereby from time of third irrigation	Number of acres of land that can be irrigated thereby from time of fourth irrigation	Number of acres of land that can be irrigated thereby from time of fifth irrigation	Number of acres of land that can be irrigated thereby from time of sixth irrigation	Number of acres of land that can be irrigated thereby from time of seventh irrigation	Number of acres of land that can be irrigated thereby from time of eighth irrigation	Number of acres of land that can be irrigated thereby from time of ninth irrigation	Number of acres of land that can be irrigated thereby from time of tenth irrigation	Total number of acres irrigated in district	Total number of acres irrigated in state	Total number of acres irrigated in country
		
The Monteralle Ditch	2	90	*	1	*	90	20	...	...	...	...	...	70	...	...	...	...	...	...	...	...	...	...	...
The 1869 Ditch . . . . .	.50	28	*	1	*	30	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
The Reece Ditch	2.50	60	1	*	200	40	...	...	...	...	...	...	160	...	...	...	...	...	...	...	...	...	...	...
The Cascade Ditch	5	40	*	4	*	475	175	...	...	...	...	...	300	...	...	...	...	...	...	...	...	...	...	...
The Corforn Ditch	3.50	28	*	1	*	35	35	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
The Percival Ditch	4	30	1	*	80	...	...	...	...	...	...	...	80	...	...	...	...	...	...	...	...	...	...	...
The Draper Ditch	4	45	1.25	150	100	...	...	...	...	...	...	...	50	...	...	...	...	...	...	...	...	...	...	...
The Melrose Ditch	2	30	.50	125	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
The Vaughn Ditch	3	30	2	317	† 100	...	...	...	...	...	...	...	217	...	...	...	...	...	...	...	...	...	...	...
The Allen Ditch	2.50	30	1.50	145	*	75	...	...	...	...	...	...	70	...	...	...	...	...	...	...	...	...	...	...
The Weshieffer Ditch	1.50	40	.50	24	...	...	...	...	...	...	...	...	24	...	...	...	...	...	...	...	...	...	...	...
The Sikes Cypt and Chatham Ditch .	2	30	2	219	*	30	...	...	...	...	...	...	189	...	...	...	...	...	...	...	...	...	...	...
Totals in district	85	...	55.50	4,316	1,292	110	48	2,268	170	4,3.0	*	† Probably.													

* About.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 12, GIVING THE DATE AND ORDER OF PRIORITY, AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, SO FAR AS THEY HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE THIRD JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet of water decreed to each property and sec-ond sec-ond sec-ond sec-		Crees to each ditch or canal	Cubic feet per-ecord pre-viousl y appri-priated in dis-trict.	No. on stream	Order of priority in district
			Cubic feet of de-summation of de-crees to each ditch or canal	Cubic feet of de-summation of de-crees to each property				
The Hardscrabble Ditch	Hardscrabble creek	May 1, 1860	.9375	*			1	1
The Conley Ditch	Beaver creek	Mar. 30, 1861	* 5.48				1	2
The Burdick Ditch	Beaver creek	Mar. 30, 1861	* 3.88				1	3
The Green Ditch	Four Mile or Oil creek	April 1, 1861	10				1	4
The Glendale Ditch	Beaver creek	April 15, 1861	6				2	5
The Stephen Frazier Ditch	Beaver creek	April 20, 1861	* 5.10				3	6
The Peggy Ditch	Beaver creek	May 20, 1861	* 17				4	7
The Callen Ditch	Beaver creek	May 30, 1861	2				5	8
The Bates Ditch	Beaver creek	May 31, 1861	* 4.55				6	9
The Titsworth Ditch	Four-Mile creek	May 31, 1861	5				2	9a

* Capacity as computed.

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Order of priority in district	
			Cubic feet per second pre- sumably applied to dis- trict	No. on stream
The Craig-Beckham Ditch, through Titsworth Ditch before construction	Four Mile	May 31, 1862	12	3 10
The Tanazzi Ditch	Hardscrabble	Mar. 1, 1863	1	2 11
The Titsworth Ditch, first extension and enlargement	Four Mile	Mar. 31, 1863	12	4 12
The Ballif Ditch	Beaver	Mar. 31, 1864	* 5.34	7 13
The Johnson Ditch	Beaver	May 20, 1864	* 1.62	8 14
The Craig-Beckham Ditch	Four Mile	Feb. 10, 1865	12	5 15
The Wafford Ditch	Four Mile	Mar. 1, 1865	20	6 16
The Titsworth Ditch, second extension	Four Mile	Mar. 31, 1865	As above	7 17
The Toof Ditch No. 1	Beaver	Mar. 31, 1865	* 3.36	9 17a
The Johnson Ditch, first enlargement	Beaver	April 1, 1865	* 14.58	10 18
The Johnson and Merit Ditch	Beaver	April 15, 1865	* 13.20	11 19
The Glendale Ditch, first extension	Beaver	May 1, 1865	2	12 20
The Morey Ditch	Beaver	May 24, 1865	5	13 21
The Burroughs Ditch	Hardscrabble	May 25, 1865	1	3 22
The O'Brien Ditch	Four Mile	Dec. 10, 1865	2.50	8 23

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The Cottage Rauch Ditch	Four Mile	Feb., 28, 1866	3					9	24
The Wafford Ditch, first addition appropriation	Four Mile	April 1, 1866	1					10	25
The Banks Ditch	Adobe	May 31, 1866	1					1	26
The Craig-Beckham Ditch, first extension	Four Mile	May 31, 1867	•					11	27
The Pauls Ditch	Mineral	May 31, 1867	.50					2	27a
The Garden Park Ditch	Four Mile	Sept. 10, 1867	6					12	28
The Coleman Ditch	Hardscrabble	Nov. 3, 1867	2.5625					4	29
The Teiry Ditch	Four Mile	Nov. 30, 1867	3					13	30
The Aaron Ripley Ditch	Four Mile	Feb. 28, 1868	2.50					14	31
The Hennington Ditch	Hardscrabble	Mar. 4, 1868	2.75					5	32
The Craig-Beckham Ditch, second extension	Four Mile	May 31, 1868	•					15	33
The Mouteralle Ditch	Hardscrabble	May 31, 1868	1.125					6	33a
The O'Brien Ditch, first addition appropriation	Four Mile	April 20, 1869	•					16	34
The 1869 Ditch	Hardscrabble	April 30, 1869	1					7	35
The Adams Ditch	Four Mile	April 30, 1869	3					17	35a
The Reese Ditch	Hardscrabble	May 1, 1869	1.125					8	36
The Howard Ditch	Four Mile	June 1, 1869	* 3.26					18	37
The Cottage Rock Ranch Ditch, first addition appropriation	Four Mile	Mar. 15, 1870	•					19	38
The Tenazzi Ditch, second appropriation	Hardscrabble	Mar. 31, 1870	1					9	39
The Wafford Ditch, second addition appropriation	Four Mile	April 1, 1870	•					20	40
The Marcott Ditch	Four Mile	April 30, 1870	1.50					21	41

* Capacity as computed.

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream ^a from which water is taken	Date of appropriation	Cubic feet per second and depth of each ditch or canal		Summation of de- crees to each district or each priority.	Cubic feet per sec- ond decreed to each priority.	No. on stream	Order of priority in district
			Cubic feet per sec- ond decreed to each priority.	Summation of de- crees to each district or each priority.				
The First Leon Ditch	Four Mile creek	May 1, 1870	* 13.95	.....	.....	.....	22,	42
The Pauls Ditch, first extension	Mineral creek	May 31, 1870	.....	.....	.....	.....	3	43
The George Ditch	Four Mile creek	June 1, 1870	* 3.26	.....	.....	.....	23	44
The Doris Ditch	Four Mile creek	June 7, 1870	4.50	.....	.....	.....	24	45
The Cascade Ditch	Hardscrabble creek	Aug. 1, 1870	4.8125	.....	.....	.....	10	46
The Kittredge Ditch No. 2	Four Mile creek	Aug. 31, 1870	2	.....	.....	.....	25	47
The Corporon Ditch	Hardscrabble creek	Nov. 30, 1870	1	.....	.....	.....	11	48
The Bruce's North Side Ditch	4 mile of Hardscrabble creek	Dec. 25, 1870	.875	.....	.....	.....	1	49
The Thomas Patton Ditch No. 1 and the Thomas Patton Ditch No. 2	Beaver creek	April 15, 1871	4.99	.....	.....	.....	14	50
The Lobach Ditch	Hardscrabble creek	April 15, 1871	.50	.....	.....	.....	12	51
The Peggy Ditch, first extension	Beaver creek	April 21, 1871	.....	.....	.....	.....	15	52
The West Perry Ditch	Beaver creek	May 1, 1871	3.65	.....	.....	.....	16	53
The Hurlbut Ditch	Beaver creek	May 2, 1871	6.05	.....	.....	.....	17	54
The Tremayne Brothers Ditch No. 1	Four Mile creek	May 10, 1871	3	26	55
The McTire Ditch	Four Mile creek	May 30, 1871	* 1.59	27	56

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The Percival Ditch	Hardscrabble creek	June 1, 1871	1	•	•	•	•	13	57
The Draper Ditch	Hardscrabble creek	Oct. 1, 1871	1.25	•	•	•	•	14	58
The Melrose Ditch	Hardscrabble creek	Oct. 31, 1871	2	•	•	•	•	15	59
The Vaughn Ditch	Hardscrabble creek	Dec. 1, 1871	2.5875	•	•	•	•	16	60
The Windourn Ditch	Beaver creek	Dec. 20, 1871	* 5.32	•	•	•	•	18	61
The Barker Ditch	Adobe creek	Dec. 31, 1871	.50	•	•	•	•	4	62
The Murphy Ditch	Four Mile creek	Jan. 1, 1872	5	•	•	•	•	28	63
The McClure Ditch	Beaver creek	Jan. 2, 1872	5	•	•	•	•	19	64
The Tilsworth Ditch, third extension and second enlargement	Four Mile creek	Feb. 28, 1872	17	•	•	•	•	29	65
The Garden Park Ditch, first extension	Four Mile creek	May 15, 1872	•	•	•	•	•	30	66
The Gomer Ditch	Flint creek	April 1, 1872	* 4.97	•	•	•	•	1	67
The Witcher Ditch No. 1	Four Mile creek	April 14, 1872	* 6.14	•	•	•	•	31	68
The Thomas Patton Ditch No. 1, first excursion	Beaver creek	April 15, 1872	•	•	•	•	•	20	69
The Thomas Patton Ditch No. 2, second enlargement	Beaver creek	April 15, 1872	•	•	•	•	•	20a	69a
The Drury Ditch	Four Mile creek	April 30, 1872	* 2.52	•	•	•	•	32	70
The Watson Ditch No. 1	Four Mile creek	May 1, 1872	1.62	•	•	•	•	33	71
The Pauls <i>alias</i> Frazier Ditch	Four Mile creek	June 20, 1872	* 1.21	•	•	•	•	34	72
The Tremayne Brothers Ditch No. 2	Four Mile creek	June 30, 1872	1.64	•	•	•	•	35	73
The Home Ditch	Mineral creek	Sept. 7, 1872	.50	•	•	•	•	5	74
The Bauta and Merit Ditch	Beaver creek	Jan. 2, 1873	9.60	•	•	•	•	21	75
The Upper Perry Ditch	Beaver creek	Jan. 31, 1873	* 1.75	•	•	•	•	22	76

* Capacity as computed.

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL,	Stream from which water is taken	Date of appropriation	Cubic feet per second pre- sumably appro- priated in dis- trict		Order of priority in district
			No. on stream	No. on stream	
The Wicher Ditch No. 2	Four Mile creek	Mar. 31, 1873	*	4.35	36
The Gonner Ditch Extension	Flint creek	April 1, 1873	..	..	77
The Breeces South Side Ditch	{ Four mile of Hard- scrabble creek }	April 1, 1873	.50	..	2
The Caeradock Ditch	Flint creek	April 10, 1873	17.70	..	78
The Bates Ditch, first extension	Beaver creek	April 15, 1873	..	..	2
The O'Brien Ditch, second additional appropriation	Four Mile creek	April 30, 1873	..	..	79
The R. D. Williams Ditch No. 1	Beaver creek	May 31, 1873	*	3.37	3
The George Ditch, first extension	Four Mile creek	June 1, 1873	..	..	80
The Kittredge Ditch No. 1	Four Mile creek	June 15, 1873	2.33	..	24
The Percival Ditch, first enlargement	Hardscrabble creek	Nov. 1, 1873	..	..	81
The Allen Ditch	Hardscrabble creek	May 31, 1874	1.8125	..	37
The Reese Ditch, first enlargement and extension	Hardscrabble creek	April 15, 1874	1.4375	2.6525	3
The Draper Ditch, first enlargement	Hardscrabble creek	April 30, 1874	.6875	1.9375	20
The Breeces North Side Ditch, the Allen extension of	{ Four mile of Hard- scrabble creek }	April 30, 1874	.875	..	89
The Thomas Patton Ditch No. 2, first extension	Beaver creek	May 1, 1874	..	..	3
					89a
					26
					90

The Watson Ditch No. 2	Four Mile creek	May 31, 1874	7	40
The Second Leon Ditch	Four Mile creek	June 14, 1874	* 7.80	41
The First Barnard Ditch	Four Mile creek	June 15, 1874	* 4.62	42
The Westhofer Ditch	Hardscrabble creek	July 15, 1874	* 50	42
The Coleman Ditch, second appropriation	Hardscrabble creek	April 1, 1875	.3125	42
The Peggy Ditch, second extension	Beaver creek	April 15, 1875	.....	27
The Kestle Ditch	Four Mile creek	April 30, 1875	2.39	43
The Second Perry Ditch	Beaver creek	May 1, 1875	1.75	43
The Tremayne Brothers Ditch No 3	Four Mile creek	May 10, 1875	2.30	44
The Watson Ditch No. 2, first enlargement	Four Mile creek	May 31, 1875	7	45
The Westall Ditch	Four Mile creek	June 30, 1875	8	46
The South Ditch	Four Mile creek	July 1, 1875	* 1.53	47
The Menton Ditch	Beaver creek	Jan. 3, 1876	* 9.18	29
The Cascade Ditch, second appropriation	Hardscrabble creek	Mar. 1, 1876	1.0375	23
The Lower Ditch	Four Mile creek	April 15, 1876	* 2.37	48
The Cottage Rock Ranch Ditch, second additional appropriation	Four Mile creek	April 30, 1876	.....	49
The Coffman Ditch	Beaver creek	May 15, 1876	* 3.60	30
The Hinlbert Ditch, first enlargement	Beaver creek	May 31, 1876	.....	31
The Spring Ditch	Four Mile creek	June 1, 1876	* 2.39	50
The Vaughn Ditch, second appropriation	Hardscrabble creek	Mar. 1, 1877	.6875	2.275
The Hight Ditch	Beaver creek	April 16, 1877	* 3.93	32

* Capacity as computed.

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH, CANAL OR RESERVOIR	Stream from which water is taken	Date of appropriation	Order of priority in district		
			Cubic feet per second appro- priated in dis- trict	Second pre- viously ap- plied for	No. on stream
The Kelly Ditch	Beaver creek	April 18, 1877	5.20	• • • • •	33 112
The West Ditch	Four-Mile creek	April 30, 1877	* 2.03	• • • • •	51 113
The Kittredge Ditch No. 1, first enlargement	Four-Mile creek	May 31, 1877	2	• • • • •	52 114
The Banks Ditch, second appropriation	Adobe creek	June 1, 1877	• • • • •	• • • • •	6 115
The Mineral Creek Ditch.	Mineral creek	June 5, 1877	.625	• • • • •	7 116
The Nichols Extension of the Allen Extension of Breece's North Side Ditch	4-Mile of Hardscrabble	July 31, 1877	1.5625	4.275	• • • • • 4 117
The Sykes, Cyvert and Chatham Ditch	Hardscrabble creek	Aug. 1, 1877	1.7375	• • • • •	25 118
The Allen Ditch	4-Mile of Hardscrabble	Aug. 1, 1877	• • • • •	• • • • •	5 119
The Witcher Ditch No. 3	Four-Mile creek	Nov. 31, 1877	* 5.48	• • • • •	53 120
The R. D. Williams Ditch No. 1, first enlargement	Beaver creek	May 1, 1878	• • • • •	• • • • •	34 121
The West Perry Ditch, first extension	Beaver creek	May 4, 1878	• • • • •	• • • • •	35 122
The Island Ditch No. 1.	Beaver creek	May 6, 1878	* 2.23	• • • • •	36 123
The Lewis Lower Ditch	Hardscrabble creek	May 31, 1878	• • • • •	• • • • •	26 124
The Tremayne Brothers' Ditch No. 4	Four-Mile creek	June 1, 1878	1.64	• • • • •	54 125
The Lower Ditch, first additional appropriation	Four-Mile creek	April 1, 1879	• • • • •	• • • • •	55 126

The Westall Ditch, first extension	Four-Mile creek	May 1, 1879	56
The Dick Steele Ditch, first extension	Adobe creek	June 15, 1879	128
The Frazier <i>alias</i> Paul's Ditch, first extension	Four-Mile creek	Jan. 1, 1880	57
The Paul's Ditch, second extension	Mineral creek	Mar. 1, 1880	129
The Daggett Ditch	Four-Mile creek	Mar. 15, 1880	130
The Barber Ditch, second appropriation	Adobe creek	Mar. 15, 1880	131
The Lucas Ditch	Four-Mile creek	April 30, 1880	131a
The West Ditch, first extension	Four-Mile creek	May 31, 1880	132
The Harry Ditch	Four-Mile creek	Aug. 1, 1880	133
The Thomas Patten Ditch No. 1, second extension	Beaver creek	Dec. 31, 1880	134
The West Hughes Ditch	Beaver creek	Feb. 28, 1881	135
The Curtis Ditch	Beaver creek	Mar. 14, 1881	136
The Cross's Extension of the Frazier Ditch	Four-Mile creek	April 1, 1881	137
The Park Ditch	Beaver creek	Jan. 19, 1882	138
The East Hughes Ditch	Beaver creek	April 29, 1882	139
The Fanster Ditch	Beaver creek	May 1, 1882	140
The R. D. Williams Ditch No. 2	Beaver creek	April 2, 1883	141
The West Hughes Ditch, first extension	Beaver creek	April 16, 1883	142
The Minton Ditch, change in course	Beaver creek	April 16, 1883	143
The Peggy Ditch, third extension	Beaver creek	Feb. 25, 1884	143a
The Cascade Ditch, first extension and third appropriation	Hardscrabble creek	Mar. 1, 1884	145

* Capacity as computed.

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Order of priority in distribution		
			Cubic feet per second per sec and per sec each priority	Cubic feet per second to each ditch, central or reservoir	No. on stream
The Vaughn Ditch, third appropriation	Hardscrabble creek	Mar. 15, 1884	.0625	.....	28 146
The Garden Park Ditch, second extension	Four-Mile creek	April 20, 1884	.....	.....	63 147
The Sanders Ditch.	Hardscrabble creek	April 30, 1884	.50	.....	29 148
The Lucas Ditch, first additional appropriation	Four-Mile creek	April 30, 1884	.....	.....	64 148a
The Sykes, Cypt and Chatham Ditch	Hardscrabble creek	May 1, 1884	.275	.....	30 149
The O'Brien Ditch, third additional appropriation	Four-Mile creek	May 10, 1884	.....	.....	64a 150
The Westall Ditch, second additional appropriation	Four-Mile creek	May 31, 1884	.....	.....	65 151
The Bowerman Ditch	Adobe creek	June 1, 1884	.50	.....	11 152
The Thomas Patton Ditch No. 2	Beaver creek.	Dec. 29, 1884	.....	.....	46 152
The Melrose Ditch, second appropriation	Hardscrabble creek	Mar. 1, 1885	.....	.....	31 153
The Sykes, Cypt and Chatham Ditch, third appropriation	Hardscrabble creek	Mar. 15, 1885	.4575	3.45	32 155
The Island Ditch.	Beaver creek.	April 1, 1885	4.10	.....	47 156
The Greenwood Ditch, second appropriation	Hardscrabble creek	April 1, 1885	.50	.....	33 156a
The Aaron Ripley Ditch, first additional appropriation	Four-Mile creek	April 11, 1885	.....	.....	66 157
The Reese Ditch Extension	Hardscrabble creek	April 15, 1885	.....	.....	34 158

The East Hughes Ditch, first extension	Beaver creek	April 15, 1885	48
The Rhodes and Tenant Ditch	Adobe creek	June 19, 1885	12
The Fremont Water Supply Company's Canal	Beaver creek	July 15, 1885	159
The Colenan Ditch, third appropriation	Hardscrable creek	Mar. 1, 1886	49
The Cascade Ditch, fourth appropriation	Hardscrable creek	Mar. 15, 1886	160
The Allen Ditch, first enlargement	Hardscrable creek	Mar. 20, 1886	161
The East Hughes Ditch, second extension	Beaver creek	Mar. 27, 1886	162
The Walford Ditch, third additional appropriation	Four-Mile creek	April 1, 1886	163
The Melrose Ditch, third appropriation	Hardscrable creek	April 1, 1886	164
The Felch's West Side Ditch	Four-Mile creek	June 1, 1886	165
The Garden Park Ditch, third additional appropriation	Four-Mile creek	Aug. 31, 1886	166
The Lucas Ditch, second additional appropriation	Four-Mile creek	April 30, 1887	167
The Westall Ditch, second extension and third additional appropriation	Four-Mile creek	May 31, 1887	168
The Second Barnard Ditch	Four-Mile creek	Mar. 31, 1888	169
The Aaron Ripley Ditch, second additional appropriation	Four-Mile creek	April 1, 1889	170
The Cottage Rock Ranch Ditch, third increased appropriation	Four-Mile creek	April 30, 1889	171
The Lucas Ditch, third additional appropriation	Four-Mile creek	May 15, 1889	172
The Westall Ditch, fourth additional appropriation	Four-Mile creek	May 31, 1889	173

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES

IN DISTRICT No. 12, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, AND FOR WHICH NO DECREES HAVE BEEN ISSUED.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Grand Cañon Water Supply Ditch	Arkansas river	Jan. 28, 1889	Feb. 28, 1887	2,000	Frank M. Brown
The McGregor's Ditch	Willow creek	Mar. 21, 1889	May 1, 1887	1	Robert McGregor
The Arkansas River and Beaver Creek and Irrigating Ditch	Arkansas river	April 22, 1889	Not given	1,000	Libleus L. Harding
The Teller Canal	Arkansas river	July 19, 1889	April 30, 1889	2,850	H. M. Teller and seventeen others
The Woodriff-Tells Ditch	Arkansas river	Aug. 6, 1889	Dec. 18, 1884	20	Daniel T. Woodriff and Emanuel Tells
The Boehmer Ditch	Boehmer creek, etc	Sept. 18, 1889	June 20, 1889	53	Edwin J. Riaton
The Ditch of E. C. Krepps	Hayden creek	Sept. 24, 1889	. . . . . 1884	3.91	Ephraim C. Krepps
The Krepps Ditch, amended statement	Arkansas river	Oct. 1, 1889	. . . . . 1884	3.91	Ephraim C. Krepps
The State Canal No. 1	Arkansas river	Nov. 21, 1889	June 12, 1890	605	The State of Colorado
The Stonehenge Canal	Eight-Mile creek	Jan. 11, 1890	Oct. 12, 1889	10	Frank P. Blake <i>et al</i>
The Corporn Ditch, ext. and enl.	Hardscrabble creek	Mar. 19, 1890	Feb. 2, 1888	1.12	A. J. Sutton
The Bridge Ditch No. 3	Arkansas river	Mar. 20, 1890	Mar. 26, 1889	23	Amasa W. Lucas
The John Baker Ditch	Cottonwood creek	Mar. 25, 1890	Not given	Indefinite	John Baker
The McClure Ditch	Currant creek	May 7, 1890	April 25, 1890	10	W. F. McClure

The Percival Ditch Extension	Hardscrabble creek	May 9, 1890	April 15, 1889	2.25	
The Mrs. Emily West's '73 Ditch	West creek	July 8, 1890	. . . . . 1873	1.70	
The Mrs. Emily West's '87 Ditch	West creek	July 8, 1890	. . . . . 1887	Not stated	
The Ute Park Ditch	Beaver creek	July 14, 1890	Feb., 1889	50	
The Timber Line Ditch	Branches of Beaver creek	July 30, 1890	{ June 10, 1890 June 10, 1890	19	
The Feeder Ditch	Beaver creek, etc	Sept. 13, 1890	July 22, 1890	45	Edwin J. Eaton
The Beaver Creek Ditch	Bochner creek	Sept. 13, 1890	July 23, 1890	52	The City of Colorado Springs
The McShane Ditch				14	The City of Colorado Springs

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 12, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
No. 1					54,000,000	
No. 2	Boehmer, Big Horn and Sacket creeks	Boehmer Ditch . . .	Sep. 18, 1889	June 20, 1889	40,000,000	
No. 3	Boehmer, Big Horn and Wood Camp and Lava Springs.				34,000,000	Edwin J. Eaton
No. 4					2,400,000	
No. 5					2,100,000	
No. 6	Eight Mile creek . . .	Stonehenge Canal . . .	Jan. 11, 1890	Oct. 12, 1889	6,600,000	Frank P. Blake, Father M. Blake and Sylvia A. B. Dewey.
The Stonehenge Reservoir . . .	Beaver creek . . .	Ute Park Ditch . . .	July 14, 1890	Feb., 1889	2,000,000	Thos. E. Merit and F. P. Blake.
The Ute Park Reservoir . . .	Tributaries of Beaver creek . . .	Built on stream . . .	July 30, 1890	June 10, 1890	15,681,600 10,000,000	. . . . Edwin J. Eaton 60,000,000
The Pike's Peak System of Reservoirs . . .	{ No 7 } { No 8 }					

STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 12, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OR WELL	Total depth thereof, in feet	Diameter, in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE				LOCATION	Present flow in gallons per minute	REMARKS
				First flow	Second flow	Third flow	Fourth flow			
Canon City Oil Company ¹ Well No. 1	1,400	6	373	280	722	1,130	...	Sec. 23, T. 18 S., R. 70 W	700	Pipe drawn, still flows a little
Cons. Oil and Land Co. . .	780	None	...	730	...	...	...	Sec. 13, T. 19 S., R. 69 W	1	Warm soda water
Florence Oil and R. Co. . .	...	...	...	1,000	...	...	...	Sec. 14, T. 19 S., R. 69 W	450	...
Florence Soda Well . . .	800	...	...	...	...	...	...	Sec. 14, T. 19 S., R. 69 W	425	...

Water District No. 13—Will J. Orange, Commissioner, Silver Cliff.

Ditch-rights not adjudicated, and no report from Water Commissioner.

STATEMENT CONCERNING DITCHES

IN DISTRICT NO. 13, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF DITCH OR CANAL	Name of stream from which water is taken	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Anton Elter Ditch	Colony creek	July 8, 1889	June 18, 1883	1	Anton Elter
The Elzel Ditch	Dieckmann creek	July 8, 1889	June 1, 1889	1	Gottfried Elzel
The Brewer Ditch No. 1	Spring creek	Jan. 18, 1890	Sept. 15, 1889	Indefinite	Alvy Brewer
The Brewer Ditch No. 2	Spring creek	Jan. 18, 1890	April 15, 1880	Indefinite	Alvy Brewer
The Brewer Ditch No. 3	Spring creek	Jan. 18, 1890	May 1, 1880	Indefinite	Alvy Brewer
The Schetelat Ditch	Grape creek	Jan. 24, 1890	1875	1	George Schetelat and Paul Roll
The Hamlin North Ditch	Poverty creek	May 24, 1890	July 15, 1889	1	Julia E. Hamlin
The Hamlin South Ditch	Poverty creek	May 24, 1890	Sun' er, 1883	1	Julia E. Hamlin
The Hagen Brothers Ditch No. 1	Hart Nock creek	June 5, 1890	June 25, 1889	Indefinite	Hagen Brothers
The Hagen Brothers Ditch No. 2	Hart Nock creek	June 5, 1890	July 1, 1885	Indefinite	Hagen Brothers
The Hagen Brothers Ditch No. 3	Hart Nock creek	June 5, 1890	1879	Indefinite	Hagen Brothers
The Hagen Brothers Ditch No. 4	Hart Nock creek	June 5, 1890	May 15, 1887	Indefinite	Hagen Brothers
The Hagen Brothers Ditch No. 5	Hart Nock creek	June 5, 1890	Sept. 1883	Indefinite	Hagen Brothers
The Hagen Brothers Ditch No. 6	Hart Nock creek	June 5, 1890	July 10, 1882	Indefinite	Hagen Brothers

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH OR CANAL,	Name of stream from which water is taken	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Hagen Brothers Ditch No. 7	Hart Nock creek	June 5, 1890	May 15, 1884	Indefinite	—, Hagen Brothers
The Hagen Brothers Ditch No. 8	Hagen creek	June 5, 1890	April 5, 1889	Indefinite	—, Hagen Brothers
The Henry Cress Ditch	Swift creek	June 21, 1890	June, 1882	2 . . . . .	. . . . . Henry Cress
The Katzenstein Ditch	West Taylor creek	July 19, 1890	Mar. 15, 1873	2	Alfred Katzenstein
The Voris Brothers Ditch No. 1	Grape creek	Aug. 14, 1890	Sum'r, 1871	Indefinite	Sarah E. Metz and George W. Voris
The Voris brothers Ditch No. 2	Grape creek	Aug. 14, 1890	Sum'r, 1877	Indefinite	Sarah E. Metz and George W. Voris
The Lensh Brothers Ditch No. 1	North Colony creek	Oct. 10, 1890	May 16, 1890	2	Lensh Brothers
The Lensh Brothers Ditch No. 2	North Colony creek	Oct. 10, 1890	May 1, 1883	1	Lensh Brothers
The Lensh Brothers Ditch No. 3	Middle Colony creek	Oct. 10, 1890	May 5, 1888	1	Lensh Brothers
The Lensh Brothers Ditch No. 4	Middle Colony creek	Oct. 10, 1890	April 15, 1885	1	Lensh Brothers
The Lensh Brothers Ditch No. 5	Colony creek	Oct. 10, 1890	April 15, 1882	1.33	Lensh Brothers
The Lensh Brothers Ditch No. 6	Colony creek	Oct. 10, 1890	April 20, 1882	18	Lensh Brothers
The Heathfield Ditch	Cottonwood creek	Oct. 24, 1890	May 5, 1875	3	George Heathfield

Water District No. 14—John W. Horgan, Commissioner, Pueblo.

Ditch rights not adjudicated, and no report from Water Commissioner.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 14, RELATIVE TO WHICH PLATS AND STATEMENTS WERE FILED IN THE STATE ENGINEER'S OFFICE
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT	
					NAME OF CLAIMANT	NAME OF CLAIMANT
The Bessemer Ditch	Arkansas river	Jan. 19, 1889	Nov. 20, 1888	415	•	T. Haskins DuPuy
The Bessemer Ditch No 2	Arkansas river	Mar. 7, 1889	Dec. 15, 1888	415	•	T. Haskins DuPuy
The Arkansas, St. Charles and Huerfano Ditch	Arkansas river	Mar. 7, 1889	Mar. 4, 1889	450	{ The Arkansas, St Charles and Huerfano Land and Irrigation	
The Brackett Ditch	Brackett creek	Mar. 12, 1889	Mar. 7, 1889	2.50	•	Martha J. Holden
The Oxford Farmers Ditch	Arkansas river	April 10, 1889	Jan. 10, 1889	243	{ The Oxford Farmers Ditch Company, formerly the Enterprise Ditch	
The Ditch of the Bessemer Ditch Co	Arkansas river	June 1, 1889	Mar. 5, 1889	400	•	The Bessemer Ditch Company
The Hamp-Bell Ditch	Arkansas river	June 20, 1889	Jan. 8, 1889	12.45	•	W. Francis Haup and George Bell
The Colorado Canal	Arkansas river	July 8, 1889	April 10, 1889	3,372	•	The Colorado Land and Canal Company
The Ditch No. 2	Springs	Jan. 9, 1890	Spring, 1876	7.80	•	Benito Trujillo <i>et al</i>
The Booth Ditch, Christian Fink's extensio[n] of	Arkansas river	Mar. 12, 1890	Dec. 15, 1889	23.32	•	Christian Fink
The Ditch of the Bessemer Ditch Co., supplemental map of	Arkansas river	April 11, 1890	May 1, 1887	400	•	The Bessemer Ditch Company
The Six Mile Arroyo Ditch No. 1	Six-Mile arroyo	April 15, 1890	Mar. 15, 1889	10	•	Robert Grant
The Pueblo Water Works Ditch	Arkansas river	May 30, 1890	Oct. 25, 1889	113.10	•	The Pueblo Water Works

The Otero Canal	Arkansas river	June 2, 1890	Mar. 3, 1890	457.92	..... The Otero Canal Company
The Colorado Canal	*Arkansas river	June 9, 1890	April 10, 1890	756.28	..... The Colorado Land and Water Company
The Bessemer Ditch, explanatory statement	Arkansas river	Nov. 29, 1890	.....	.....	..... The Bessemer Ditch Company

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO 14, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
No. 1					189,000,000	
No. 2					240,000,000	
No. 3					120,000,000	
No. 4					47,600,000	
No. 5					51,840,000	
No. 6					15,840,000	
The Bessemer Ditch Company's Reservoirs	No. 7 Arkansas river	Bessemer Ditch	June 1, 1889	Mar. 5, 1889	28,800,000	The Bessemer Ditch Co
	No. 8				34,280,000	
	No. 9				34,500,000	
	No. 10				43,200,000	
	No. 11				34,560,000	
	No. 12				54,000,000	
	No. 13				112,500,000	

Christian Fink's Reservoirs	No. 1	Arkansas river	Booth Ditch	Mar. 12, 1890	Dec. 15, 1890	1,600,978 164,390 234,793	Christian Fink
	No. 2						
	No. 3						
Supplemental map of the Bessemer Ditch Company's Reservoirs	No. 1	Arkansas river	Bessemer Ditch	April 11, 1890	May 1, 1887	The Bessemer Ditch Co	
	No. 2						
	No. 3						
No. 4	No. 4	Arkansas river	Bessemer Ditch	April 11, 1890	May 1, 1887	The Bessemer Ditch Co	
	No. 5						
	No. 6						
No. 7	No. 7	Arkansas river	Bessemer Ditch	April 11, 1890	May 1, 1887	The Bessemer Ditch Co	
	No. 8						
	No. 9						
No. 10	No. 10	Arkansas river	Bessemer Ditch	April 11, 1890	May 1, 1887	The Bessemer Ditch Co	
	Six-Mile Arroyo Res'r No. 1						
	Six-Mile Arroyo						
The Pueblo Water Works Reservoirs {No. 1	The Pueblo Water Works Reservoirs {No. 1	Arkansas river {No. 2	Six-Mile Arroyo Ditch April 15, 1890 Mar. 15, 1889	Water Works Ditch May 30, 1890 Oct. 25, 1889	Water Works Ditch May 30, 1890 Oct. 25, 1889	3,285,000 1,738,800 1,758,667	Robert Grant The Pueblo Water Works
	Water Works Reservoirs {No. 2						

STATEMENT CONCERNING RESERVOIRS—*Concluded.*

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	'Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
Explanatory statement of the Bessemer Ditch Company's Reservoirs	No. 1 . . .				7,000,000	
	No. 2 . . .				19,000,000	
	No. 3 . . .				28,000,000	
	No. 4 . . .				29,000,000	
	No. 5 . . .	Arkansas river . . .	Bessemer Ditch . . .	Nov. 28, 1890	28,000,000	The Bessemer Ditch Company
	No. 6 . . .				29,000,000	
	No. 7 . . .				14,000,000	
	No. 8 . . .				900,000	
	No. 9 . . .				38,500,000	
	(No. 10 . . .)				62,000,000	

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STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 14, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OR W.H.L.	Diameter of the pipe in feet	Length of case in inches	DEPTH OF FLOW BELOW SURFACE				LOCATION	Present flow in gallons per minute	REMARKS.
			First flow	Second flow	Third flow	Fourth flow			
Mineral Park	1,150	...	...	...	...	...	Sec. 35, T. 20 S., R. 65 W.	3	Strongly iron; temperature, 70°
Fariss House	1,400	3	1,400	1,172	1,250	1,400	Sec. 36, T. 20 S., R. 65 W.	13	Temperature, 75°
O. E. Clark	1,402	...	...	1,166	...	...	Sec. 1, T. 21 S., R. 65 W.	87	Used for medical baths
Columbia Heights	789	5½	532	516	779	...	Sec. 9, T. 21 S., R. 65 W.	3105	Flowed 45 gallons per min. first
C. C. & I. Co	1,260	4	400	...	...	...	Sec. 12, T. 21 S., R. 65 W.	25	Temperature, 76°
Small's Timber Claim	772	...	...	...	...	...	Sec. 17, T. 21 S., R. 65 W.	2½	To be sunk to 1,200 feet
Hurlburt	1,820	...	...	1,200	1,800	...	...	...	...

*Water District No. 15—A. H. Smith, Commissioner,
Pueblo.*

Mr. Smith reports for 1890, in tabulated form, showing 46 ditches taking water, with an aggregate of $88\frac{1}{4}$ miles in length; that 12,813 acres can be irrigated therefrom; irrigated in alfalfa, 1,066 acres; in seeded grasses 229 acres; in natural grasses 888 acres; in other crops 1,232 acres, making a total of 3,415 acres irrigated.

COMMISSIONERS' REPORT; A. D. 1890.

DIVISION No. 2—DISTRICT No. 15.

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COMMISSIONER'S REPORT, A. D. 1890—Continued.

COMMISSIONER'S REPORT, A. D. 1890—Continued.

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COMMISSIONER'S REPORT, A. D. 1890—Concluded.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 15, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Tucker Ditch	St. Charles river . . .	Feb. 7, 1890	April 1, 1864	5,10	Lawrence Tucker, Myrtle Tucker, Theodore Tucker, Hiram Tucker, Seresta Tucker and Colorado Coal & Iron Company
The Tucker Ditch Enlargement	St. Charles river . . .	Feb. 7, 1890	Mar. 1, 1885	1,02	
The Tucker Ditch, amended statement .	St. Charles river . . .	Feb. 14, 1890	Not given	Not given	

STATEMENTS CONCERNING RESERVOIR SITES

UNIMPROVED, IN DISTRICT NO. 15, FROM THE REPORT OF THE WATER COMMISSIONER OF SAID DISTRICT.

LOCATION ON Sec.	T. S.	R. W.	Estimated area in acres	Length of dam in feet about	Greatest depth of dam in feet about	Material convenient for construction	Estimated cost	Estimated capacity in cubic feet	Source of supply	REMARKS
24	24	67	150	200	210	Natural	.....	.....	Green Horn creek	Average depth 12½ feet
31	24	66	500	.....	.....	.....	.....	.....	{ Green Horn and Graneros creek	Estimated 17,500 acre feet

Water District No. 16—Jonathan Milligan, Commissioner, Gardner, Colorado. Report from Commissioner.

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 16, GIVING THE DATE AND ORDER OF PRIORITY, AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, SO FAR AS THEY HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE SIXTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE, AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second and speed of each stream appropriated to each section or central ditch, referred to as cubic feet per second and speed of water per second in each section and speed of water per second in each ditch, central or reservoir		
			Summation of cubic feet of water per second appropriated in each section and speed of water per second in each ditch, central or reservoir	Cubic feet per second and speed of water per second appropriated in each section and speed of water per second in each ditch, central or reservoir	No. on stream
the Butte Valley Ditch	Huerfano river.	May 15, 1862	1.20	1	1
the Bo. Boyce Ditch	Huerfano river.	May 15, 1862	2	2	2
the Consolidated Badito and Martin Ditch	Huerfano river.	May 15, 1862	1.30	3	3
the Martin Ditch	Huerfano river.	July 15, 1862	1.40	4	4
the John W. Brown Ditch	Huerfano river.	April 1, 1863	3.20	5	5
the Consolidated Badito and Martin Ditch, first enlargement	Huerfano river.	April 30, 1863	.66	6	6
the Francisco and Daigre Mill Ditch, including lateral called } Francisco and Daigre Lake Ditch	Cucharas river.	May 30, 1863	.80	1	7
the Calf Pasture Ditch	Cucharas river.	June 15, 1863	1.50	10.56	2
the William Craig Ditch	Huerfano river.	May 1, 1864	2.40	12.66	7
the Francisco and Daigre Ditch, first enlargement	Cucharas river.	June 30, 1864	11.20	14.46	3
the Guillen Ditch	Cucharas river.	May 15, 1865	2	25.66	4

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The Consolidated Dadito & Martin Ditch, appropriation by Dadito	Huerfano river	May 15, 1865	.66	1.62	27.66	8	11
The Butte Valley Ditch, first enlargement	Huerfano river	May 15, 1865	1.80	3	28.32	9	12
The Pedro Gomez Ditch	Huerfano river	June 1, 1865	.32	• • • .	30.12	10	13
The Martin Ditch, first enlargement	Huerfano river	April 1, 1866	1.60	3	30.44	11	14
The Dan Mahan Ditch	Huerfano river	April 17, 1866	2.50	• • • .	32.04	12	15
The Walsenburg Ditch	Cuchars river	April 30, 1866	5.90	• • • .	34.54	5	16
The Vasquez, <i>alias</i> John Browne Ditch	Cuchars river	May 1, 1866	3.50	• • • .	40.44	6	17
The Hamlet Ditch	Huerfano river	May 1, 1866	3.80	• • • .	43.94	13	17
The Woods Ditch	Huerfano river	May 1, 1866	.80	• • • .	47.74	14	18
The Roy Ditch	Huerfano river	May 1, 1866	.70	• • • .	48.54	15	19
The Jack Allen Ditch	Huerfano river	May 1, 1866	.80	• • • .	49.24	16	20
The Baxter Pioneer Ditch	Huerfano river	May 3, 1866	1.30	• • • .	50.04	17	21
The Chavez Ditch	Huerfano river	May 15, 1866	.80	• • • .	51.34	18	22
The Francisco & Daigre Haujatalla Ditch	Cuchars river	May 30, 1866	1.40	• • • .	52.14	7	23
The Robert Rice Ditch	Huerfano river	Mar. 1, 1867	3	• • • .	53.54	19	24
The Garea Ditch	Huerfano river	April 25, 1867	7.10	• • • .	56.54	20	25
The Baxter Pioneer Ditch, first enlargement	Huerfano river	May 1, 1867	.46	1.76	63.64	21	26
The Burns Ditch No. 2	Huerfano river	May 31, 1867	.10	• • • .	64.10	22	27
The Medina, <i>alias</i> Relipa, <i>alias</i> Naranjo and Archuleta Ditch	Huerfano river	June 1, 1867	4	• • .	64.20	23	28
The Sanchez Ditch	Huerfano river	July 15, 1867	.50	• • • .	65.20	24	29
The Whitman & Mott Ditch	Apache creek	Aug. 31, 1867	.30	• • • .	68.70	1	30
The Ballejos Ditch	Cuchars river	April 1, 1868	2	• • • .	69	8	31

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	in district		
			No. on stream	Order of priority	Cubic feet per second per second to each ditch, canal or reservoir
The Martinez Ditch	Huerfano river	April 10, 1868	.40	71	25
The Manzanara Ditch No. 1	Huerfano river	April 10, 1868	4	71-40	26
The Fernandez Ditch	Huerfano river	April 18, 1868	3.20	75-40	27
The Sefion Ditch No. 2	Huerfano river	April 20, 1868	1	78-60	28
The Upper Huerfano Ditch	Huerfano river	May 1, 1868	.40	79-60	29
The Ojo Ditch	Cuchars river	May 3, 1868	5	80	9
The Archuleta Ditch	Huerfano river	May 16, 1868	3.68	85	30
The Gomez Ditch	Cuchars river	June 8, 1868	3.20	88-68	10
The Forestine Ditch	Santa Clara creek	June 10, 1868	2	91-88	1
The Cullion Ditch	Santa Clara creek	June 10, 1868	.80	93-88	2
The Manzanara Ditch No. 2	Huerfano river	July 16, 1868	.70	94-68	31
The McCaskill Ditch	Cuchars river	Dec. 30, 1868	2	95-38	11
The Romero Ditch	Cuchars river	April 1, 1869	.80	97-38	12
The Ballejos Ditch, first enlargement	Cuchars river	April 1, 1869	2	98-18	13
The Mexican Ditch	Cuchars river	April 8, 1869	4.90	100-18	14

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The Burns Ditch No. 2, first enlargement	Huerfano river	Not stated10	.20	105.08	32
The Upper Huerfano Ditch, first enlargement	Huerfano river	Not stated	5.60	6	105.18	33
The Sefton Ditch No. 1	Huerfano river	April 10, 1869	1.20	..	110.78	34
The Jack Allen Ditch, first enlargement	Huerfano river	May 1, 1869	.40	1.20	111.98	35
The Manrico Apodaca Ditch	Santa Clara creek	June 1, 1869	3	..	112.38	31
The A. M. Pryor Ditch	Santa Clara creek	June 1, 1869	3.20	..	115.38	4
The Vigil & Chavez Ditch	Huerfano river	June 15, 1869	2.40	..	118.58	36
The Pineda Ditch	Huerfano river	April 6, 1870	2	..	120.98	37
The Sisneros Ditch	Huerfano river	April 12, 1870	1.10	..	122.98	38
The Zan Ditch	Apache creek	April 25, 1870	6	..	124.08	2
The R. B. Willis Ditch	Cucharas river	May 10, 1870	3.20	..	130.08	15
The Victor Ditch	Huerfano river	May 15, 1870	.30	..	133.28	39
The Trinidad Yaca Ditch	Cucharas river	May 25, 1870	.40	..	133.58	16
The May Ditch	Huerfano river	June 1, 1870	2	..	133.98	40
The Labrie Ditch	Santa Clara creek	June 15, 1870	2.80	..	135.98	5
The Harner Ditch	Huerfano river	April 1, 1871	2.68	..	138.78	41
The Palmer Ditch	Huerfano river	April 6, 1871	6	..	141.46	42
The Calf Pasture Ditch, first enlargement	Cucharas river	May 1, 1871	1.50	3	147.46	17
The Henry Schnize Ditch	Santa Clara creek	May 1, 1871	3.20	..	148.96	6
The Jacquez Ditch	Huerfano river	May 3, 1871	1	..	152.16	43
The Smith Crumley Ditch	Cucharas river	May 11, 1871	.40	..	153.16	18
The Meadow Ditch	Huerfano river	May 15, 1871	.70	..	153.56	44

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	No. on stream		
			Cubic feet per second second pre- munity appropria- tion in district	Cubic feet per second pre- munity appropria- tion in district	No. in district
The Vasquez, alias John Brown Ditch, first enlargement	Cucharas river	May 20, 1871	2.30	5.80	154.26
The Denton Ditch	Cucharas river	June 1, 1871	.50	... . . . .	156.56
The Pedro Gomez Ditch, first enlargement	Huerfano river	June 1, 1871	1.22	1.54	157.06
The Graham Ditch	Apache creek	June 1, 1871	1	... . . . .	158.28
The Bradford & Swire Ditch	Huerfano river	June 6, 1871	1.04	... . . . .	159.28
The Duran Ditch	Cucharas river	June 12, 1871	.50	... . . . .	160.32
The David Hart Ditch	Cucharas river	June 15, 1871	.60	... . . . .	160.82
The Barnard & Alexander Ditch	Cucharas river	June 20, 1871	1.80	... . . . .	161.42
The Kincaid Ditch	Cucharas river	July 1, 1871	1	... . . . .	163.22
The Sanchez Ditch	Cucharas river	Mar. 15, 1872	.60	... . . . .	164.22
The Hicklin Ditch	Apache creek	April 1, 1872	4	... . . . .	164.82
The Bradford & Swire Ditch, first enlargement	Huerfano river	May 1, 1872	.30	1.34	168.82
The South Sandoval Ditch	Cucharas river	May 15, 1872	2	... . . . .	169.12
The Wilson Ditch	Huerfano river	May 20, 1872	.40	171.12
The Kincaid & Alexander Ditch					79

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The Z Half-Circle Ditch	Cucharas river	May 30, 1872	.20	173.22	28
The Ezekiel Gribble Ditch	Cucharas river	May 31, 1872	.40	173.42	29
The Gimlet Ditch	Huerfano river	June 8, 1872	.80	... . . . .	173.82	49
The Cucharas Ditch	Cucharas river	June 15, 1872	.50	... . . . .	174.62	30
The Beaver Dam Ditch	Cucharas river	June 25, 1872	1.20	... . . . .	175.12	31
The Caveniss Ditch	Apache creek	Jan. 1, 1873	.76	... . . . .	176.32	5
The North Veta Cañon Ditch	Cucharas river	Mar. 1, 1873	6	... . . . .	177.68	32
The Henry Strange Ditch	Apache creek	April 15, 1873	1.50	... . . . .	183.08	6
The Patterson Ditch	Cucharas river	April 20, 1873	5.10	... . . . .	184.58	33
The Cucharas Ditch, first enlargement	Cucharas river	April 25, 1873	1.50	2	189.68	34
The Medina, <i>alias</i> Felipa, <i>alias</i> Narango and Archuleta } Ditch, construction of lateral	Huerfano river	May 1, 1873	2.40	... . . . .	191.18	50
The José María Ditch	Huerfano river	May 1, 1873	.24	... . . . .	193.58	51
The Ojo Ditch	Huerfano river	May 25, 1873	2	... . . . .	193.82	52
The Spanish Peaks Ditch	Cucharas river	June 1, 1873	7.40	... . . . .	195.82	35
The Quillian Ditch	Apache creek	June 1, 1873	.40	... . . . .	203.22	7
The Denton & McAulifis Ditch	Cucharas river	June 20, 1873	2	... . . . .	203.62	36
The Whitman & Mott Ditch, first enlargement	Apache creek	Sept 11, 1873	.30	.60	205.62	8
The Spider-web Ditch	Huerfano river	April 4, 1874	1.60	... . . . .	205.92	53
The John Harris Ditch, No. 1	Cucharas river	April 20, 1874	1	... . . . .	207.52	37
The John Harris Ditch, No. 2	Cucharas river	May 1, 1874	1	... . . . .	208.52	38
The L. D. R. D. Ditch	Cucharas river	May 10, 1874	.60	... . . . .	209.52	39
The Nate Patterson Ditch	Cucharas river	May 15, 1874	.70	... . . . .	210.12	40
					101	

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH OR CANAL.	Stream from which water is taken	Date of appropriation	Cubic feet per second decreed to each ditch or canal	Summation of decrees to each district separately	No. on stream	Order of priority in district
			Cubic feet per second and decreed to each section and decree in order of priority	Cubic feet per second and decreed to each section and decree in order of priority	Cubic feet per second and decreed to each section and decree in order of priority	Cubic feet per second and decreed to each section and decree in order of priority
The Ute Ditch	Cucharas river	May 15, 1874	1.50	1.50	210.82	41
The Vigil Ditch	Cucharas river	May 30, 1874	1.50	1.50	212.32	42
The Kruger Ditch	Cucharas river	June 11, 1874	1.20	1.20	213.82	43
The Deus Pioneer Ditch	Huerfano river	June 15, 1874	4	4	215.02	54
The Mesery Company Ditch	Huerfano river	June 15, 1874	3.20	3.20	219.02	55
The W. R. Willis Ditch	Cucharas river	Aug. 1, 1874	.50	.50	222.22	44
The Palmer Ditch, first enlargement	Huerfano river	April 1, 1875	4	10	222.72	56
The South Side Ditch	Huerfano river	April 19, 1875	.20	.20	226.72	57
The Dyer Ditch	Cucharas river	April 15, 1875	4.40	4.40	226.92	45
The Nate Patterson Ditch, first enlargement	Cucharas river	May 19, 1875	.30	.30	231.32	46
The Lincoln Ditch	Huerfano river	June 1, 1875	.36	.36	231.62	58
The Lincoln Ditch No. 2	Huerfano river	June 1, 1875	.50	.50	231.98	59
The Lincoln Ditch No. 3	Huerfano river	June 1, 1875	.20	.20	232.48	60
The McClure Ditch	Huerfano river	June 25, 1875	.50	.50	232.68	61
The John G. Cozad Ditch	Cucharas river	June 25, 1875	1.40	1.40	233.18	47

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The Lohato Ditch	Cucharas river	June 30, 1875	.70	· · · · ·	234.58	48
The May Ditch, first enlargement	Huerfano river	Oct. 10, 1875	.10	2.10	235.28	62
The Vigil & Chavez Ditch, first enlargement	Huerfano river	April 1, 1863	.60	3	235.38	63
The Sporledors Ditch	Santa Clara creek	April 22, 1876	.60	· · · · ·	235.98	7
The Sandoval Ditch	Cucharas river	May 1, 1876	1.50	· · · · ·	236.58	49
The Glade Ditch	Huerfano river	May 15, 1876	2	· · · · ·	238.08	64
The W. L. Murray Ditch	Huerfano river	June 1, 1876	.60	· · · · ·	240.08	65
The Highland Ditch	Cucharas river	June 1, 1876	.80	· · · · ·	240.68	50
The Carber Ditch	Cucharas river	May 15, 1877	.70	· · · · ·	241.48	51
The Caldwell Ditch	Huerfano river	April 15, 1878	.30	· · · · ·	242.18	66
The Hornback Ditch	Huerfano river	July 1, 1878	.40	· · · · ·	242.48	67
The Stanley Ditch	Huerfano river	May 1, 1879	.32	· · · · ·	242.88	68
The Robinson Ditch	Huerfano river	May 20, 1879	1	· · · · ·	243.20	69
The Stophlin Ditch	Cucharas river	July 1, 1879	.40	· · · · ·	244.20	52
The Meadow Ditch No 2.	Cucharas river	April 1, 1880	1.40	2	244.60	53
The Sanchez Ditch, first enlargement	Huerfano river	May 1, 1880	.50	· · · · ·	246	70
The Pathfinder Ditch	Huerfano river	May 12, 1880	.80	· · · · ·	246.50	71
The Meadow Ditch No 2.	Cucharas river	Mar. 30, 1881	.74	2.74	247.30	54
The Denton & McAuliff Ditch, first embayment	Cucharas river	April 1, 1881	1.20	· · · · ·	248.04	55
The Wayman <i>alias</i> Jim Gribble Ditch	Huerfano river	April 15, 1881	.20	· · · · ·	249.24	72
The Mosco Ditch	Huerfano river	May 1, 1881	.30	· · · · ·	249.44	73
The Shields Ditch	Huerfano river	May 3, 1881	10	· · · · ·	249.74	74
The No. 1 Irrigating Ditch.	Huerfano river				249.74	74

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second of each ditch or canal		Summation of cubic feet per second of each ditch or canal	Cubic feet per second of each priority and decree to which or canals	Cubic feet per second of each priority and decree to which or canals	No. on stream	Order of priority in district
			Priority applied in dis- trict	Priority applied in dis- trict					
the John George Ditch	Cucharas river	May 5, 1881	3.20	...	259.74	56	137		
the Raymond M. y Valdez Ditch	Huerfano river	May 15, 1881	2.38	...	262.94	75	138		
the Denton & McAuliffe Ditch, second enlargement	Cucharas river	Oct. 21, 1881	.26	3	265.32	57	139		
the Raymond M. y Valdez Ditch, first enlargement	Huerfano river	April 10, 1881	1.42	3.80	265.38	76	140		
the Dep Ditch	Cucharas river	May 12, 1882	.60	...	267	58	141		
the South-Side Ditch	Cucharas river	June 10, 1882	.50	...	267.60	59	142		
the Sevire Ditch	Huerfano river	Sept. 30, 1882	.12	...	268.10	77	143		
the Road No. 1 Ditch	Huerfano river	April 20, 1883	1.60	...	268.22	78	144		
the Griddle & Baker Ditch	Cucharas river	May 1, 1883	.26	...	269.82	60	145		
the Henry Strange Ditch, first enlargement	Apache creek	May 15, 1883	2	3.50	270.08	9	146		
the Timothy Ditch	Huerfano river	June 1, 1883	.28	...	272.08	79	147		
the Sharpsdale Ditch	Huerfano river	June 1, 1883	.12	...	272.36	80	148		
the Lake Miriam Ditch	Cucharas river	Mar. 1, 1884	20	...	272.48	61	149		
the Robinson Ditch, first enlargement	Huerfano river	Mar. 4, 1884	.50	1.50	292.48	81	150		
the Madrid Ditch No. 2	Cucharas river	Mar. 10, 1884	7.40	...	302.48	62	151		

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The Brooke Creek Ditch	Huerfano river	April 29, 1884	.80	300.38	82	152
The James Carey Ditch	Huerfano river	May 1, 1884	.60	301.18	83	153
The Samuel J. Capps Ditch	Santa Clara creek	June 1, 1884	.50	... . . . .	301.78	8	154
The Muddy Creek Ditch	Huerfano river	June 30, 1884	.80	... . . . .	302.28	84	155
The Oakfield Ditch	Cucharas river	July 15, 1884	.24	... . . . .	303.08	63	156
The Madrid Ditch	Huerfano river	May 15, 1886	.18	... . . . .	303.32	85	157
The Butte Valley Ditch, second enlargement	Huerfano river	May 15, 1886	3	6	303.50	86	158
The Sanchez Ditch, second enlargement	Cucharas river	May 20, 1886	2	4	306.50	64	159
The Martin Ditch No. 1	Cucharas river	April 1, 1886	1.20	... . . . .	308.50	65	160
The James Carey Ditch, first enlargement	Huerfano river	June 15, 1886	2.90	3.50	309.70	87	161
The J. M. Murray Ditch	Huerfano river	July 1, 1886	1.50	... . . . .	312.60	88	162
The Fairview Ditch	Cucharas river	Mar. 10, 1887	.28	... . . . .	314.10	66	163
The Medina <i>alias</i> Felipa, <i>alias</i> Naranjo and Archuleta Ditch, } first enlargement of lateral	Huerfano river	April 10, 1887	.60	7.90	314.38	89	164
The J. M. Murray Ditch, first enlargement	Huerfano river	May 1, 1887	.50	1.50	314.98	90	165
The D. K. L. M. & P. Ditch	Apache creek	Nov. 2, 1887	8.60	... . . . .	315.48	10	166
The Mill Ditch	Huerfano river	Dec. 1, 1887	1.50	... . . . .	324.08	91	167
The Monlez Ditch	Huerfano river	Jan. 2, 1888	37.64	... . . . .	325.58	92	168
The South Abeyta Highland Ditch	Cucharas river	Feb. 14, 1888	12.80	... . . . .	363.22	67	169
The Martinez Ditch, first enlargement	Huerfano river	Mar. 15, 1888	3.40	3.80	376.02	93	170
The Vigil & Chavez Ditch, second enlargement	Huerfano river	Mar. 20, 1888	.60	3.60	379.42	20	171
The Chavez Ditch, first enlargement	Huerfano river	Mar. 20, 1888	2.40	3.20	380.02	95	172
The Medina I. Felipa Ditch, second enlargement of lateral	Huerfano river	April 13, 1888	.90	7.90	382.42	96	173

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet of water per sec- ond decreed to each prority ditch			Summa- tion of de- crees to each ditch	Cubic feet per sec- ond previously appropriated in district	No on stream	Order of priority in district
			Cubic feet per sec- ond appropriated in district	Cubic feet per sec- ond previously appropriated in district	No on stream				
The Garcia Ditch, first enlargement	Huerfano river	May 4, 1888	6,90	14	383.32	97	174		
The Spider Web Ditch, first enlargement	Huerfano river	May 15, 1888	.32	1.60	390.22	98	175		
The Burns Ditch	Huerfano river	June 1, 1888	8.20	...	390.54	99	176		
The Butte Ditch	Chucharas river	June 15, 1888	3	...	398.74	68	177		
Total appropriated in division . . . . .	...	...	...	...	401.74				

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 16, GIVING THE DATE, ORDER OF PRIORITY AND AMOUNT OF EACH APPROPRIATION IN SAID DISTRICT, AS THIS SAME HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE SIXTIETH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF RESERVOIR	Name of stream from which water is taken	Name of ditch leading water thereto	Date of appropriation	Cubic feet of water decreed to each appropriation	Order of priority in district
				Cubic feet previously appropriated in district	
The Zan Ditch Reservoir	Apache creek	The Zan Ditch	April 25, 1870	15,708	1
The K. and M. Reservoir	Apache creek	The D.K. L.M. & P. Ditch	Nov. 21, 1887	1,667,283	15,708 2

STATEMENT CONCERNING DITCHES.

IN WATER DISTRICT NO. 16, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Gardner Ditch	Huerfano river,	Dec. 26, 1888	Feb. 17, 1888	18.55	. . . . . L. C. DeCamp <i>et al</i>
The Hayden Ditch	Huerfano river,	Jan. 19, 1889	Oct. 16, 1888	21.60	. . . . . D. T. Hayden
The Munro and Moore Ditch	Huerfano river,	Jan. 21, 1889	Feb. 1, 1887	3.67	. . . . . Annie Munro
Thib Barela and Chavez Ditch	Sierra Rito de la Medio,	Mar. 26, 1889	Aug. 24, 1888	4.39	. . . . . José D. Barela and Rafael Chavez
The Ellis Ditch,	Huerfano river,	April 3, 1889	Dec. 12, 1888	22	. . . . . John J. and Mary K. Ellis
The M and S. Ditch	Apache creek	June 8, 1889	April 24, 1889	12.10	. . . . . C. L. Millican and J. Stearns
The Place Ditch	South Veta creek	July 30, 1889	July 20, 1889	4.30	. . . . . Alonzo Place
The Welton Ditch, enlargement	Huerfano river,	April 22, 1890	Mar. 1, 1890	21	. . . . . Ludwig Kramer <i>et al</i>
The Armstrong Ditch, enlargement of the D. K. L. M. and P. {	Apache creek	May 20, 1890	Feb. 21, 1890	3.25	. . . . . Charles E. Armstrong
The Willow Ditch	North Arbeta creek	July 29, 1890	April 28, 1890	8.41	. . . . . Thomas J. Arrington
The Aragon Ditch	Chama creek,	Aug. 13, 1890	. . . . .	1887	. . . . . José Aragon
The Garcia Ditch,	Huerfano river,	Aug. 19, 1890	. . . . .	1890	. . . . . Manuel A. Garcia
The John S. Patten Mexican Ditch	Pass creek	Aug. 22, 1890	Mar. 8, 1883	16	. . . . . John S. Patten

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 16, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEERS OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

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NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Hayden Reservoir "A"	Huerfano river	Hayden Ditch	Jan. 9, 1889	Oct. 16, 1888	56,810,60	. . . . . Daniel J. Hayden
The Hayden Reservoir "B"	Huerfano river	Hayden Ditch	Jan. 9, 1889	Oct. 16, 1888	19,700,45	. . . . . Daniel J. Hayden
The Hayden Reservoir "C"	Huerfano river	Hayden Ditch	Jan. 9, 1889	Oct. 16, 1888	50,000,00	. . . . . Daniel J. Hayden
The Hayden Reservoir "D"	Huerfano river	Hayden Ditch	Jan. 9, 1889	Oct. 16, 1888	78,605,45	. . . . . Daniel J. Hayden
The M. & S. Reservoir No. 1	Apache creek	M. & S. Ditch	June 8, 1889	May 13, 1889	173,400,00	. . . . . C. L. Williams <i>et al</i>
The M. & S. Reservoir No. 2	Apache creek	M. & S. Ditch	June 8, 1889	May 13, 1889	264,000,00	. . . . . C. L. Williams <i>et al</i>
The M. & S. Reservoir No. 3	Apache creek	M. & S. Ditch	June 8, 1889	May 14, 1889	337,800,00	. . . . . C. L. Williams <i>et al</i>
The M. & S. Reservoir No. 4	Apache creek	M. & S. Ditch	June 8, 1889	May 14, 1889	271,700,00	. . . . . C. L. Williams <i>et al</i>
The M. & S. Reservoir No. 5	Apache creek	M. & S. Ditch	June 8, 1889	April 15, 1889	140,350,00	. . . . . C. L. Williams <i>et al</i>
The Place Reservoir	Place Ditch	Place Ditch	July 30, 1889	July 20, 1889	860,000,00	. . . . . Alonso Place
The Willow Reservoir	N. Abeta creek	Willow Ditch	July 29, 1890	April 28, 1890	3,822,325,00	. . . . . Thomas J. Arrington

*Water District No. 17—Geo. Peck, Commissioner,
Las Animas, Colorado.*

Mr. Peck reports nine canals, having an aggregate length of 305 miles; that 293,705 acres can be irrigated therefrom; that there were irrigated in alfalfa 17,981 acres; in seeded grasses 122 acres; in natural grasses 7,810 acres; in other crops, including fruit, 19,309 acres; and that 780 acres were irrigated from seepage, giving a total of 46,002 acres irrigated. Of the above amount 410 acres were in melons.

The statement does not include all ditches taking water in the district.

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION No. 2—DISTRICT No. 17.

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NAME OF DITCH.	Length thereof in miles	Average number of days water was carried during season of irrigating, ap-	Number of days per second of time	Number of acres that can be irrigated in this district, approximate	Number of acres of alfalfa irrigated three times	Number of acres of alfalfa irrigated three times from	Number of acres of grasses irrigated three times	Number of acres of grasses other than alfalfa irrigated three times	Number of acres of alfalfa and fruit irrigated three times	Number of acres irrigated from alfalfa and fruit irrigated three times	Number of acres irrigated from alfalfa and fruit, different from above	Number of acres irrigated from alfalfa and fruit, different from above	Number of acres irrigated from alfalfa and fruit, different from above	
The Ark, River Land, Reservoir & Canal Co.	113	215	535.×	40,600	8,321	122	1,000	7,966	400	215	80	215	100	...
The Jones Ditch	12	195	75	1,920	420	...	...	...	...	...	...	...	...	...
The Riverside Ditch	9	180	40	2,380	350	...	...	...	...	...	...	...	...	...
The Town Ditch, W. Animas	10	190	35	2,000	190	...	...	...	...	...	...	...	...	...
* The Rocky Ford Ditch	16	215	250	11,150	3,400	...	...	...	...	...	...	...	...	280
* The Catlin Ditch	est. 35	215	300	13,335	4,000	...	...	...	...	...	...	...	...	...
The Catlin Ditch, Fairmount extension	est. 10	215	80	8,000	1,300	...	...	...	...	...	...	...	...	...
The Otero Ditch, new	est. 100	No	water yet	28,320	...	...	...	...	...	...	...	...	...	...
† The Bob Creek Ditch . . . . .	...	...	...	186,000	...	...	...	...	...	...	...	...	...	...
Totals in district	305	...	1,315	293,705	17,981	122	7,810	19,399	780	780	780	780	780	780

* Included before melon acreage, 260. * Included before melon acreage, 150.

† Taken from Company's plat.

Total number of acres irrigated, 46,002.

The ditches named in Engineer's Report, 1888, not included. They are seventy-five miles away and Commissioner did not have time to go there.

No Water Commissioners have been appointed for Districts Nos. 18, 49, 66 and 67.

In District No. 19, three different Water Commissioners have been appointed, J. F. Romey, of Trinidad, being the last. There is no report from this district.

STATEMENT CONCERNING DITCHES

IN DISTRICT No. 17, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL.	Stream from which water is diverted	Date of filing in State Engineer's office	Date of con- nencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Rocky Ford Ditch, enlarge'm't	Arkansas river . . .	Sept. 4, 1889	Jan. 22, 1889	206	..... The Rocky Ford Ditch Company
The Riverside Ditch	Arkansas river . . .	Jan. 27, 1890	Dec. 5, 1887	80	..... The Riverside Ditch Company
The Horse Creek Ditch	Horse creek	Feb. 13, 1890	Dec. 8, 1888	55	..... S. O. Henry
The Jones Ditch	Arkansas river	Feb. 13, 1890	Mar., 1885	122.50	..... The Jones Ditch Company
The J. W. Potter Ditch	Arkansas river	Feb. 24, 1890	Nov., 1881	10	..... J. W. Potter
The Crooked Arroyo Ditch	Crooked arroyo	Mar. 1, 1890	May 10, 1889	3.23	..... T. J. Howard <i>et al.</i>
The Adobe Canal	Adobe creek	Mar. 24, 1890	Feb. 25, 1890	800	..... Henry R. Holbrook
The Horse Creek Canal	Horse creek	Mar. 24, 1890	Mar. 1, 1890	800	..... Henry R. Holbrook
The Rocky Ford Canal, Reservoir, Land, Loan and Trust Company's Canal	Atkinsas river	Mar. 31, 1890	Oct. 19, 1889	618	{ The Rocky Ford Canal, Reservoir, Land, Loan and Trust Company,
The Rocky Ford Ditch, amended statement	Arkansas river	May 6, 1890	Sept 30, 1887	199.80	..... The Rocky Ford Ditch Company

STATEMENT CONCERNING EXISTING RESERVOIRS

IN WATER DISTRICT NO. 17, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Lake Canal Reservoir No. 1 . . .	Arkansas river . . .	Lake canal . . .	June 14, 1890	March, 1890	Not given	Henry R. Holbrook
The Lake Canal Reservoir No. 2 . . .	Arkansas river . . .	Lake canal . . .	June 14, 1890	March, 1890	Not given	Henry R. Holbrook
The Lake Canal Reservoir No. 3 . . .	Arkansas river . . .	Lake canal . . .	June 14, 1890	March, 1890	Not given	Henry R. Holbrook

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 18, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of filing in state Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The McLaughlin Apishapa Ditch	Apishapa river	Dec. 18, 1888	March, 1886	10	B. Franklin McLaughlin
The Salado Ditch	Salado gulch	Feb. 7, 1889	Apr. 13, 1886	37.68	Luis, Felix and Tacundo Baca
The Baca Brothers Ditch	Apishapa river	Feb. 7, 1889	{ May, 1872 March, 1881	1.58 } 7.54 }	Luis, Felix and Tacundo Baca
The Cordova Irrigating Ditch	Apishapa river	Oct. 2, 1890	. . . . . 1873	.66	Benito Cordova

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 19, GIVING THE DATE, ORDER OF PRIORITY, AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, SO FAR AS THEY HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE THIRD JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second needed to each ditch or canal and priority each priority		Cubic feet per sec- ond needed to each priority each priority	Summarization of de- crees to each ditch or canal and priority each priority	Cubic feet per sec- ond needed to each priority each priority	Order of priority in district
			Cubic feet per sec- ond priority each priority	No. on stream				
The Riley & Dunton Ditch	Purgatoire river	May, 1863	13.40	.. . . .	.. . . .	.. . . .	.. . . .	1 1
The McCormack Ditch	Purgatoire river	April 1, 1864	34.25	.. . . .	.. . . .	43.40	2 2	
The Lewelling Ditch	Purgatoire river	Spring, 1865	23.25	.. . . .	.. . . .	47.65	3 3	
The Hohene Ditch	Purgatoire river	Mar. 12, 1866	62.15	.. . . .	.. . . .	70.90	4 4	
The Phelps Ditch	Purgatoire river	April, 1866	7	.. . . .	.. . . .	133.05	5 5	
The Burnes & Duncan Ditch	Purgatoire river	April 8, 1866	10.85	.. . . .	.. . . .	149.65	6 6	
The Benjamin McGalliard Ditch	Purgatoire river	April, 1867	7.50	.. . . .	.. . . .	150.90	7 7	
The Cherevo Ditch	Purgatoire river	June, 1867	5.10	.. . . .	.. . . .	158.40	8 8	

The Aramanta Ditch	Purgatoire river	Spring, 1868	6		163.50	9	9
The South Side Ditch, original construction	Purgatoire river	Feb. 17, 1876	33		169.50	10	10
±The South Side Ditch, enlargement	Purgatoire river . . . . .	. . . . .	. . . . .		202.50	11	11
Total in district . . . . .	. . . . .	. . . . .	. . . . .		217.95		

No other decrees have been rendered in this district.

The capacities given are the theoretical capacities, computed from dimensions and grade.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 19, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in state Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Salas North Ditch	Purgatoire river	Feb. 2, 1889	April, 1866	12.94	E. S. Bell <i>et al</i>
The Salas South Ditch	Purgatoire river	Feb. 2, 1889	Feb., 1869	18.90	E. S. Bell <i>et al</i>
The Chicosa Ditch	Purgatoire river	Feb. 13, 1889	June 21, 1886	43	The Chicosa Irrigating Ditch Company
The Jas. McBride Ditch	San y Cidro creek	Feb. 25, 1889	May, 1885	2.50	James McBride
The South Side Ditch	Purgatoire river	May 17, 1889	Feb. 17, 1876	45	The South Side Irrigating Ditch Company
The South Side Ditch, first enlarg	Purgatoire river	May 17, 1889	Feb. 1, 1877	6	The South Side Irrigating Ditch Company
The South Side Ditch, second enlarg	Purgatoire river	May 17, 1889	Mar. 1, 1882	13	The South Side Irrigating Ditch Company
The South Side Ditch, third enlarg	Purgatoire river	May 17, 1889	Mar. 1, 1888	21	The South Side Irrigating Ditch Company
The Florida Ditch	Purgatoire river	May 17, 1889	April 7, 1877	22	The Florida Irrigating Ditch Company
The Florida Ditch, first enlargeme ⁿ l	Purgatoire river	May 17, 1889	Jan. 10, 1878	15	The Florida Irrigating Ditch Company
The Sandoval Ditch	Purgatoire river	May 17, 1889	Nov. 23, 1883	22	The Sandoval Irrigating Ditch Company
The Sandoval Ditch, first enlarge	Purgatoire river	May 17, 1889	Feb. 15, 1888	12	The Sandoval Irrigating Ditch Company
The Chicosa Ditch	Purgatoire river	June 15, 1889	June 21, 1886	44	The Chicosa Irrigating Ditch Company
The Chicosa Ditch, first enlargemt	Purgatoire river	June 15, 1889	Mar. 18, 1889	34.80	The Chicosa Irrigating Ditch Company

The Pioneer Ditch	Gray creek	[Sept. 20, 1889]	Feb. 15, 1882	13.90
The Pioneer Ditch, first enlarge't	Gray creek	Sept. 20, 1889	April 15, 1886	6.57
The Trinidad Water Works Company Ditch	Purgatoire river . .	Jan. 2, 1890	Sept. 30, 1889	31
The King Ditch	N.F.Purgatoire river	Aug. 16, 1890	Aug. 7, 1890	28

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 19, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The King Ditch Co.'s Reservoir	N. fork Las Animas .	King ditch . . .	Aug. 16, 1890	Aug. 17, 1890	13,454,000	. . . The King Ditch Company

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 49, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Shepard & Cook Ditch, . . .	Republican river,	April 13, 1889	Jan. 29, 1889	40	. . Samuel C. Shepard and James E. Cook
The James E. Cook Ditch,	Republican river,	April 23, 1889	Feb. 5, 1889	40	. . . . . James E. Cook
The Tip Jack Ditch,	Republican river,	April 24, 1889	Feb. 8, 1889	11	. . . . . Abner W. Spencer
The Tip Jack Ditch No. 2,	Republican river,	April 24, 1889	Feb. 9, 1889	11	. . . . . Abner W. Spencer

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 66, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Rupert Ditch No. 1	East Carrizo creek	June 24, 1889	Mar. 25, 1889	6.12	. . . . . H. J. Rupert and H. M. Tinker
The Rupert Ditch No. 2	East Carrizo creek	June 24, 1889	Mar. 25, 1889	6.12	. . . . . H. J. Rupert and H. M. Tinker

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 67, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office.	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Seven Bar Ditch	Caddoa creek	April 9, 1888	Feb. 1, 1888	32	G. M. Woodworth
The Phillips Ditch	Big Sandy creek	Dec. 12, 1888	Sept. 15, 1888	11	Ivory Phillips
The Phillips Ditch No. 2	Big Sandy creek	Dec. 12, 1888	Sept. 15, 1888	11	Ivory Phillips
The Buffalo Creek Ditch	Arkansas river	Jan. 11, 1889	Jan. 10, 1885	104.49	The Buffalo Creek Irrigation Company
The A.R. Black Ionic Ranch Ditch	Arkansas river	Mar. 6, 1889	Nov. 4, 1886	Not given	A. R. Black
The A.R. Black Mamar Ditch	Arkansas river	Mar. 6, 1889	April 16, 1887	Not given	A. R. Black
The Bedrock Mutual Ditch	Arkansas river	June 6, 1889	Mar. 4, 1889	26.22	The Bedrock Mutual Ditch Company
The X. Y. Irrigating Ditch	Arkansas river	Oct. 10, 1889	Aug. 12, 1889	104.50	The X. Y. Irrigating Ditch Company
The Williams Clowes Ditch	Big Sandy creek	Oct. 30, 1889	Aug. 1, 1889	10	J. W. Williams and William Clowes
The Bagdad Ditch	Big Sandy creek	Dec. 4, 1889	Sept. 6, 1889	17	Charles G. Strang
The H. H. Metcalf Ditch	Big Sandy creek	Dec. 18, 1889	Oct. 1, 1889	500	Henry H. Metcalf
The Lincoln County Ditch	Big Sandy creek	Feb. 1, 1890	Nov. 10, 1889	1,600	The Lincoln County Ditch, Reservoir & Land Co.
The Agate Ditch	Godfrey gulch	Feb. 14, 1890	July 30, 1888	2,700	Alexander V. Scherer
The Sisson Irrigating Ditch (A)	Arkansas river	Mar. 14, 1890	Dec. 29, 1889	Not given	The Sisson Irrigating Ditch Company

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Sisson Irrigating Ditch (B) . . .	Arkansas river . . .	Mar 14, 1890	Dec. 20, 1889	Not given	The Sisson Irrigating Ditch Company
The Amity Canal	Arkansas river . . .	Mar. 25, 1890	Mar. 7, 1887	850	The Amity Canal and Reservoir Company
The Sisson Irrigating Ditch No. 1	Arkansas river . . .	May 2, 1890	Dec. 20, 1889	61	The Sisson Irrigating Ditch Company
The Sisson Irrigating Ditch No. 2	Arkansas river . . .	May 2, 1890	Dec. 20, 1889	61	The Sisson Irrigating Ditch Company
The Midland Canal, first division . .	Arkansas river . . .	May 13, 1890	Feb. 15, 1890	196	The Midland Canal, Reservoir and Land Co.
The Lake Cahill Gageby Ck Ditch . . .	Gageby creek . . .	May 14, 1890	Feb. 24, 1890	15	Luke Cahill
The Bent Ditch	Big Sandy river . . .	May 21, 1890	Feb. 1, 1890	25	John A. Bent
The Lincoln County Water Supply & Land Co.'s Ditch	Big Sandy creek . . . }	July 10, 1890	Nov. 10, 1889	1,600	The Lincoln County Water Supply and Land Co.
The Hugo Ditch	Big Sandy creek . . . }	July 10, 1890	May 1, 1889	34	A. K. Clark
The Colorado and Kansas Canal. . .	Arkansas river . . .	July 21, 1890	(Oct. 12, 1885 { Nov. 15, 1889 990	650	The Colorado & Kansas Canal & Reservoir Co.
The Bedrock Mutual Ditch, enlarg. . .	Arkansas river . . .	Aug. 12, 1890	Jan., 1890	54	As enlarged The Bedrock Mutual Ditch Company
The Lamar Land & Canal Co.'s Canal	Arkansas river . . .	Oct. 9, 1890	July 16, 1890	50	The Lamar Land and Canal Company
The Mauvel Canal	Arkansas river . . .	Oct. 15, 1890	April 30, 1890	169	The Mauvel Canal, Reservoir & Improvement Co.

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 67, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEERS OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineers office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT	
The Lincoln County Reservoir	Big Sandy creek	Lincoln county	Feb. 1, 1890	Nov. 10, 1889	200,000,000	The Lincoln Co. Ditch,	
The Agate Reservoir	Godfrey gulch .	Agate	Feb. 14, 1890	July 30, 1888	104,485,920	{ Reservoir & Land Co.	Alexander B. Scherer
The Lincoln County Reservoir, additional statement	Big Sandy creek	Lincoln county	July 10, 1890	Nov. 10, 1889	200,000,000	{ The Lincoln Co. Water Supply & Land Co.	
The Hugo Reservoir	{ Big Sandy c'k, Barron draw .	Hugo	July 10, 1890	May 1, 1889	6,630,000	. . . . . A. K. Clarke	

RIO GRANDE DIVISION No. 3.

H. J. L. WARREN, SUPERINTENDENT, ALAMOSA.

The rapid advancement made in the agricultural development of the San Luis Valley, within the past two years, renders this division one of the most important in the State, and it is to be regretted that no report whatever has been made by the Superintendent.

This is doubtless partially due to the fact that the water rights of the division have not been adjudicated, except as to two districts, and those but recently, and that consequently the Water Commissioners have not been in active service sufficiently to collect the necessary data.

The Superintendent's register not having been returned to this office, it is also impossible to give a tabulated statement of the ditches of such districts as have adjudicated their water rights.

Water District No. 20—W. R. Neale, Commissioner, Alamosa. No report.

STATEMENT CONCERNING DITCHES

IN DISTRICT No. 20, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF DITCH OR CANAL	NAME OF STREAM FROM WHICH WATER IS TAKEN	DATE OF FILING IN STATE ENGINEER'S OFFICE	TIME OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET PER SECOND	NAME OF CLAIMANT
The Bellows Creek Ditch No. 1	E. Fork Bellows creek	Dec. 11, 1888	Not given	12	George W. Thorne <i>et al</i>
The Bellows Creek Ditch No. 2	Bellows creek	Dec. 11, 1888	Not given	18	George W. Thorne <i>et al</i>
The Bellows Creek Ditch No. 3	Bellows creek	Dec. 11, 1888	Not given	4	George W. Thorne
The Bellows Creek Ditch No. 4	Bellows creek	Dec. 11, 1888	Not given	3	George W. Thorne
The Pifios Creek Ditch No. 1	Pifios creek	Dec. 18, 1888	June 1873	25	J. W. Jamison <i>et al</i>
The Todd Ditch	Cherry creek	Jan. 2, 1889	June 1883	3	John Todd
The Hosselkus Ditch	Rio Grande river	Jan. 3, 1889	Oct. 10, 1888	10	J. J. Hosselkus
The South Fork High Line Ditch	S. fork Rio Grande riv.	Feb. 20, 1889	Nov. 15, 1885	22	A. M. Rice <i>et al</i>
The Egan Ditch No. 1,	Francisco creek	Feb. 28, 1889	June 1877	2	Philo Egan
The Egan Ditch No. 2	Francisco creek	Feb. 28, 1889	June 1887	1.50	Philo Egan
The Egan Ditch No. 3	Francisco creek	Feb. 28, 1889	May 29, 1886	4	Philo Egan
The Cemetery Ditch, enlargement	Francisco creek	Feb. 28, 1889	May 20, 1886	2	Philo Egan
The Del Norte Canal	Rio Grande river	Mar. 2, 1889	Mar. 13, 1881	2,540	The Del Norte Land and Canal Co
The Patten Ditch	Farmers' creek	May 6, 1889	April 13, 1889	6	Arthur K. Patten

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—*Continued.*

IN DISTRICT NO. 20, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	NAME of stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Citizens' Ditch, amended statement.	Rio Grande river	May 23, 1889	Mar. 1, 1882	1,040	. . . . . The Monte Vista Canal Company
The Anderson Arroyo Ditch No. 1 . . .	Arroyo unnamed.	May 25, 1889	May 1, 1887	4	. . . . . Swan Anderson
The Anderson Arroyo Ditch No. 2	Arroyo unnamed.	May 25, 1889	Nov. 15, 1888	4.50	. . . . . Swan Anderson
The Cemetery Ditch.	Francisco creek	June 1, 1889	May 15, 1886	1.50	. . . . . The Town of Del Norte
The James McCleary Ditch.	Francisco creek	June 1, 1889	April 14, 1874	4	. . . . . Asa F. Middaugh
The Rio Grande Ditch No. 4	Rio Grande river.	June 5, 1889	May 3, 1886	65	. . . . . Dyer & Ladd <i>et al</i>
The Farmers' Creek Ditch	Farmers' creek.	June 13, 1889	April 4, 1888	5	. . . . . C. Eliza Watson
The Hubbard Ditch	Rio Grande river.	Aug. 12, 1889	April 5, 1882	25.50	. . . . . Alonso Hubbard <i>et al</i>
The Centennial Ditch.	Rio Grande river.	Aug. 13, 1889	April 25, 1874	110.90	. . . . . The Centennial Ditch Company
The Centennial Ditch, first enlargement.	Rio Grande river.	Aug. 13, 1889	July 5, 1876	68.50	. . . . . The Centennial Ditch Company
The Centennial Ditch, second enlargement.	Rio Grande river.	Aug. 13, 1889	Sept. 1, 1882	85.60	. . . . . The Centennial Ditch Company
The Cole Ditch No. 1	Rock creek.	Aug. 13, 1889	Oct. 1, 1875	3	. . . . . Herschel B. Smith
The Cole Ditch No. 1, enlargement & extension.	Rock creek.	Aug. 13, 1889	May 1, 1889	4	. . . . . Herschel B. Smith
The Muller Ditch	Seepage water	Aug. 26, 1889	April 15, 1885	1.50 Gottlieb Muller

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The Smith Ditch, extension	Rock creek	Aug. 26, 1889	1883, '84, '88	5.50
The Lenke Ditch	{ Rio Grande through the Del Norte canal }	Sept. 17, 1889	Mar. 1, 1888	2.70
The Costilla Ditch	Rio Grande river . . .	Sept. 23, 1879	Mar. 1, 1886	300
The Monte Vista Canal, feeder for . .	Rio Grande river . . .	Oct. 14, 1889	Sept. 26, 1889	8.88
The Deitrich & La Cas Ditch	Rio Grande river . . .	Oct. 18, 1889	Aug. 9, 1886	28.09
The Monte Vista Canal, additional statement	Rio Grande river . . .	Oct. 24, 1889	Not given	1,200
The Rio Grande & Piedra Valley Ditch .	Rio Grande river . . .	Nov. 4, 1889	Oct. 5, 1876	153
The Spring Ranch Ditch	Rio Grande river . . .	Nov. 20, 1889	April 20, 1888	22
The Marr Jo Ditch	Rio Grande river . . .	Nov. 25, 1889	April 15, 1882	7.50
The Riverside Ditch	Rio Grande river . . .	Dec. 12, 1889	April 20, 1887	3.70
The Stonewall Ditch	Rio Grande river . . .	Feb. 4, 1890	Jan. 23, 1890	215
The Arroyo Ditch	Rock creek	Feb. 10, 1890	July, 1884	26.04
The San Luis Canal, amended and further statement	Rio Grande river . . .	Feb. 14, 1890	Sept. 11, 1883	1,500
The San Luis Canal, feeder No 1	Rio Grande river . . .	Feb. 11, 1890	April 30, 1888	3,000
The San Luis Canal, feeder No. 2	Rio Grande river . . .	Feb. 11, 1890	April 30, 1888	3,000
The Kenilworth Canal, amended and further statement	Rio Grande river . . .	Feb. 20, 1890	Feb. 7, 1890	600
The Brey Ditch	Rio Grande river . . .	Mar. 15, 1890	Aug. 15, 1888	7
The Hosselkus Ditch, enlargement	Rio Grande river . . .	Mar. 24, 1890	Feb., 1890	7
The Anaconda Ditch	Rio Grande river . . .	May 12, 1890	Feb. 15, 1890	18
The East Aqua Ramon Ditch	Aqua Ramon creek .	June 3, 1890	May 29, 1890	5
The Aqua Ramon Ditch, enlargement . .	Aqua Ramon creek .	June 3, 1890	May 29, 1890	5

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Bellows Creek Ditch No. 5	Bellows creek	July 29, 1890	May 30, 1890	22	. . . . . George W. Thorne
The Bellows Creek Ditch No. 6	Bellows creek reservoir	July 29, 1890	May 3, 1890	20,30	. . . . . George W. Thorne
The Empire Canal Extension	Rio Grande river	Ang. 14, 1890	July 1, 1889	Not given	. . . . . The Empire Land & Canal Co
The Empire Canal, amended, further and corrected statement of	Rio Grande river	Nov. 4, 1860	April, 1882	2,333,10	. . . . . The Empire Land & Canal Co

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 20, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Bellows Creek Reservoir No 1	Bellows creek	{ Bellows Creek Ditch No 5 }	July 29, 1890	May 3, 1890	1,000,000	George W. Thorne

STATEMENTS CONCERNING ARTESIAN WELLS

IN WATER DISTRICT No. 20, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OF WELL,	Total depth in feet thereto of case	Diameter in inches in feet of case	DEPTH OF FLOW BELOW SURFACE				LOCATION	Present flow in gallons per minute	REMARKS
			First flow	Second flow	Third flow	Fourth flow			
Chas. Glynn	200	3	43	83	...	...	Sec. 14, T. 36 N., R. 9 E.	22½	
Alamosa Town Co	850	...	...	...	...	...	Sec. 19, T. 37 N., R. 10 E.	1000	Temperature about 65°
Charles Ottway	171	3	45	140	171	...	Sec. 19, T. 37 N., R. 10 E.	5	First flow 45, second flow 46
* C. Bucher	1,000	1 7½ 6 932 }	45 95	...	...	...	Sec. 19, T. 37 N., R. 10 E. . . . .	.. . . . .
J. W. Hill	140	3	95	140	.. .	...	Sec. 23, T. 37 N., R. 10 E.	10	Temperature 50°
W. O. Cyle	225	3	55	127	165	217	Sec. 13, T. 38 N., R. 9 E.	25	
One at Zapato	241	...	...	...	...	...	Sec. 17, T. 40 N., R. 12 E.	1	

* Flow never measured. Pressure twenty-five pounds to the inch. About ten big flows of water struck, and there is a flow coming up between the two casings. Temperature of lowest flow 75° F. Contains no sulphur. Just as pure as can be had in Colorado.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 21, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Bennett Creek Ditch	Bennett creek	Jan. 2, 1889	April, 1875	12	John Todd <i>et al</i>
The Heiselt Ditch	Ojo de Laguna	Aug. 7, 1889	May 10, 1889	14	Hyrum Heiselt
The Norland Ditch, first enlargement	Alamosa river	Aug. 12, 1889	July 9, 1889	10	Holland Meyers and J. M. Waldron
The L. D. Eskridge Ditch	Aroilla creek	Aug. 17, 1889	May 22, 1889	18	L. D. Eskridge
The John Sumner Irrigation Ditch	Alamosa river	Aug. 26, 1889	June 21, 1889	26	John Sumner <i>et al</i>
The South Side Seepage Ditch	Seepage water	Aug. 27, 1889	May 30, 1889	10	F. R. and E. G. Miller
The Lovett and Garrett Ditch	Alamosa river	Sept. 3, 1889	July 1, 1889	10	Geo. S. Lovett
The Frank C. Gaines Ditch	Alamosa river	Nov. 1, 1889	May 1, 1889	3.67	Frank C. Gaines
The Spencer Ditch	Not stated	Dec. 13, 1889	May 15, 1875	1.39	Morgan Spencer
The Brazo Del Norte Ditch	Conejos river	Mar. 29, 1890	Mar. 25, 1889	20,40	F. M. Gilchrist <i>et al</i>
The Keystone Ditch	La Jara creek	May 22, 1890	Feb. 25, 1890	180	Silas E. Newcomb
The Nate Garrett Ditch, second enlargement	La Jara river	July 3, 1890	May 20, 1890	11.55	Cornelia C. Flintham

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STATEMENT CONCERNING ARTESIAN WELLS

IN WATER DISTRICT NO. 21, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF OWNER OF WELL	Total depth in feet	Diameter of case in inches	Length of case in feet	DEPTH OF FLOW BELOW SURFACE			LOCATION	Present flow in gallons per minute	REMARKS
				First flow	Second flow	Third flow			
S. E. Newcomb, 3 wells . . .	{ 100 175 } to All 3	36	60	150	...	...	{ Sec. 1 and Sec. 2 } T. 35 N., R. 9 E., N. M. P. M. . .	{ 60 10 } to { 125 }	.....
John C. Games	110	2	48	85	110	...	Sec. 15, T. 35 N., R. 9 E . . .	10	.....
La Jara Town Company	110	3	56	85	95	110	Sec. 15, T. 35 N., R. 9 E . . .	10	.....
Thos. Ormand	56	3	20	...	...	...	Sec. 27, T. 35 N., R. 9 E . . .	250	.....
Marsh, 8 2-inch wells	{ 109 135 } to { 135 }	...	...	...	...	...	Sec. 31, T. 35 N., R. 8 E . . .	...	Raised water 18 feet above top of well tubing.
C. C. Carrico	84	2	48	85	...	...	Sec. 11, T. 36 N., R. 9 E . . .	1	Temperature, first flow, 45°
Empire L. & C. Company	80	2	38	80	...	...	Sec. 7, T. 36 N., R. 10 E . . .	8	Temperature, first flow, 45°
La Jara Creamery Co.	120	3	40	85	95	120	Sec. 29, T. 36 N., R. 10 E . . .	8	Temperature, all flows, 45°
Empire L. & C. Co.	71	2	37	71	...	...	Sec. 5, T. 36 N., R. 10 E . . .	4	Temperature, first flow, 45°
La Jara Creamery Co.	85	3	46	85	...	...	Sec. 25, T. 36 N., R. 9 E . . .	4	Temperature, first flow, 45°
La Jara Creamery Co.	65	3	40	60	65	...	Sec. 22, T. 36 N., R. 10 E . . .	3	.....
La Jara Creamery Co.	115	3	46	85	110	...	Sec. 11, T. 35 N., R. 9 E . . .	10	Temperature, first flow, 45°

Wm. H. Adams	150	3	80	80	150	...	...	[Sec. 34, T. 37 N., R. 10 E. . .	8	Temperature, first flow, 45°
L. D. Eskridge	85	3	42	85	...	...	...	Sec. 2, T. 35 N., R. 9 E . . .	8	Temperature, first flow, 45°
Empire L. & C. Co.	75	2	45	75	...	...	...	Sec. 6, T. 36 N., R. 10 E . . .	5	...
Dow Eskridge	180	2	170	...	...	...	...	Sec. 12, T. 35 N., R. 8 E . . .	...	Pump
Empire L. & C. Co.	155	2	60	80	155	...	...	Sec. 7, T. 36 N., R. 10 E . . .	10	...
Empire L. & C. Co.	80	2	50	80	...	...	...	Sec. 8, T. 36 N., R. 10 E . . .	4	...
John Harvey	265	3	241	234	...	...	...	Sec. 5, T. 35 N., R. 9 E . . .	100	... Rises 8 feet
Dr. F. A. Limburg	85	3	46	85	...	...	...	...	8	Temperature, first flow, 45°
D. R. Smith	190	3	40	190	...	...	...	...	10	...

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION NO. 3—DISTRICT NO. 21—FRANK W. SMITH, LA. ARA, CONEJOS COUNTY, COLORADO.

No. priority.	Name of Ditch	Length thereof in miles.	Number of days water was carried therein.	Average amount of water carried during season of 1940 in cubic feet per second of time.	Number of acres that can irrigated thereforefrom.	Number of acres of grasses other than alfalfa irrigated thereforefrom.	Number of acres of grasses other than alfalfa irrigated thereforefrom.	Number of acres of grasses other than alfalfa irrigated thereforefrom.	Total number of acres irrigated in district.
1	The El Veigo Ditch	1.75	82	10	540	• • • •	20	500	• • • •
2	The Gomez Ditch	1	83	3	90	• • • •	13	30	• • • •
3	The Molino Ditch . . . . .	.75	80.50	6	80	• • • •	12	• • •	• • • •
4	{ The Hansen's La Jara Overflow Ditch No. 3	2	82	15	350	• • • •	1,200	2	• • • •
5	The Swamp Ditch	2.50	81	1	1,000	• • • •	200	• • •	80
6	The Garcia Ditch No. 1	1.50	79	2.50	260	• • • •	160	100	• • • •
7	The McIniff Ditch	1	81.50	12	300	10	50	105	• • • •
8	The José Valdez Ditch	1.75	80.50	11	86	• • • •	7	160	• • • •
9	The Capulin Ditch	3	83	15	480	• • • •	600	350	• • • •
10	The Gábino Gallegos Ditch	2	76	12	690	• • • •	10	300	• • • •
11	The Garcia Ditch No. 2 . . . . .	.50	80	3	120	• • • •	50	120	• • • •
12	The San Jose Ditch No. 275	79	2	50	• • • •	50	50	• • • •
13	The Cristobal Rivera Ditch	1.50	77	7	220	• • • •	200	200	150

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16	The José L. Atencio Ditch50	80	4	60	15	60
17	"The San José Ditch No. 175	81	7	124	4	200
18	The Romero Ditch	1.50	79	4.50	280	30	85
19	The Gallegos Ditch No. 4	1	81,50	9	100	30	60
20	The Gallegos Ditch No. 2	1.50	80	7	300	20	200
21	The Juan de Dios Vigil Ditch	1.50	79	8	90	6	200
22	The Gallegos Ditch No. 1	1.25	82	8	90	25	35
23	The Newcomb Bros. Ditch	2.50	77	15	600	210	160
24	The Ronaldo Valdez Ditch . . . . .	.75	78	2.50	85	15	65
25	The Le Mita Ditch No. 1	1	79	4.50	80	20	20
26	The Ramona Ditch	1	76	7	90	160	90
27	The Head Overflow Ditch No. 5	3	72	30	2,100	2,020	500
28	The Le Mita Ditch No. 3	1	77	4	120	30	22
29	The Alamosa and Spring Creek Ditch .	6	75	25	600	~ 5	600
30	The Garden Ditch	1	71	5	80	35	~ 5
31	The Aqua Calienta Ditch	2.25	76	8	320	10	80
32	The Ortiz Ditch	2.50	76	11	320	6	160
33	The Eskridge Spring Creek Ditch .	1.25	70	2	260	160	~ 5
34	The Sanchez Ditch No. 1	1.25	74	4	100	10	80
35	The Sanchez Ditch No. 2	1	76	4	50	5	40
36	The Aroya Ditch	3	71	35	500	500	~ 5
37	The T. K. Walsh Ditch75	70	3.50	100	40	40

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Water District No. 21—Frank W. Smith, Commissioner, La Jara.

No report.

Water District No. 22—A. M. Vigil, Commissioner, Conejos.

Mr. Vigil reports for 1889 crops cultivated as follows: In alfalfa, 230 acres; in seeded grasses other than alfalfa, 380 acres; in natural grasses, 18,480 acres, and in other crops, 12,855 acres, making a total irrigated and cultivated of 31,945 acres.

No report has been received for 1890.

Following will be found his statement in tabulated form.

COMMISSIONER'S REPORT, A. D. 1889.

DIVISION No. 3—DISTRICT No. 22.

NAMES OF DITCH	Length thereof in miles	Number of days car-ried thereon in year water was carried during season of 1889 in cubic feet per second of time	Number of acres that can be irrigated in three seasons of grasses other than alfalfa from that can be irrigated in three seasons of grasses other than alfalfa from irrigation	Number of acres of alfalfa irrigated three seasons of grasses other than alfalfa from irrigation	Number of acres of alfalfa irrigated three seasons of grasses other than alfalfa from irrigation	Number of acres irrigated three seasons of grasses other than alfalfa from irrigation	Total number of acres irrigated in acre-feet irrigated in three seasons of grasses other than alfalfa from irrigation
The Guadalupe Ditch	5	120	69,82	2,000	.....	665	770
The Steads Mill Ditch	2.50	151	117	320	.....	150	40
The El Coda Ditch	3.50	100	16	1,005	.....	360	315
The Llano Ditch	4	100	18	800	.....	310	215
The Garcia Ditch	3.50	120	8.55	320	.....	320	.....
The Serviella Ditch	5	120	31.77	1,440	.....	460	360
The Seledonio Valdez Ditch	2	120	7	320	.....	320	.....
The Los Piños Ditch	1.25	120	22.94	480	.....	240	240
The Salazar Ditch	1.25	110	2.32	160	.....	100	40
The Mill Ditch . . . . .	.50	150	1	40	.....	40	.....
The San José Ditch	4	120	15	800	.....	400	200
The Sinesero Ditch	3.50	90	18.31	730	.....	400	330
The Del Duercitas Ditch	1.50	100	8.76	160	.....	60	100

COMMISSIONER'S REPORT, A. D. 1889—*Continued.*

NAME OF DITCH	Length thereof in miles	Number of days water was tried the entire time	Average amount of water per second of time during seasons of 1888 and 1889 in cubic feet per acre	Number of acres that can be irrigated from	Number of acres gated three times	Number of acres gated three times from alfalfa irrigation	Number of acres seeded grasses other than alfalfa from irrigation	Number of acres of natural grasses irrigated three times	Number of other crops irrigated three times	Number of acres irrigated from seepage	Number of acres irrigated in districts
The Sau Rafael and Conejos Ditch, . . .	4	127	17.62	1,360	·	·	·	440	420	·	·
The El Serito Ditch	1.25	105	3.19	120	·	·	·	80	40	·	·
The Gabriel Martinez Ditch	1.50	100	1	480	·	·	·	40	80	·	·
The Santiago Ditch.	3	120	50	2,000	·	·	·	1,200	140	·	·
The Archuleta and Trujillo Ditch No. 1. .	1.50	100	2	100	·	·	·	100	·	·	·
The Archuleta and Trujillo Ditch . . . .	.50	100	1	60	·	·	·	60	·	·	·
The Overflow Ditch	1	100	1	160	·	·	·	100	60	·	·
The Trujillo Ditch	1.50	120	13	690	·	·	·	300	260	·	·
The Cañon Ditch.	5	120	22	1,200	·	·	·	500	420	·	·
The La Del Rio Ditch	4	120	21	860	·	·	·	300	210	·	·
The Rincones Ditch	3	120	16	600	·	·	·	270	220	·	·
The Fuentecitas Ditch.	1.50	120	21	720	·	·	·	360	290	·	·
The Nucitas Ditch	4.50	100	39	1,800	·	·	·	730	510	·	·
The San Juan and San Rafael Ditch! . .	2.25	120	17	960	·	·	·	390	460	·	·

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The Espinosa Ditch	1	70	2	80	80	80	80
The Chacon Ditch No. 1 . .	2.25	85	4	180	100	60	60
The Los Lances Ditch	3.50	135	38	2,120	830	635	635
The Lovoto Ditch	2	100	7.50	320	320	320	320
The José B. Romero Ditch,	3	100	28.25	1,300	1,000	300	300
The Benardo Romero Ditch .	3	120	9	480	300	110	110
The Galbis Ditch	1.50	120	3	140	60	60	60
The Sanchez Ditch	3	100	17	640	300	200	200
The J. F. Chacon Ditch No. 3 .	2	110	4	120	40	80	80
The Saline School Section Ditch .	1	60	7	320	240	80	80
The J. O. Martinez Ditch . .	1	80	3	160	100	45	45
The Vega Grande Ditch . . .	1.75	110	11	400	330	40	40
The Au Con Ditch	2.25	110	10	480	180	160	160
The Wm. Stewart & Co. Ditch .	2.50	75	8	843	300	20	20
The J. F. Chacon Ditch No. 2 .	2.50	100	10	360	180	180	180
The Lovoto Ditch	1	90	3	60	60	60	60
The McCarroll Ditch	2.50	100	8	540	200	230	230
The Manassa Ditch	4	115	73	3,200	400	2,600	2,600
The W. Sabine Ditch No. 1 .	2.50	100	2	80	80	80	80
The Martinez Ditch	8	100	12	720	300	220	220
The J. M. Espinosa Ditch . .	.25	100	6	240	175	55	55

COMMISSIONER'S REPORT, A. D. 1889—Concluded.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 22, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF DITCH.	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Cañon Irrigating Ditch . . .	Conejos river . . .	Jan. 8, 1889	April 5, 1888	12	George Reekers <i>et al</i>
The Spring Ditch . . .	Conejos river . . .	Jan. 15, 1889	Sept. 24, 1885	6.75	John and Francisca Atkinson
The Almo Irrigating Ditch, first enlargement . . .	Conejos river . . .	Mar. 6, 1889	Oct 25, 1888	16	Charles M. Ball <i>et al</i>
The Alman Irrigating Ditch . . .	San Antonio river . . .	April 10, 1889	Mar. 22, 1889	25.50	James Allman <i>et al</i>
The A. D. Archuleta Irrigat'g Ditch . . .	Conejos river . . .	April 26, 1889	April 20, 1884	19	A. D. Archuleta
The East Bend Ditch . . .	Conejos river . . .	July 13, 1889	Nov. 8, 1887	Indefinite	James H. Jack <i>et al</i>
The John Minor Irrigating Ditch . . .	Fox creek . . .	Nov. 2, 1889	July 25, 1889	6	John Minor
The Jose Bonifacio Romero Irrigating Ditch, first enlarg'tn . . .	Conejos river . . .	Nov. 19, 1889	Oct. 3, 1888	36	José Bonifacio Romero
The J. F. Chacon Ditch No. 2, encl. . .	Conejos river . . .	Nov. 23, 1889	May 1, 1884	2	Juan F. Chacon
The J. F. Chacon Ditch No. 2, encl. . .	Conejos river . . .	Dec 7, 1889	Mar. 10, 1889	2	Jesus Ma Gallegos
The Taos Valley Canal No. 1 . . .	Conejos river . . .	Dec 21, 1889	Nov. 28, 1887	500	The Taos Valley Company
The Taos Valley Canal No. 2 . . .	San Antonio river . . .	Dec. 21, 1889	Aug. 25, 1888	500	The Taos Valley Company
The Taos Valley Canal No. 3 . . .	San Antonio river . . .	Dec. 21, 1889	Sept. 5, 1889	500	The Taos Valley Company
The Mogotes Valley Ditch . . .	Conejos river . . .	Feb. 13, 1890	June 1, 1888	14.25	Aaron Von Cannon <i>et al</i>

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	NAME OF CLAIMANT	
				Capacity claimed in cubic feet per second	Capacity claimed in cubic feet per second
The LeDuc Ditch	Conejos river	Feb. 13, 1890	May 1, 1885	3	3 C. H. Broyles
The LeDuc Ditch, enlargement .	Conejos river	Feb. 19, 1890	May 1, 1889	3	James Von Cannon
The Fox Irrigating Ditch No. 1 . . .	Fox creek	Feb. 19, 1890	May 1, 1886	6.67	James W. Hartley
The Fox Irrigating Ditch No. 2 . . .	Fox creek	Feb. 19, 1890	May 1, 1886	3.12	James W. Hartley
The Le Duc Ditch Extension	Conejos river	Feb. 20, 1890	May 1, 1889	2	David Vance
The Florida Ditch.	San Antonio river	Feb. 27, 1890	Aug. 20, 1889	20.80	The Florida Ditch Co
The Florida Ditch.	San Antonio river	May 10, 1890	Aug. 20, 1889	20.80	The Florida Ditch Co
The Sevilleta Ditch, second enlargement .	Conejos river	June 2, 1890	April 1, 1888	. . . . .	Celestina Garcia and Juan Uzebio Lucero
The Servilleta Ditch, first enlargement .	Conejos river	June 11, 1890	April 1, 1887	5	Jose Francisco Valdez
San Juan & San Rafael Ditch, first enlargement	Conejos river	June 14, 1890	July 20, 1889	16	James B. Neff

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 22, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Taos Valley Co.'s reservoirs:						
Alta Lake	{ Conejos river and San Antonio river	{ Taos Valley Canals Nos. 1 and 2	Dec. 21, 1889 Dec. 21, 1889	Oct. 1, 1889 Oct. 1, 1889	10,000,000 150,000,000	The Taos Valley Co
Cove Lake						

No Water Commissioner has been appointed for District No. 24.

Water District No. 25—Joseph C. Braley, Commissioner, Villa Grove.

Mr. Braley reports for 1890, that he began the distribution of water April 18, and employed one assistant, that considerable dissatisfaction was manifested over erroneous decrees, granting water in excess of ditch capacities, and the requirements of land, and recommends official measurements to correct errors.

He regards the distribution of water for domestic purposes impracticable, on account of the great waste and abuse of the privilege.

He further reports some favorable sites for reservoirs, the construction of which would materially increase production and give ample water supply for the district.

Mr. Braley also complains of the insufficiency of the Commissioners' pay, on account of the expense in traversing a large district; horse hire, etc.

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DIVISION No. 3—DISTRICT No. 25.

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NAME OF DITCH	No. priority.	Length thereof in miles	Number of days water was carried three times	Average amount of water carried during season of irrigation per cubic feet per second of time	Number of acres that can be irrigated three from	Number of acres of seeded grasses other than alfalfa irrigated therefrom	Number of acres of natural grasses irrigated therefrom	Number of acres of other crops irrigated therefrom	Number of acres irrigated from seepage	Total number of acres irrigated in district
					1	2	3	4	5	6
The Wells, N. M. and K. C., Ditch	1	.25	• • •	3.20	160	• • •	• • •	• • •	160	• • •
The Ditrich Ditch No. 1	2	.50	• • •	2.20	160	• • •	• • •	• • •	160	• • •
The Ditrich Ditch No. 2	3	.10	• • •	3.20	160	• • •	• • •	• • •	160	• • •
The Neidhardt Ditch	4	4.25	• • •	4.40	220	• • •	• • •	6	80	40
The Hoffman Ditch	4	1.25	• • •	.60	30	• • •	• • •	• • •	30	• • •
The Baca Grant Ditch No. 3	5	1.50	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •
The Baca Grant Ditch No. 4	5	.90	• • •	7	350	• • •	• • •	• • •	250	100
The Major Creek	6	4.20	• • •	3.90	195	• • •	• • •	• • •	100	• • •
The Neidhardt Ditch	7	4.25	• • •	1	50	• • •	• • •	• • •	50	• • •
The Garner Ditch	8	3.30	• • •	6.40	320	• • •	• • •	• • •	200	48
The Cotton Creek Ditch (Warrant)	9	5.60	• • •	2	100	• • •	• • •	• • •	125	• • •
The Wales and Shellabarger Ditch No. 1	9	1.25	• • •	2.50	125	• • •	• • •	• • •	125	• • •
Baca (see Priority number 5)	10									

COMMISSIONER'S REPORT, A. D. 1890--Continued.

No. Priority	Name of Ditch	Miles length thereof in miles	Number of days water was carried thereon	Average amount of water carried per cubic foot during season of irrigation	Number of acres that can be irrigated thereby from	Number of acres irrigated three times	Number of acres of seeded grasses irrigated three times	Number of acres of other than alfalfa irrigated three times	Number of acres of natural grasses irrigated three times	Number of acres of other crops irrigated three times	Total number of acres irrigated from seepage	Total number of acres irrigated in district
11	The Claytons Ditch "F".	1	...	1.80	90	...	...	...	...	...	...	...
12	The Cotton Creek Ditch, (E. Tabler).	5.60	...	1.60	80	40	40	...	...	...	...	...
12	The Wales and Travis Ditch.	3.50	...	3.60	180	180	...	...	...	...	...	...
12	The Wales and Sons Ditch No. 1.	.50	...	1	50	10	40	...	...	...	...	...
12	The Wales and Sons Ditch No. 2.	.42	...	.80	40	...	...	...	...	...	...	...
12	The North Ditch.	5	...	1.20	60	60	...	...	...	...	...	...
12	The San Isabel Ditch (Bassett).	8	...	2.80	140	120	20	...	...	...	...	...
13	The Hoffman Ditch.	1.25	...	1	50	50	...	...	...	...	...	...
14	The Wales & Shellabarger Ditch No. 2.	5	...	4.40	220	10	206	4	...	...	...	...
14	The Schultz and Dittrich Ditch.	3	...	2.80	140	...	...	...	...	...	...	...
15	The Peterson Ditch No. 1, (See No. 20).	...	...	...	...	100	40	...	...	...	...	...
16	The San Luis Ditch Co.'s Ditch.	5.25	...	12.75	637.5	575	152	...	...	...	...	...
17	The Steele Creek Ditch No 1.	1.25	...	4.20	210	135	75	...	...	...	...	...
18	The Hot Spring Creek Ditch.	1	...	3.96	198	65	39	...	...	...	...	...

19	The Claytons Ditch "D" . . . . .	.75	1.10	4	210	200
19	The Claytons Ditch "E"	4.40	220	220	220	220
20	The Peterson Ditch No. 1	2	11.40	570	470	78
21	The Wales and Sons Ditch No. 3	1.25	4	200	200	200
21	The Neidhardt Ditch	4.25	2.20	110	110	110
22	The Shellebarger Home Ditch No. 2,	5	3	150	110	40
22	The San Isabel Ditch	8	2.30	115	115	115
23	The Schilling Ditch . . . . .	.50	2.80	140	140	140
24	The Cotton Creek Ditch (J.A. Johnston)	5.60	2	100	70	30
25	The Wales and Sons Ditch No. 2,	5	6.40	320	320	320
26	The Wales and Sons Ditch No. 1, . . . . .	.50	2.20	110	110	110
27	The Shellebarger Home Ditch No. 1, . . . . .	.50	2.40	120	100	20
28	The Shellebarger Home Ditch No. 2, . . . . .	.50	3	150	120	120
29	The Tabor Ditch . . . . .	.56	.40	20	18	2
30	The H. H. Wales Ditch. . . . .	.75	.80	40	40	40
30	The Schultz and Dittrich Ditch	3	5.40	270	200	70
31	The Daniels and Fish Ditch	1	2	100	100	100
32	The Cotton Creek Ditch (Winkler),	5.60	1.80	90	125	36
32	The Neidhardt Ditch (Cloud and others)	4.25	2.60	130	130	130
32	The Gordon Ditch	1.75	1.40	70	35	35
33	The Kennedy Ditch . . . . .	.50	11.30	590	590	590
34	The Shellebarger and Eaton Ditch,	2	.50	25	25	25

COMMISSIONER'S REPORT, A. D. 1890—*Continued.*

No. Priority	Name of Ditch	Length thereof in miles	Average amount of water carried during season of irrigation in cubic feet per second of time	Number of days water was carried during season of irrigation	Number of days water was carried during season of irrigation	Number of acres of alfalfa irrigated therefrom	Number of acres of alfalfa irrigated therefrom	Number of acres of grasses other than alfalfa irrigated therefrom	Number of acres of grasses irrigated therefrom	Number of acres of other crops irrigated therefrom	Number of acres of other crops irrigated therefrom	Total number of acres irrigated in district
35	The Steel Creek Ditch No. 1	1.25	• • •	1	50	• • •	50	• • •	• • •	• • •	• • •	• • •
36	The Tobler Rominger Ditch	1.10	• • •	10	500	• • •	410	• • •	• • •	• • •	• • •	• • •
37	The Shelleberger San Luis Ditch . . . . .	.50	• • •	4	200	• • •	200	• • •	• • •	• • •	• • •	• • •
38	The Clayton's Old Channel Ditch	1	• • •	2.40	120	• • •	120	• • •	• • •	• • •	• • •	• • •
39	The Wales San Luis Ditch . . . . .	.12	• • •	4	200	• • •	200	• • •	• • •	• • •	• • •	• • •
40	The Wales Ditch No. 2 . . . . .	.40	• • •	1	50	• • •	50	• • •	• • •	• • •	• • •	• • •
40	The Wales Ditch No. 4 . . . . .	.25	• • •	1.60	80	• • •	80	• • •	• • •	• • •	• • •	• • •
41	The Peterson Ditch No. 1	2	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •
42	The Hills Ditch No. 1 . . . . .	.15	• • •	.72	36	• • •	36	• • •	• • •	• • •	• • •	• • •
43	The Wales & Travis Ditch	• • •	• • •	3.30	165	• • •	165	• • •	• • •	• • •	• • •	• • •
44	The Sanchez Ditch . . . . .	.20	• • •	.50	25	• • •	25	• • •	• • •	• • •	• • •	• • •
44	The Cotto Creek Ditch	• • •	• • •	3.60	180	• • •	180	• • •	• • •	• • •	• • •	• • •
45	The Saunder Ditch75	• • •	2.40	120	• • •	120	• • •	• • •	• • •	• • •	• • •
45	The Hills Ditch No. 250	• • •	.30	15	• • •	15	• • •	• • •	• • •	• • •	15

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45	The Hills Ditch No. 342	.08	4
45	The San Isabel Ditch	8	.10	255
45	'The Hills Ditch No. 450	.16	8
46	'The Clayton's Ditch "A" . . . . .	.40	.240	120
47	'The Clayton's Ditch "B" . . . . .	.66	4	200
47	'The San Luis Ditch . . . . .	.25	. . . . .	200
48	The Garner Ditch No. 2 . . . . .	.40	2	100
49	The Hall's Ditch No. 1 . . . . .	.50	.30	265
50	The Hoffman Ditch No. 2 . . . . .	.60	.90	45
51	The Spegel Ditch . . . . .	.40	.25	112.5
51	The Hill Ditch No. 1 . . . . .	.25	1.50	75
51	'The Hill Ditch No. 2 . . . . .	.08	.20	10
51	The Hill Ditch No. 3 . . . . .	.10	2	100
51	The Hill Ditch No. 4 . . . . .	.25	.20	10
51	The Hill Ditch No. 5 . . . . .	.50	.80	40
51	The Hill Ditch No. 6 . . . . .	.60	.70	35
51	The Hill Ditch No. 7 . . . . .	.42	.30	15
51	The Hill Ditch No. 8 . . . . .	.25	.70	35
52	The Cotton Creek Ditch(Bennet&others)	. . . . .	6.40	320
53	The Huffman Ditch . . . . .	. . . . .	.40	20
54	The "T. A. Young" Ditch	20
55		16	800	800

COMMISSIONER'S REPORT, A. D. 1890—Continued.

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9	The Baca Grant Ditch No. 11	1.50	9	450	450
				2,210	2,210
57,	The Baca Grant Ditch No. 12	3.50	44.20		
84,	The Baca Grant Ditch No. 13	1	5.40	270	270
92,	The Baca Grant Ditch No. 1				
9	The Squires Ditch No. 1	.50	4	200	150
	No. 5	1.40	5.40	270	270
	No. 6	1.60	4	200	200
	No. 7	.75	4	200	196
	No. 14	1	3.92	196	150
	No. 15	3	29	1,450	1,200
	No. 16	3.50	26	1,300	1,300
	No. 17	1.80	11.60	580	500
	No. 18	.75	2.40	120	120
	No. 19	5.80	39.80	1,990	1,390
	No. 20	1.25	5.40	270	270
	No. 21	.75	4	200	200
	No. 22	1.4	70	3,500	3,000
	No. 23	1.62	20.40	1,020	1,020
	No. 24	3.50	39	1,950	1,950
	No. 25	3	24	1,200	1,200
	No. 26	3	20.80	1,040	1,040
	No. 27	2	2.76	138	138
	No. 28	.82	1	50	50
32	The Baca Grant Ditch				
33	The Baca Grant Ditch				

COMMISSIONER'S REPORT, A. D. 1890—*Continued.*

69	The Silver Creek Ditch . . . . .	.40	2	100	100	100	100
70	The Schellebarger Ditch No. 2 . . .	1.50	4.80	240	240	240	240
70	The Needland Ditch . . . . .	.50	2.40	120	115	35	35
70	The Means Ditch No. 1 . . . . .	.12	.90	45	45	45	45
70	The Stump Ditch No. 1 . . . . .	.25	.50	25	20	15	15
71	The Stump Ditch No. 2 . . . . .	.40	.12	6	6	6	6
71	The Stump Ditch No. 3 . . . . .	.20	.20	10	10	12	8
72	The Means Ditch No. 2 . . . . .	.12	.30	15	15	10	5
73	The Schultz & Dittrich Ditch	3	150	150	150	150	150
74	The Halls Ditch No. 1 . . . . .	.50	2	100	25	15	60
75	.....	.....	.....	.....	.....	.....	.....
76	The Davidson Ditch No. 1 . . . . .	.25	.16	8	8	8	8
76	The H. White Ditch . . . . .	.15	.70	35	35	25	10
77	The Turner Ditch . . . . .	.04	1.20	60	60	40	10
78	The Richards Ditch No. 1 . . . . .	.70	1.20	60	60	54	6
79	The J. H. Ridenour Ditch	1	.60	30	30	30	30
80	The Davidson Ditch No. 2 . . . . .	.25	.60	30	30	19	21
81	.....	.....	.....	.....	.....	.....	.....
82	The J. B. Hall's Ditch No. 1 . . . . .	.....	2.40	120	120	120	120
83	The Tobler Ditch . . . . .	.70	.80	40	40	40	40
84	.....	.....	.....	.....	.....	.....	.....
85	The Chas. Kennedy Ditch No. 3 . . . . .	.25	1	50	50	50	50

COMMISSIONER'S REPORT, A. D. 1890—Continued.

No. priority	NAME OF DITCH	miles thereof in miles	Number of days water was carried tied thereto in time	Average amount of water carried during season of 1890 in cubic feet per second of time	Number of acres of land that can be irrigated from other crops if irrigation is discontinued	Number of acres of land that can be irrigated from alfalfa if irrigation is discontinued	Number of acres of land needed for grasses other than alfalfa if irrigation is discontinued	Number of acres of land natural grasses from which other crops are grown	Number of acres triggered from three-seepage	Number of acres triggered in districts
86	The G. C. Travis Ditch . . . . .	.12	..	.08	4	..	..	..	4	..
86	The Richards Ditch No. 2 . . . . .	.25	..	.24	12	..	..	..	12	..
87	The Claytons "G" Ditch	1.25	..	2	100	..	..	..	20	80
88	The De Camp Ditch . . . . .	.50	..	1.80	90	..	..	..	80	10
89	The Kauffmann Ditch	2.25	..	2	100	..	..	..	80	16
90	The White Ditch . . . . .	.25	..	.40	20	..	..	..	20	..
90	The Wales & Travis Ditch . . . . .	..	..	7.50	375	..	..	..	375	..
91	The Davidson Ditch No. 3 . . . . .	.25	..	.80	40	..	..	..	40	..
92	..	..	..	..	..	..	..	..	..	..
93	The Charles Ditch . . . . .	.50	..	.40	20	..	..	..	10	10
94	The E. and F. M. Hill Ditch . . . . .	.82	..	1	50	..	..	..	50	..
95	The Peterson Ditch No. 1.	2	..	..	..	..	..	..	..	..
96	The D. and F. Aurora Ditch . . . . .	.10	..	2.80	140	..	..	..	140	..
96	The Malcolm Ditch . . . . .	.03	..	.70	35	..	..	..	33	2

		4	5	250	150	15	
97	The Nash Ditch . . . . .	.	.	12	600	560	40
98	The San Isabel Ditch . . . . .	.	.	65	45	20	.
99	The H. C. Ridenour Ditch No. 1 . . . . .	.20	1.30	55	95	95	.
100	The Ewing Ditch . . . . .	.70	1.90	180	180	180	.
101	The Clayton "C" Ditch	1	3.60	80	80	60	20
102	The H. Wales Ditch . . . . .	.	1.60	10	10	10	.
103	The Stump Ditch No. 4 . . . . .	.25	.20	.	.	.	.
104	The A. G. Clark Ditch	1.70	3.20	.	.	.	.
105	The Sapp & Braley Ditch . . . . .	.50	2.80	140	100	10	.
106	The Stump Ditch No. 5 . . . . .	.25	*20	10	10	10	.
107	The Prairie Dog Ditch . . . . .	.50	.20	10	10	10	.
108	.	.	.	.	.	.	.
109	The Norris Ditch No. 1 . . . . .	.82	1.70	35	25	10	.
110	The Reese Ditch . . . . .	.20	2.40	120	.	.	.
111	The Braley Ditch . . . . .	.12	1.40	70	.	.	.
112	The Sapp & Braley Ditch . . . . .	.50	.80	40	.	.	.
113	The Sauford's Ditch . . . . .	.	1.80	90	90	90	.
113	The San Isabel Ditch	8	3.20	160	160	160	.
114	The Jordan Ditch No. 2 . . . . .	.27	.80	40	.	.	.
115	The San Isabel Ditch . . . . .	.	4.46	223	223	223	.
116	The Jordan Ditch No. 1	4.25	6.80	340	320	20	.
117	The Wales and Sons' Ditch No. 2	5	.	.	.	.	.

COMMISSIONER'S REPORT, A. D. 1890—*Concluded.*

No. Priority	Name of Ditch	Length thereof in miles	Number of days water was carried	Average amount of water carried per day in cubic feet per second of time	Number of acres graded threefold that can be irrigated from other than alfalfa	Number of acres graded threefold from alfalfa	Number of acres graded threefold from grasses other than alfalfa	Number of acres graded threefold from grasses	Total number of acres irrigated in district
118	The Alder Creek Ditch	1.00	...	1,50	75	65	10	...	...
119	The Norris Ditch No. 2 . . . . .	...	2	100	...	88	12	...	...
120	The Wales Ditch No. 3	1.25	...	1,50	75	51	24	...	...
121	The Travis North Ditch	5	...	2,60	130	130	...	...	...
122	The H. C. Ridenour Ditch No. 2 . . .	.08	...	1,30	65	65	...	...	...
123	The Shellebarger & Eaton Ditch . . .	...	...	2,80	140	109	40	...	...
124	The Frazeec Ditch	5.85	...	4	200	180	20	...	...
125	The Dorsee Ditch	1.28	...	.80	40	40	...	...	...
125	The Dorsee San Luis Ditch . . . . .	.08	...	.44	22	22	...	...	...
125	The Swidenishy Ditch . . . . .	.75	...	.60	30	20	...	...	...
126	...	...	...	...	...	...	...	...	...
127	The Cody Ditch . . . . .	.75	...	.30	15	15	...	...	...
128	The Nash Ditch	4	...	...	...	...	...	...	...

129	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
130	The Halls Ditch No. 2 . . . . .	.....	1.25	.....	1.60	80	.....	.....	.....	80	.....	.....	.....
131	The Carvers Ditch . . . . .	.....	.54	.....	1.50	75	.....	.....	.....	65	10	.....	.....
	Totals in district . . . . .	.....	311.95	.....	844.72	42,488	72	52	38,544	1,998	.....	40,666	.....

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 25, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Cope Ditch	Little Spring creek	Dec. 26, 1888	June, 1888	2.25	. . . . . F. L. Cope
The Davidson Ditch "A"	Spring creek	Dec. 26, 1888	. . . . , 1884	2.25	. . . . . D. M. Davidson
The Davidson Ditch "B"	Spring creek	Dec. 26, 1888	. . . . , 1882	2.25	. . . . . D. M. Davidson
The Davidson Ditch "C"	Spring creek	Dec. 26, 1888	Spring, 1882	2.25	. . . . . D. M. Davidson
The Davidson Ditch "D"	Mainpin creek	Dec. 26, 1888	Spring, 1884	2	. . . . . D. M. Davidson
The McFarland Ditch "A"	McFarland creek	Dec. 26, 1888	April, 1881	8	. . . . . M. McFarland
The McFarland Ditch "B"	Butterfly gulch	Dec. 26, 1888	May, 1881	6.50	. . . . . M. McFarland
The McFarland Ditch "C"	Ditch "A"	Dec. 26, 1888	. . . . , 1881	2	. . . . . M. McFarland
The McFarland Ditch "D"	Ditch "A"	Dec. 26, 1888	Summ'r, 1885	2.50	. . . . . M. McFarland
The Ewing Ditch	San Isabel creek	Dec. 27, 1888	Nov. 16, 1888	10	Geo H. Rood, Martin Ewing and H. C. Fraze
The Gay Ditch	Willow creek	Dec. 27, 1888	Oct. 25, 1888	25	{ Matthew R. Clements, Kate Cle- ments, Charles A. Scandrett, Jas- per N. Reed and William I. Scan- drett.
The Bennett Ditch	Major creek	Jan. 8, 1889	Aug., 1888	8 I. Sherman Bennett
The Spring Ditch	A spring	Jan. 8, 1889 , 1875	8 I. Sherman Bennett

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The Davidson Ditch No. 1	Spring creek	Jan. 8, 1889	Spring, 1882	70 D. M. Davidson
The Davidson Ditch No. 2	Spring creek	Jan. 8, 1889	Spring, 1882	14 D. M. Davidson
The Gingerich Ditch	Kerber creek	Jan. 23, 1889	Not given	18	..... James M. Gingerich
The Carey Ditch	Rito Alto creek	Mar. 6, 1889	May, 1888	9	..... William Carey
The Garner Ditch No. 2	W. Br. San Luis creek	Mar. 11, 1889	Feb. 12, 1889	6.16	..... Phillip Garner
The Frazeec Ditch	The Allen Ditch	Mar. 15, 1889	Not given	1	..... C. T. Frazeec
The F. P. Beretsch Ditch	Hot Spring creek	Mar. 27, 1889	Mar. 8, 1889	1.50	..... F. P. Beretsch
The Braley Ditch	San Luis creek	April 3, 1889	May, 1887	2.25	..... J. C. Braley
The Crawford Ditch	San Luis creek	April 3, 1889	Fall, 1882	1.20	..... R. M. Crawford
The Ferguson Ditch "A"	Dry Gulch	April 3, 1889	Spring, 1888	3	..... J. S. Ferguson
The Ferguson Ditch "B"	Raspberry creek	April 3, 1889	Spring, 1888	4.25	..... J. S. Ferguson
The Ferguson Ditch "C"	Springs	April 3, 1889	Spring, 1889	1	..... J. S. Ferguson
The Ridenour Ditch	A spring	April 3, 1889	., . . . , 1883	4	..... John H. Ridenour
The Sapp Ditch	San Luis creek	April 3, 1889	May, 1885	3.50	..... James M. Sapp and J. C. Brayley
The Continuation of Frazeec Ditch	Frazeec Ditch	April 3, 1889	Feb. 5, 1889	4.30	..... C. T. Frazeec
The Marshall ditch	San Isabel creek	May 1, 1889	Not given	3	..... Almond Marshall
The C. S. Clark Ditch "A"	Neeland creek	May 1, 1889	Spring, 1880	5.25	..... E. S. Clark
The C. S. Clark Ditch "B"	Rock Creek Ditch	May 1, 1889	., 1882	1.10	..... E. S. Clark
The Carver Ditch	Major creek	May 24, 1889	Mar. 28, 1889	1.20	..... Thomas Carver
The Hoffman Ditch	Major creek	May 24, 1889	Spring, 1889	1.20	..... A. H. Schavackenberg
The Hugo Henkanfer Ditch	Crestone creek thro' Baca Grant Ditch No. 12	May 24, 1889	April 24, 1889	3.80	Hugo Henkanfer
The Henry C. Ridenour Ditch	Springs	May 24, 1889	, 1888	1.20	..... H. C. Ridenour

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Date of commencement of work thereon	NAME OF CLAIMANT	
				Capacity claimed in cubic feet, per second	
The Barnes Ditch No. 1	San Isidro creek . . .	June 4, 1889	June 1, 1888	10.23	J. H. Barnes
The Shellabarger-Eaton Ditch, enlargement and extension of	Rito Alto creek . . .	June 4, 1889	Mar. 20, 1889	13.10	R. P. Thomas
The Bonny Bell Irrigation Ditch . . .	Rito Alto creek . . .	June 6, 1889	May 4, 1889	2.50	Ira Marshall and Warren B. Marshall
The Hall Ditch No. 2	San Luis creek . . .	June 24, 1889	Oct. 20, 1888	4.79	J. B. Hall
The Willis Henderson Irrigation Ditch .	Lone Tree creek . . .	July 2, 1889	June 12, 1889	6.14	Willis Henderson
The J. M. Stump Irrigation Ditch . . .	Clover creek . . .	July 8, 1889	June, 1889	3.26	J. M. Stump
The Shellabarger and Eaton Ditch . . .	Rito Alto creek . . .	July 19, 1889	May 10, 1889	53.30	A. Shellabarger and J. W. Eaton
No. 9 .	Crestone creek . . .	July 24, 1889	May, 1888	56	
No. 10 .	Crestone creek . . .	July 24, 1889	July, 1888	51.50	
No. 15 .	Willow creek . . .	July 24, 1889	Aug., 1888	38.60	
No. 16 .	Willow creek . . .	July 24, 1889	July, 1888	11.60	
No. 17 .	Willow creek . . .	July 24, 1889	Aug., 1888	11.60	
No. 19 .	Spanish creek . . .	July 24, 1889	Sept., 1888	48.20	
No. 20 .	Spanish creek . . .	July 24, 1889	Sept., 1888	25.45	
No. 22 .	N. Br. Cottonwood creek . . .	July 24, 1889	Sept., 1888	70	
No. 23 .	Cottonwood creek . . .	July 24, 1889	Sept., 1888	30.60	
No. 24 .	Dead Man creek . . .	July 24, 1889	Not given	40.32	
No. 25 .	N. Br. Dead Man creek . . .	July 24, 1889	Not given	45	
No. 26 .	Dead Man creek . . .	July 24, 1889	Not given	20.45	

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The H. Harrison Irrigation Ditch	Steele creek	Aug. 2, 1889	May, 1888	3.82		H. A. Harrison
The Durkee Canal	San Luis lake	Aug. 7, 1889	Aug. 2, 1889	1,000		William W. Durkee
The McDonough Ditch	Los Pinos creek	Aug. 14, 1889	Not given	19		John McDonough
The Douglas Irrigating Ditch	N. Br. Rito Alto creek	Aug. 15, 1889	July 28, 1889	3.96		Bettie M. Douglas
The White Ditch	Kerber creek	Aug. 17, 1889	April 1, 1883	11		J. M. White
The Arthur Young Ditch	San Luis creek	Aug. 20, 1889	May 24, 1888	30.125		John Young and T. A. Young
The Dorecy Irrigating Ditch No. 1	Carpenter creek	Aug. 24, 1889	May 19, 1888	2.98		Joel Dorecy
The Dorecy Irrigating Ditch No. 2	Carpenter creek	Aug. 24, 1889	May 20, 1888	2.43		Joel Dorecy
The Dorecy Irrigating Ditch No. 3	Carpenter creek	Aug. 24, 1889	May 10, 1888	2.71		Joel Dorecy
The Jardon Ditch	Kerber creek	Dec. 10, 1889	June 24, 1889	12		Alfred F. Jardon
The A. M. Green Irrigation Ditch No. 1	Lone Tree creek	Dec. 28, 1889	April 19, 1889	5		A. M. Green
The A. M. Green Irrigation Ditch No. 2	Lone Tree creek	Dec. 23, 1889	April 19, 1889	2.50		A. M. Green
The Hill Ditch	Springs	Jan. 4, 1890	Dec. 16, 1889	4		E. C. Hill
The Stratton Ditch	Steel creek	Feb. 7, 1890	Spring, 1889	20		Mary A. Stratton
The Spring Ditch	Spring gnlch	Feb. 7, 1890	Spring, 1889	14		Hugo Henkanfer
The Henkanfer Ditch	Burnt Gulch creek	April 10, 1890	April 4, 1888	4.14		Hugo Henkanfer
The John Baker Ditch	Cottonwood creek	April 23, 1890	April 10, 1886	400 inches		John Baker
The San Luis Hot Springs Ditch No. 1	San Luis Hot springs	June 5, 1890	July 29, 1889	2.15		The San Luis Hot Springs Land Co.
The San Luis Hot Springs Ditch No. 2	San Luis Hot springs	June 5, 1890	July 29, 1889	1.40		The San Luis Hot Springs Land Co
The Durbin Extension, or the San Luis Hot Springs Ditch No. 1	San Luis Hot springs	June 5, 1890	July 29, 1889	.43		Levi T. Durbin
The Durbin and King Ditch	P. M. Hill Ditch No. 1	June 18, 1890	Not given	2.94		L. T. Durbin and William J. King

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 25, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Richard Cooper Reservoir . .	Not given	Not given	Jan. 16, 1889	Not given	64,000,000	Richard Cooper

Water District No. 26—Riley M. Edwards, Commissioner. No report.

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 36, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Udell & Means Ditch, Winger enlargement	Sullivan Arroya	Dec. 18, 1888	Dec. 3, 1888	20	Albert C. Winger
The Phillips Extension Ditch	Bergfeldt Arroya	Dec. 22, 1888	Sept. 20, 1888	4	Charles B. Phillips
The Miely Ditch, Runkles extension	Bergfeldt Arroya	Dec. 27, 1888	June, 1888	3	Jacob P. Runkles
The Goodwin Ditch	Sawatch river	Dec. 27, 1888	Spring, 1882	7	William H. Goodwin <i>et al</i>
The Udell & Means Ditch extension	Sullivan Arroya	Dec. 27, 1888	Not given	15	William Sizel
The Timber Lake Ditch	Sawatch creek	Jan. 8, 1889	Nov. 27, 1888	49	A. B. & W. H. Townsend
The Travis Ditch No. 2	Saguache river	Jan. 8, 1889	Nov., 1888	4	San Isabel Land & Live Stock Co
The Travis Ditch No. 3	Saguache river	Jan. 8, 1889	Nov., 1888	5	San Isabel Land & Live Stock Co
The Chico Angle Ditch	Bergfeldt Arroya	Jan. 23, 1889	Jan. 8, 1889	5	Thomas B. Goodwin
The Phillips Ditch No. 1, enlargement	Bergfeldt Arroya	Jan. 23, 1889	Dec. 15, 1888	8	John H. Fultz
The Dummermuth Extension Ditch	Sawatch river	Jan. 23, 1889	Jan. 1, 1889	3.60	John Dummermuth
The Pace Ditch	Luengen Arroya	Mar. 5, 1889	May, 1888	3	E. A. Pace
The Penny Enlargement of the Dummermuth Extension of The Ball Ditch	Luengen Arroya	Mar. 5, 1889	Not given	8	G. A. Penney
The enlargement and extension of the Turnbull & Luengen Ditch	Saguache creek	April 4, 1889	Feb. 21, 1889	10	H. C., J. W. & E. A. Raybell
The Pitzer Ditch	Russell Arroya	April 23, 1889	Jan. 29, 1889	10.60	Johnson M. Pitzer <i>et al</i>

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The McLane Ditch	Saguache creek	May 22, 1889	April, 1889	4	G. W. McLane
The Pilzer Ditch Enlargement	Russell arroya	May 24, 1889	April 1, 1889	4, 80	Andrew J. Lyons
The J. D. Keith Irrigation Ditch	Ashley arroya	June 26, 1889	June 5, 1889	3, 42	Jefferson D. Keith
The Marshall Ditch	Sawatch river	June 29, 1889	Spring, 1884	25	Samuel and Warren S. Joy
The Qualls & Co. Ditch	Sawatch creek	June 29, 1889	May 3, 1889	12	R. F. Pace <i>et al</i>
The McConney & Spencer Ditch	Russell arroya	July 5, 1889	May 3, 1889	7, 50	James M. McConney <i>et al</i>
The Osgood Ditch, enlargement	Sawatch river	July 30, 1889	Spring, 1882	7	J. S. Stow <i>et al</i>
The Osgood Ditch, Gish extension	Sawatch river	July 30, 1889	June, 1889	3, 50	Timothy P. Gish
The McConney & Spencer Ditch, enlarge.	Obergtellar arroya . . .	Aug. 26, 1889	June 14, 1889	4	Richard B. Hunt
The Cross Creek Ditch	Cross creek	Sept. 7, 1889	July, 1888	44	Henry Freise
The Jack Ditch	Jack creek	Sept. 7, 1889	April, 1889	4	Henry Freise
The Sholtz Ditch	Obergfeld arroya	Nov. 6, 1889	May, 1889	3	Henry Sholtz
The Gambill & Coleman Ditch	Luegen arroya	Dec. 11, 1889	April, 1889	11, 50	B. A. Gambill <i>et al</i>
The Zeigler Brothers Ditch, the Kelley extension of	Saguache creek	Dec. 13, 1889	Nov. 8, 1889	4	John Kelley
The Holmes Ditch	Holcomb arroya	Mar. 7, 1890	July 8, 1889	4, 75	Jasper N. Reed <i>et al</i>
The McLucas Ditch	Luengen arroya	Mar. 22, 1890	Spring, 1883	8, 50	W. H. McLucas
The Stowe Ditch, enlargement	Saguache river	April 9, 1890	May 3, 1889	15 ₁₀	J. N. Kincaid
The Al. Hill Ditch	{ Spring branch of the Russell arroya }	April 23, 1890	Mar. 22, 1890	12, 10	A. A. Hill
The Robert Cooke Ditch	Saguache creek	June 6, 1890	Jan. 6, 1890	3, 70	Robert Cooke
The Slant Ditch	Saguache creek	July 8, 1890	Spring, 1888	7	Daniel Slant
The Ball Ditch, the Dummeruth exten- sion No. 2 of	Saguache creek	Aug. 4, 1790	July 9, 1890	3, 60	William Dummeruth

Water District No. 27—Mark Bedell, Commissioner.
No report.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 27, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL,	Stream from which water is taken	Date of filing in state engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Kirkenhall Ditch No. 2 . . .	Bergfeldt Arroya, .	Mar. 6, 1889	June 18, 1888	7	J. F. Mitchell
The San Juan Gulch Ditch * . . .	San Juan gulch c'k	May 24, 1889	April 29, 1882	1.68	William Gent
The La Garita Feeder to the Rio Grande Canal	La Garita creek	July 9, 1889	June 12, 1889	183.30	The Rio Grande Land and Canal Company
The Lake Ditch	Davis Lake	Oct. 3, 1889	June 20, 1889	33	Lawrence Weeden <i>et al</i>
The Duckett Ditch	Cochetopa creek	Oct. 3, 1889	.....	.....	R. H. Duckett
The Epps Ditch	{ So. Fork Carnero creek	Mar. 19, 1890	May 1888	14	Frank Epps
The Bielh Ditch	Carnero creek	April 9, 1890	Spring, 1880	6	John Beihl
The McKeehan Ditch	Carnero creek	June 21, 1890	March, 1887	11.27	Joseph L. Murray

* This statement was mailed at Saguache, May 10, 1889, and laid in the private office of J. S. Greene, Ex-State Engineer, from May 12 to May 24, 1889, before being filed in this office.

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No 27, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEERS' OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	NAME OF STREAM SUPPLYING WATER THEREFOR	NAME OF DITCH LEADING WATER THERETO	DATE OF FILING IN STATE ENGINEER'S OFFICE	TIME OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET	NAME OF CLAIMANT
The San Juan Gulch Reservoirs,	No. 1. No. 2. No. 3.	San Juan gulch { San Juan gulch Ditch }	May 24, 1889	April 20, 1882	13,000 76,000 20,000	William Gent

Water District No. 35—Has no Water Commissioner.

STATEMENT CONCERNING DITCHES.

IN WATER DISTRICT NO. 35, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT	
The Cottonwood Ditch	Sangre de Cristo creek	June 21, 1889	June 1, 1889	14	W. H. Meyer, Chas. John & Ed C. van Diest	
The John Ditch	Sangre de Cristo creek	Sept. 23, 1889	May 21, 1889	10	Charles, John & Edmund C. van Diest	
The Meadow Ditch	Trinchera creek	Nov. 23, 1889	Oct. 24, 1888	2.16	Michael J. McCarthy	
The Johnny Ditch	Trinchera creek	Nov. 23, 1889	Sept., 1874	2.28	Michael J. McCarthy & Cyrus L. Cowgill	
The Home Ditch	Trinchera creek	Nov. 23, 1889	. . . . . 1873	2.34	Michael J. McCarthy & Cyrus L. Cowgill	
The Spring Ditch	S. Trinchera creek	Nov. 23, 1889	June, 1883	1.42	Michael J. McCarthy	
The "Cowgill-McCarthy" Ditch	S. Trinchera creek	Nov. 23, 1889	May 1, 1873	4	Michael J. McCarthy & Cyrus L. Cowgill	
The Fred Eitter Ditch	Ute creek	Dec. 6, 1885	{ May, 1885 Mar. 1, 1883	10 { 5	Frederick Eitter	
The Hughes Ditch No. 1	Trinchera creek	Jan. 4, 1890	June, 1887	5	Cassius C. Kerr	
The Alomos Altos Ditch	Trinchera creek	Jan. 4, 1890	April 5, 1889	2.25	Cassius C. Kerr	
The Notley Ball Overflow?Ditch	Trinchera creek	Jan. 20, 1890	Oct. 10, 1889	107.50	Notley Ball	

STATEMENT CONCERNING EXISTING RESERVOIRS

IN WATER DISTRICT NO. 35, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Spring Ditch Reservoir	S. Trinchera creek	Spring Ditch Cowgill-McCarthy Ditch	Nov. 23, 1889	June, 1883 { May 1, 1873	11,700 9,000	Michael J. McCarthy
The Cowgill-McCarthy Reservoir	S. Trinchera creek					

SAN JUAN DIVISION No. 4.

John P. Costan, of Durango, was appointed Superintendent of this division June 26, 1890.

Water Districts Nos. 29, 30, 31, 32, 33 and 34 are included in this division.

Alonzo P. Edmondson, of Mancos, was appointed Commissioner of No. 34, but the remaining districts are without Commissioners.

No reports have been received.

District No. 29 shall consist of all lands lying in the State of Colorado, irrigated from ditches or canals taking water from that part of the San Juan river and its tributaries which lie above the junction of the San Juan river and the Rio Piedra, and including the Rio Piedra.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 29, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1889,

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Ufford and Price Ditch . . .	Not given	May 2, 1889	April 24, 1889	4	J. S. Ufford and C. W. Price
The Dyke Ditch No. 1	Nutra creek	Aug. 28, 1889	July 1, 1884	5	Lena Dyke
The Dyke Ditch No. 2	Nutra creek	Aug. 20, 1889	May 10, 1886	5	Joseph Dyke

District No. 30 shall consist of all lands lying in the State of Colorado irrigated from ditches or canals taking water from that part of the Rio Las Animas and its tributaries which lie in Colorado.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 30, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Florida Mesa Ditch	Florida river	Jan. 4, 1889	Dec. 22, 1888	500	The Florida Mesa Ditch Company
The Campion Ditch	Florida river	Jan. 7, 1889	April 1, 1882	1.50	Michael Campion
The Hall-Idle Ditch	Rio Las Animas	Jan. 8, 1889	Spring, 1880	2.25	Charles Idle <i>et al</i>
The Lightner Creek Ditch	Lightner creek	Feb. 15, 1889	Feb. 4, 1889	110	The Lightner Creek Ditch Company
The Florida Farmers' Ditch	Florida river	May 4, 1889	Dec. 6, 1883	40	The Florida Farmers' Ditch Company
The Florida Farmers' Ditch en- largement	Florida river	May 4, 1889	Feb. 15, 1889	25	The Florida Farmers' Ditch Company
The Ayers Mill Ditch	Pine river	July 16, 1889	Dec. 31, 1888	500	The Ayer's Mill Ditch Company

District No. 31 shall consist of all lands in the State of Colorado irrigated from ditches or canals taking water from that part of the Los Piños river and its tributaries which lie in Colorado.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 31, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Wallace Gulch Ditch	Wallace gulch	Jan. 28, 1889	Spring, 1889	3	Charles M. Ayres
The West Mesa Ditch	Rio de los Pinos	Feb. 6, 1889	Nov. 22, 1888	450	The West Mesa Ditch Company
The Impson Ditch	Rio de los Pinos	Mar. 24, 1890	April 1, 1882	3	Fred Aderhold and Jacob C. Impson

District No. 32 shall consist of all lands in the State of Colorado irrigated by water taken from those natural streams which drain into the San Juan river, and are not included in Water Districts number 29, 30, 31, 33 and 34.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 32 RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The May Lateral Ditch Co.'s Ditch . . .	Alkali creek . . .	Dec. 24, 1888	Nov. 29, 1888	25	. . . The May Lateral Ditch Company

District No. 33 shall consist of all lands lying in the State of Colorado irrigated from ditches or canals taking water from the La Plata river and its tributaries which lie in Colorado.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 33, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's Office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Parrott City Gold Placer Mining and Water Power Co.'s Ditch	La Plata river }	Jan. 9, 1889	Sept., 1879	Not given	The Parrott Gold Placer Mining and Water Power Co.
The Cherry Creek Mesa Ditch	Cherry creek	Feb. 8, 1889	1883	1.50	Herman R. Sahr
The La Plata Irrigating Ditch	La Plata river	June 26, 1889	May 21, 1889	600	Robert C. Prewitt
The Parrott Ditch	La Plata river	July 5, 1889	Spring, 1876	3	William T. Vailles
The Spring Creek Ditch	Spring creek	July 12, 1889	May 1, 1885	1.50	Joseph Schatz
The John Sponsel Ditch	Spring creek	Sept. 24, 1889	May 1, 1888	3	John Sponsel
The La Plata River and Cherry Creek Ditch	La Plata river	July 26, 1890	June 2, 1890	250	{ The La Plata River and Cherry Creek Ditch Co.

District No. 34 shall consist of all lands lying in the State of Colorado irrigated from ditches or canals taking water from the Rio Mancos and its tributaries.

WATER DIVISION No. 5.

E. B. SAWYER, SUPERINTENDENT, MONTROSE, COLO.

Water Division No. 5 embraces a large extent of territory.

The Superintendent reports for 1889, as follows:

The statistics are not as full as I could wish, owing, partially to the size of the water districts and the inability of Commissioners to secure competent assistants, due to the low schedule of wages allowed for such service, as well as many other obstacles to be met with in a new division, not the least of which is, the refusal on the part of some of the farmers to give such information when asked by the Commissioners to do so.

In districts 28, 36, 50, 51, 52, 53, 59, no adjudications have taken place, nor have any appointments of Commissioners been made.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 28, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Hot Springs Creek Ditch No. 1 .	Hot Springs creek .	Dec. 4, 1888	Not stated	5	Joseph F. McDonald <i>et al</i>
The Hot Springs Creek Ditch No. 2 .	Hot Springs creek .	Dec. 4, 1888	Not stated	5	Joseph F. McDonald <i>et al</i>
The McCanne Ditch No. 1	Tomichi river	Dec. 9, 1888	Nov. 1, 1887	50	D. J. McCanne and Louis Cortay
The McCanne Ditch No. 2	Tomichi river	Dec. 9, 1888	Nov. 1, 1887	50	D. J. McCanne and Louis Cortay
The McCanne Ditch No. 3	Tomichi river	Dec. 9, 1888	Nov. 1, 1887	50	D. J. McCanne and Louis Cortay
The Funk Ditch	Pass creek	Dec. 18, 1888	Oct. 1, 1888	3	William E. Funk
The Skues Ditch	Hot Springs creek .	Dec. 27, 1888	Nov. 16, 1888	2.31	W. L. Bennett and H. J. Morton
The Crary Ditch	Cochetopa creek	Dec. 27, 1888	Oct. 13, 1888	20	Noah T. Crary
The Home Ditch	Cochetopa creek	Jan. 8, 1889	Spring, 1882	10	H. C. Crary
The Pass Creek Ditch	Pass creek	Jan. 8, 1889	Spring, 1882	10	H. C. Crary
The Hartman Ditch No. 1	Stubbs gulch	Feb. 19, 1889	Spring, 1876	15	Alonzo Hartman
The Hartman Ditch No. 2	Stubbs gulch	Feb. 19, 1889	Spring, 1877	15	Alonzo Hartman
The L. L. Bush Ditch No. 1	Hot Springs creek .	Feb. 25, 1889	Jan. 12, 1889	1.74	L. L. Bush
The L. L. Bush Ditch No. 2	Hot Springs creek .	Feb. 25, 1889	Jan. 12, 1889	1.65	L. L. Bush
The L. L. Bush Ditch No. 3	Hot Springs creek .	Feb. 25, 1889	Jan. 12, 1889	1.74	L. L. Bush

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The L. Bush Ditch No. 4	Hot Springs creek	Feb. 25, 1889	Jan. 12, 1889	1.87	
The L. L. Bush Ditch No. 5	Hot Springs creek	Feb. 25, 1889	Jau. 12, 1889	1.45	
The Geyser Flume and Ditch	Quartz creek . . .	April 19, 1889	April 11, 1889	50	
The Gullett Tomichi Irrigating Ditch	Tomichi river . . .	May 9, 1889	Feb. 10, 1889	36	
The Elsen Vader Irrigating Ditch . . .	Tomichi river . . .	May 15, 1889	Not stated	9	John P. Elsen and Palmer H. Vader
Unnamed	Tomichi river . . .	June 5, 1889	May 1, 1887	2.20	J. B. Coats
Unnamed	Tomichi river . . .	June 5, 1889	May 1, 1887	3	J. B. and A. B. Coats
Unnamed	Quartz creek . . .	July 3, 1889	April 10, 1886	7.48	E. A. Lockwood
The Eastman Enlargement and Extension of E. A. Lockwood's Ditch }	Quartz creek . . .	July 25, 1889	May 29, 1889	5.52	George W. Eastman
The G. R. Crane Mill Ditch	Ohio creek	July 31, 1889	July 16, 1889	5.27	G. R. Crane
The Duckett Ditch	Cochetopa creek .	Oct. 3, 1889	June 1, 1887	108	Richard H. Duckett
The Cole Ditch No. 1	Tomichi creek . . .	Dec. 23, 1889	Oct. 28, 1889	2.60	Eugene O. Cole
The Cole Ditch No. 2	Tomichi creek . . .	Dec. 23, 1889	Oct. 28, 1889	2.60	Eugene O. Cole
The Cole Ditch No. 3	Tomicui creek . . .	Dec. 23, 1889	Oct. 28, 1889	2.60	Eugene O. Cole
The Del Clark Ditch	Tomichi creek .	Jan. 2, 1890	July 15, 1888	6.35	Dell F. Clark
The Richardson Ditch No. 1	Cochetopa creek .	Jan. 30, 1890	Spring, 1882	7.50	J. H. Richardson
The Richardson Ditch No. 2	Pass creek	Jan. 30, 1890	Spring, 1882	8.75	J. H. Richardson
The J. B. Coats Ditch No. 1	Tomichi creek . . .	July 26, 1890	May 1, 1884	2.20	J. B. Coats
The J. B. Coats Ditch No. 2	Tomichi creek . . .	July 26, 1890	May 1, 1887	2.20	J. B. Coats
The Coats Brothers Ditch	Tomichi creek . . .	July 26, 1890	May 1, 1887	3	J. B. and A. B. Coats
The A. B. Coats Ditch	Razor creek	July 26, 1890	May 1, 1888	2.50	A. B. Coats

Water District No. 37—A. B. Ferguson, Commissioner, Gypsum.

Mr. Ferguson reports that he was not called out, there being an abundance of water.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 37, PREPARED BY THE SUPERINTENDENT OF IRRIGATION OF WATER DIVISION NO. 3, FROM THE CERTIFIED COPY OF THE DECREE GOVERNING APPROPRIATIONS IN THIS DISTRICT, FURNISHED BY THE CLERK OF THE DISTRICT COURT.

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NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second due and decreed to each priority		Summation of de- crees to each ditch or canal	Cubic feet per sec- ond decreed to each priority	Summation of de- crees to each priority	Cubic feet per sec- ond decreed to each priority	Summation of de- crees to each priority	Order of priority in district
			Sec- ond pre- vious ly ap- proved in dis- trict	No. on stream						
The Stratton & Co. Ditch	Gypsum creek	July 1, 1881	10							1
The Daggett & Parker Ditch	Gypsum creek	April 30, 1882	5							2
The White Ditch	Brush creek	May 1, 1882	2.40							3
The Sutton Ditch	Brush creek	May 1, 1882	4							4
The Hermage Ditch	Brush creek	May 1, 1882	2.40							5
The Grandell Bros. Ditch	Gypsum creek	May 21, 1882	3.10							6
The Stratton & Co. Ditch, second appropriation	Gypsum creek	Oct. 8, 1882	3.20							7
The McBrayer & Fenner Ditch	Gypsum creek	Mar. 1, 1883	.60							8
The Abrams Ditch	Abrams creek	Mar. 15, 1883	2							9
The Phillips Ditch	Gypsum creek	April 1, 1883	1							10
The Chatfield & Bartholomew Ditch	Gypsum creek	May 15, 1883	1.80							11
The Noorgaard Ditch	Gypsum creek	May 30, 1883	1.80							12

STATEMENT CONCERNING DITCHES—Concluded.

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The Alkali Ditch	Alkali creek	Nov. 15, 1884	3.20	3.20	60.84	28
The Skiff and Schliff Ditch	Gypsum creek	April 1, 1885	.90	..	64.04	29
The Stratton & Co. Ditch, fourth appropriation	Gypsum creek	April 1, 1885	1.20	17.60	-64.94	30
The Johnson Ditch	Spring creek	April 5, 1885	.80	..	66.14	31
The Warren Ditch	Eagle river	April 26, 1885	3.70	..	66.94	32
The Groff Ditch	Spring creek	April 30, 1885	.30	..	70.64	33
The Noongard Ditch, second appropriation	Gypsum creek	May 30, 1885	.90	2.70	70.94	34
The Ferguson Ditch	Old Man's Gulch creek	June 20, 1885	.22	..	71.84	35
The Daggett & Parker Ditch, second appropriation	Gypsum creek	Sept. 1, 1885	3	8	72.56	36
The Win & Co. Ditch	Gypsum creek	Oct. 3, 1885	6.22	..	75.56	37
The Ferguson Ditch, second appropriation	Old Man's Gulch creek . . . . .	..	..	..	..	38(?)
The Ditch No. 4 Ditch	Brush creek	May 1, 1886	1.20	..	81.78	39
The A. F. Grunel Ditch	Gypsum creek	June 30, 1886	.80	..	82.98	40
The Stratton & Co. Ditch, fifth appropriation	Gypsum creek	June 8, 1886	2	19.60	83.78	41
The Stratton & Co. Ditch, sixth appropriation	Gypsum creek	July 15, 1886	3.20	22.80	85.78	42
The F. M. Skiff Ditch	Gypsum creek	July 28, 1886	.70	..	88.98	43
The Miller Ditch	Gypsum creek	Feb 1, 1886	2	..	89.68	44
The Chatfield & Bartholomew Ditch, second appropriation	Gypsum creek	Aug. 31, 1886	.95	2.75	91.68	44A
The Sherwood Ditch, second appropriation	Milk creek	Oct. 1, 1886	1	4	92.63	45
The Chatfield & Bartholomew Ditch, third appropriation	Gypsum creek	Oct. 30, 1886	.85	3.60	93.63	46
The Chatfield & Bartholomew Ditch, fourth appropriation	Gypsum creek	Mar. 16, 1887	3	6.60	94.48	47
The Chatfield & Bartholomew Ditch, fifth appropriation	Gypsum creek	Mar. 20, 1887	2	8.60	97.48	48

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STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Order of priority in district		
			Cubic feet per second pre- viously appro- priated in dis- trict	No. on stream	Cubic feet per second of de- crees to each ditch or canal
The Chatfield & Bartholomew Ditch, sixth appropriation	Gypsum creek . . . . .	.....	.40	9	99.48
The Chatfield & Bartholomew Ditch, seventh appropriation	Gypsum creek	Mar. 30, 1887	3.10	12.10	99.88
The Hernage Ditch, second appropriation	Brush creek	Mar. 30, 1887	1.20	3.60	102.98
The Ditch No 1 Ditch	Brush creek	April 1, 1887	2.60	.....	104.18
The Ditch No. 3 Ditch	Brush creek	April 1, 1887	3.04	.....	106.78
The Brett Ditch	Sake creek	April 1, 1887	3	.....	109.82
The Mills Ditch	Brush creek	May 1, 1887	.70	.....	112.82
The McKinzie Ditch	Brush creek	May 15, 1887	3	.....	113.52
The Freeman Ditch	Muddy creek	June 1, 1887	2	.....	116.52
The H. O. R. Ditch	Gypsum creek	Aug. 26, 1887	4	.....	118.52
The Neubaer Ditch	Gypsum creek	Sept. 30, 1887	.40	.....	122.52
The Wilkinson Ditch.	Eagle river.	Oct. 30, 1887	3.40	.....	122.92
The Matthews Ditch, second appropriation	Brush creek	Feb. 1, 1888	1.80	3.60	126.32
The Chatfield & Bartholomew Ditch, eighth appropriation	Gypsum creek	Feb. 8, 1888	1	13.10	128.22
The Daggett & Parker Ditch, third appropriation	Gypsum creek	Mar. 5, 1888	2.50	10.50	129.22

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The Skiff and Schliff Ditch, second appropriation	Gypsum creek	Mar. 5, 1888 .20	1,10	121.72	63
The McBrayer and Fenner Ditch, fourth appropriation	Gypsum creek	April 11, 1888 .20	2,70	131.92	64
The Chatfield and Bartholomew Ditch, ninth appropriation	Gypsum creek	April 15, 1888 2.40	15.50	132.12	65
The Noorgaard Ditch, third appropriation	Gypsum creek	April 30, 1888 .50	3.20	134.52	66
The H. O. R. Ditch, second appropriation	Gypsum creek	May 1, 1888 1	1.35.02	. . .	67
The Skiff and Schliff Ditch, third appropriation	Gypsum creek	May 1, 1888 .60	1.70	136.02	68
The Mesa Ditch	Gypsum creek	June 30, 1888 6	136.62	. . .	69
The Neuhauer Ditch, second appropriation	Gypsum creek	July 15, 1888 .30	.70	142.62	70
The Tonis Ditch	Gypsum creek	July 30, 1888 .24	. . . . .	142.92	71
The Chatfield and Bartholomew ditch, tenth appropriation	Gypsum creek	Oct. 1, 1888 3	18.50	143.16	72
The F. M. Skiff Ditch, second appropriation	Gypsum creek	Feb. 1, 1889 .80	1.50	146.16	73
The Eby Creek Ditch	Eby creek	Mar. 15, 1889 1.80	. . . . .	146.96	74
The Nelson Ditch	Gulch, unnamed	April 1, 1889 1	148.76	. . .	75
The O. I. F. Ditch	Brush creek	April 1, 1889 .50	. . . . .	149.76	76
The Win & Co. Ditch, second appropriation	Gypsum creek	April 1, 1889 1.12	.7.34	150.26	77
The Muddy Ditch	Muddy creek	April 5, 1889 3.20	. . . . .	151.38	78
The Squires Hammond Ditch, second appropriation	Brush creek	May 7, 1889 2.60	3.80	154.58	79
The Fooshee Ditch	Tunnel creek	May 10, 1889 1.80	. . . . .	157.18	80
The H. and H. Ditch	Brush creek	June 30, 1889 .40	. . . . .	158.98	81
The Matthew Ditch, third appropriation	Brush creek	July 30, 1889 1.40	5	159.38	82
The J. M. Dodd Ditch	Sake creek	July 30, 1889 3.20	. . . . .	160.78	82a
The Love and White Ditch	Brush creek	July 31, 1889 2.20	. . . . .	163.98	83

STATEMENT CONCERNING DITCHES—Concluded.

STATEMENTS CONCERNING DITCHES

51 IN WATER DISTRICT No. 37, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

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NAME OF DITCH	Name of stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Lake Ditch No. 1	Horse creek	Feb. 26, 1889	Not given	40 inches	Frank Luke
The Lake Ditch No. 2	Horse creek	Feb. 26, 1889	Not given	15 inches	Frank Luke
The Lake Ditch No. 3	Horse creek	Feb. 26, 1889	Not given	15 inches	Frank Luke
The Lake Ditch No. 4	Horse creek	Feb. 26, 1889	Not given	15 inches	Frank Luke
The McBrayer Main Ditch	Gypsum creek	Mar. 11, 1889	Not given	180 inches	Willis E. McBrayer
The Sease Irrigating Ditch	Horse creek	Mar. 12, 1889	April 12, 1888	200 inches	S. S. Sease
The H. D. R. Ditch	Gypsum creek	Mar. 21, 1889	May 19, 1888	700 inches	Thos. R. Halsell <i>et al</i>
The H. C. & L. Ditch	Cattle creek	May 1, 1889	May 1, 1884	1.56 feet	Frank L. Henschel <i>et al</i>
The Daggart and Parker Ditch, supplementary statement	Not given	May 18, 1889	Not given	18.84	O. W. Daggett
The Newbauer Ditch	Gypsum creek	June 1, 1889	Not given	Not given	F. W. Neuhauer
The West Lake Ditch	West Lake creek	June 29, 1889	June 1, 1889	390 inches	William A. Castel
The John S. Gibson Ditch	Goodson creek	July 5, 1889	April 11, 1889	300 inches	John S. Gibson
The Willow Glench Ditch	Willow creek	July 5, 1889	Mar. 26, 1889	160 inches	Charles F. Larzelere
The Hollingsworth & Patten Ditch	Salt creek	July 12, 1889	April 13, 1889	250 inches	Z. T. Hollingsworth & Company <i>et al</i>

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	NAME OF STREAM FROM WHICH WATER IS TAKEN	DATE OF FILING IN STATE ENGINEER'S OFFICE	TIME OF COMMENCE- MENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET, PER SECOND	NAME OF CLAIMANT
The Skiff Ditch	Gypsum creek . . .	July 17, 1889	July 28, 1886	4	F. M. Skiff
The Terrela Ford Ditch	Eagle river	Aug. 9, 1889	June 10, 1889	6	W. C. Ford <i>et al</i>
The Demmer Ditch	Lake creek	Sep. 7, 1889	April 5, 18—	3	Pierre Demmer
The Foss Ditch	June creek	Sep. 11, 1889	June 1, 1888	1.50	S. E. Foss
The Traer Ditch	Traer creek	Sep. 11, 1889	June 1, 1887	1.50	George E. Traer
The Muddy Ditch	Alkali creek	Sep. 14, 1889	April 15, 1889	4	John Welsh
The Alkali Ditch	Alkali creek	Sep. 14, 1889	Nov. 15, 1884	4	John Welsh
The Booco Ditch	Talmage creek	Sep. 16, 1889	April 15, 1887	4	George B. Booco
The West Lake Creek Ditch	West Lake creek	Sep. 19, 1889	June 1, 1889	3	William A. Casteel
The Casteel Ditch	Casteel creek	Sep. 19, 1889	May 10, 1887	2	William A. Casteel
The Eby Creek Ditch	Eby creek	Oct. 10, 1889	Mar. 15, 1889	3	Orens C. Evans
The Levi Hopper Ditch	West Lake creek	Oct. 23, 1889	June 1, 1888	3.50	Levi Hopper
The Tourville Ditch	Lake creek	Nov. 12, 1889	April 29, 1889	160 inches	Charles Tourville
The Nelson Ditch	Grouse creek	Nov. 23, 1889	June 20, 1889	3	Ben Nelson
The Gilmer Ditch	Eagle river	Nov. 30, 1889	Nov. 27, 1889	4	Thomas B. Gilmer
The O. P. Baldwin Extension of the White Ditch	Brush creek	Dec. 16, 1889	Oct. 2, 1889	5	O. P. Baldwin
The Graham Ditch	Cottonwood creek	Dec. 21, 1889	Aug. 1, 1888	2.50	Robert Graham

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The Stacey Ditch	Willow creek	Jan. 7, 1890	June 1, 1889	2.75
The Livingston Ditch	Eagle river	Feb. 4, 1890	Not given	Not given
The Nickell Ditch	Eagle river	Feb. 11, 1890	Sept. 19, 1889	3.50
The Winslow Ditch	Berry creek	Feb. 18, 1890	Feb. 4, 1890	13
The Howard Ditch	Eagle river	Feb. 17, 1890	Feb. 3, 1890	5.60
The O. I. F. Ditch	Brush creek	Mar. 31, 1890	April 1, 1889	4
The Miles Ditch	Brush creek	Mar. 31, 1890	May 1, 1887	2
The O. I. F. Ditch	Brush creek	April 14, 1890	April 1, 1889	4
The Miles Ditch	Brush creek	April 14, 1890	May 1, 1887	2
The Yoder Ditch	Elk creek	April 17, 1890	April 12, 1890	4.50
The Corcoran Ditch	Short creek	June 4, 1890	May 13, 1890	2
The Eagle Park Ditch	Long creek	June 4, 1890	May 13, 1890	2
The Bottorff Ditch	Eagle river	June 6, 1890	May 13, 1890	7
The Harle Ditch	Alkali creek	June 6, 1890	May 1, 1890	2.50
The C. M. Ditch	Eagle river	June 21, 1890	June 2, 1886	4
The C. M. White Ditch	Brush creek	June 21, 1890	Aug. 26, 1889	10
The Bottolffson Ditch	Road gulch	Sept. 9, 1890	May, 1884	1.50
The Nottingham & Puder Ditch	Eagle river	Sept. 26, 1890	April 2, 1889	3
The Wilkinson Ditch	Brush creek	Sept. 27, 1890	April 1, 1882	8
The Sprague Ditch	Willow creek	Nov. 8, 1890	Sept. 12, 1890	3

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 37, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Tip Top Reservoir	N.F.K Coulter c'k	On the stream .	Mar. 25, 1890	May 5, 1889	3,750,000	. . . . . Mrs F. A. Collar

Water District No. 38—W. F. Coxhead, Water Commissioner; residence, Carbondale, Garfield county, for 1889, and S. S. Sears, of Carbondale, for 1890.

Mr. Coxhead reports to the Superintendent, for 1889, as having been first called out June 10, 1889, and that he continued in service to September 9, 1889, being employed 56 days during the season, and that two assistants, John F. Peck and John Gregory, were employed 47 days, the service being divided between the counties of Pitkin, Garfield and Eagle. No statistical report was made.

Mr. Sears reports, for 1890, as being called out April 17, and that while there was a scarcity of water for a part of the season, no particular trouble occurred in distributing, nor was there any great amount of loss or inconvenience to consumers.

COMMISSIONER'S REPORT, A.D. 1890.

DIVISION No. 5—DISTRICT No. 38.

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The Robinson Ditch	3	120	9	475	75	5
The Capitol Park Ditch	2.5	80	4	250	7	50
The Brush Creek Ditch	4	100	4	300	20	150
The Basin Ditch	4	120	8	500	85	10
The Robertson Ditch	3.5	120	5	375	40	50
The Rockford Ditch	4	120	4	400	25	20
The Burke Ditch . . . . .	.5	90	2	110	5	5
The Bennett Ditch . . . . .	.4	120	1.5	110	40	20
The Smith and Rex Ditch	1	80	2	135	15	10
The Walthen Ditch	2	90	4	310	10	40
The Sloss Ditch	1.5	90	4	240	10	40
The Harris and Reed Ditch	3.5	120	5	450	60	20
The Bowles and Holland Ditch	2.5	120	3	140	10	20
The Thomas Ditch No. 2 . . . . .	.5	120	1.5	100	15	50
The Needham Ditch	3	100	2.5	700	20	30
The Sopris High Line Ditch	2	120	3	225	22	60
The Highland Ditch	2	100	3	250	40	50
Th e C. and M. Ditch	3	100	3.5	300	30	65
The Willow Creek Ditch	3.5	100	5	300	15	75
The Mount Sopris Ditch	4.5	100	4	325	50	60
The Glenwood Ditch	6	120	2	500	15	5
The Monarch Ditch	3.5	120	7	500	11	26

COMMISSIONER'S REPORT, A. D. 1890—*Concluded.*

NAME OF DITCH	Length thereof in miles	Number of days water was carried three feet or more during season of highest cubic feet per second of time	Average amount of water carried in cubic feet per second of time	Number of acres that can be irrigated from irrigation system	Number of acres that can be irrigated from irrigation system	Number of acres of grasses other than alfalfa irrigated three times	Number of acres of grasses other than alfalfa irrigated three times	Number of acres of first crop irrigated three times	Number of acres irrigated from irrigation system	Total number of acres irrigated in district
The Kaiser & Sievers Ditch	4	120	6	380	20	50	50	100	100	.
The Grace & Shehi Ditch	2.5	120	2.5	425	5	• • •	25	100	100	.
The High Line Ditch	3.5	150	3	260	40	10	20	40	40	.
The Home Supply Ditch	6	150	15	1,000	210	10	305	85	85	.
The Hatch Ditch. . . . .	.25	120	2	100	60	• • •	• • •	20	20	.
The Four-Mile Ditch	1.5	130	1.5	160	20	15	10	30	30	.
The Weaver & Lionhardt Ditch	2	120	2	240	20	• • •	10	40	40	.
The Tierney Ditch	1	80	1.5	100	• • •	• • •	• • •	75	75	.
Totals in district	100.90	• • •	• • •	12,570	1,456	1,446	1,825	3,685	3,685	7,842

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 38, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

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NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office.	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The East High Line Ditch . . .	Coulter creek . . .	Jan. 17, 1889	June 20, 1888	2.60	A. P. Ralston <i>et al</i>
The West Side Ditch	E. Fork Coulter crk	Jan. 17, 1889	June 1, 1882	2.60	A. L. Coulter <i>et al</i>
The Lower Thompson Ditch . .	M. Thompson crk .	April 16, 1889	Nov. 12, 1888	52.08	The Thompson Irrigation Land & Water Supply Company
The R. L. Hardwick Ditch . .	Hardwick gulch . .	April 20, 1889	May 15, 1884	5.05	R. L. Hardwick
The Gibson Spring Ditch . . .	A spring	May 1, 1889	Nov. 5, 1884	Whole flow	Mrs E. P. Gibson
The C. & L. High Line Ditch	Cattle creek	May 1, 1889	June 24, 1888	1.82	William Chapman and Wilbert B. Lewis
The Henschkel & Chapman Ditch	Cattle creek . . .	May 1, 1889	July 10, 1885	.90	Fr. L. Henschkel and William Chapman
The Henschkel & Sundell High Line Ditch	Cattle creek	May 1, 1889	June 25, 1888	7.30	Frank L. Henschkel <i>et al</i>
The Sonniers Ditch	Cattle creek	May 18, 1889	May 1, 1885	1.04	J. P. Sonniers
The Lignite Ditch	Four-Mile creek . .	Sept. 2, 1889	May 20, 1886	3	W. C. Smith <i>et al</i>
The J. S. Miller Ditch No. 1 . .	A spring branch . .	Sept. 2, 1889	Aug. 15, 1889	2.72	J. S. Miller
The J. S. Miller Ditch No. 2 . .	A Spring	Sept. 2, 1889	Aug. 15, 1889	1.36	J. S. Miller
The Gray Crystal Ditch	Rock creek	Sept. 11, 1889	Oct. 15, 1888	3	Samuel D. Gray
The High Line Ditch	Sopris creek	Sept. 16, 1889	May 5, 1885	4.50	Elmer E. Chatfield <i>et al</i>

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Main Ditch	Sopris creek	Sept. 16, 1889	June, 1881	2	Elmer E. Chatfield
The Buck Farm Ditch	F. ur-Mile creek . . .	Oct. 1, 1889	Oct. 15, 1884	3	Archie McGaughan
The Ralston Ditch No. 1	{ W. Fork of Coul- ter creek }	Oct. 1, 1889	Oct. 1, 1884	1	Amos P. Ralston
The Waters Ditch	Chippie run	Oct. 1, 1889	Mar. 15, 1886	1.50	Thomas Waters
The Keeton-Emison Ditch	Mesa creek,	Oct. 7, 1889	Sept. 15, 1884	1.90	John W. Keeton and John T. Emison
The Ruedi Ditch	Ruedi creek	Jan. 10, 1890	Oct. 20, 1889	2.50	John Ruedi
The M. J. Ditch	Rock creek	Feb. 21, 1890	Not given	50	M. J. Francis
The Ballard Ditch	Swift creek	Feb. 24, 1890	May 1, 1887	51	M. W. Lewis and Henry H. Ballard
The Prince Ditch	Antlers creek	Mar. 21, 1890	April 1, 1881	4	Richard Swan
The Thomas Ditch No. 1	Thomas creek	April 5, 1890	April 25, 1882	3	John L. Thomas
The Buffalo Ditch	{ W. Fork of W. Sopris creek . . . }	April 14, 1890	June 5, 1885	1	John W. Sloss
The Sloss Ditch	West Sopris creek . .	April 17, 1890	June 39, 1883	10	S. P. Sloss <i>et al.</i>
The Hunt Spring Ditch	A spring	April 17, 1890	Aug. 1, 1885	1	Martin Hotz
The Highland Ditch No. 2	West Sopris creek . .	April 22, 1890	June 8, 1887	8	W. S. Swearingen
The Swearinger Ditch	Dry Sopris creek . .	April 22, 1890	Mar. 5, 1866	1.50	William Chapman
The Chapman enl. of the C.M. Ditch	Cattle creek	May 21, 1890	May 14, 1890	.50	W. S. Swearingen <i>et al.</i>
* The Highland Ditch No. 2	West Sopris creek . .	July 9, 1890	June 8, 1887	8	

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The F. W. Edgerton Ditch	Spring Gulch creek	July 24, 1890	Mar. 1, 1886	4	
The Teller Waste Water Ditch . . .	Waste & flood water	July 30, 1890	May 1, 1890	1	
(No. 1 . . .)	Capital creek. . . .	Aug. 13, 1890	Jan. 1, 1886	7.30	
(No. 2 . . .)				4.40	
The Williams Ditch	(No. 3 . . .)			1.40	
(No. 4 . . .)	Snow Mass creek .	Aug. 13, 1890		4.80	
(No. 5 . . .)				1.50	
{ No. 1 . . .)	{ North and South McDonnell cr'ks }	Sept. 2, 1890	{ Sept. 28, 1887 Sept. 28, 1887	2.47	
{ No. 2 . . .)				2.47	
{ No. 3 . . .)				2.47	
The McDonnell Irri- gating Ditch					James McDonnell
The Hyde Ditch	Roaring Fork	Sept. 12, 1890	Nov. 1, 1885	35.70	
The Edgerton Ditch	Edgerton creek. . . .	Sept. 25, 1890	May 10, 1883	1.50	
The Middle Grace Ditch	Roaring Fork	Sept. 26, 1890	May 26, 1857	12	
The Lower Grace Ditch	Roaring Fork	Sept. 26, 1890	June 1, 1885	3.50	
The Nestell Ditch	Maroon creek	Nov. 10, 1890	July 10, 1889	2	
The Smith Ditch No. 1	Roaring Fork	Nov. 10, 1890	June 1, 1885	2.35	
The Smith Ditch No. 2	Roaring Fork	Nov. 10, 1890	June 1, 1888	2.35	
The Grace & Shehi Ditch	Roaring Fork	Nov. 15, 1890	April 23, 1886	3	
The Home Supply Ditch and ext'n's	Roaring Fork	Nov. 24, 1890	May 27, 1887	30	
The Green Ditch	Willow creek.	Nov. 28, 1890	June 15, 1883	62.50	

* This instrument was sent to J. S. Greene, ex-State Engineer, and laid in his private office from April 24, 1890, until the above date.

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 38, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEERS OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Gibson Reservoir	Laudis creek	Gibson ditch	May 1, 1889	Nov. 5, 1884	Not given	Mrs. Eli P. Gibson
The Nipple Storage Reservoir .	Red Cañon creek	On the stream	June 4, 1889	April 15, 1888	825,000	Edward Nipple

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STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 38, GIVING THE DATE AND ORDER OF PRIORITY, AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, SO FAR AS THEY HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE NINTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE, AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet per second appropriated in each district			Order of priority in district
			Summarization of dredge reservoirs, canal or ditch, each priority order secured to each section of watercourse	Cubic feet per sec- ond dredged to each priority order sec- tion to each priority	Cubic feet per sec- ond dredged to each priority order sec- tion to each priority	
The Waco Ditch	Woody creek	June 18, 1880	2.50	2.50	2.50	1
The Evergreen Ditch	Owl creek	July 2, 1880	1	1	- 2.50	2
The Little Brush Ditch	Little Brush creek	July 2, 1880	.60	....	3.50	3
The Aspen Ditch	A spring in Spar gulch	July 12, 1880	2	2	4.10	4
The Jacobs Ditch	Sopris creek	Sept 20, 1880	2	....	6.10	5
The Prince Ditch	Atler creek	April 1, 1881	1	1	8.10	6
The Pioneer Ditch	Thompson creek	May 1, 1881	5	5	9.10	7
The Harris Ditch	Harris creek	May 5, 1881	2	2	14.10	8
The Boram and White Ditch	Capitol creek	May 5, 1881	2.50	2.50	16.10	9
The McPherson Ditch	Owl creek	May 15, 1881	2.80	....	18.60	10
The Little Woody Ditch	Woody creek	May 17, 1881	1	....	21.40	11
The Wenger Ditch	Springs	May 22, 1881	1	....	22.40	12

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet per second pre- viously appro- priated in dis- trict			Order of priority in district
			Cubic feet of de- creees to each ditch, central or each priority and decreeed to water per sec- ond	Summation of de- creees to each ditch, central or each priority	Cubic feet per second pre- viously appro- priated in dis- trict	
The Stapleton Ditch	Owl creek	June 12, 1881	2	2	23.40	13
The West Channel Ditch	Sopris creek	June 15, 1881	1.20	· · ·	25.40	14
The Hatch Ditch	Sopris creek	July 10, 1881	1.50	1.50	26.60	15
The Chatfield Reservoir Ditch	Sopris creek	July 15, 1881	.10	· · ·	28.10	16
The Bivert Ditch	Owl creek	July 16, 1881	.50	.50	28.20	17
The Luchsinger Ditch	Luchsinger creek	Aug. 15, 1881	1	1	28.70	18
The Four Mile Ditch	Four Mile creek	Nov. 6, 1881	3.20	· · ·	29.70	19
The Harris Ditch, first enlargement	Harris creek	Mar. 25, 1882	1.20	3.29	32.90	20
The Luchsinger Ditch, first enlargement	Luchsinger creek	Mar. 25, 1882	1	2	34.10	21
The Kirkpatrick Ditch	Sopris creek	April 14, 1882	7.50	7.50	35.10	22
The Lower Ditch	Roaring Fork	April 15, 1882	1.50	· · ·	42.60	23
The Thomas Ditch No. 1	Thomas creek	April 25, 1882	1	1	44.10	24
The Collins Creek Ditch	Collins creek	May 1, 1882	2	2	45.10	25
The Hook Ditch	Sopris creek	May 7, 1882	1.50	1.50	47.10	26
The Prior Ditch	Coulter creek	May 10, 1882	.70	.70	48.60	27

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The Burke and Giddings Ditch	Brush creek	May 12, 1882	1	1	49.30	28
The Jote Smith Ditch	Brush creek	May 14, 1882	2	2	50.30	29
The North Side Pioneer Ditch	Roaring Fork	May 15, 1882	1	1	52.30	30
The Carroll Ditch	Brush creek	May 16, 1882	2.50	2.50	53.30	31
The Pioneer Ditch, first enlargement . . .	Thompson creek	May 20, 1882	4.70	9.70	55.80	32
The Atkinson Ditch	Four Mile creek	May 24, 1882	4	4	60.50	33
The Dean Ditch	West Sopris creek	June 1, 1882	1	... . . . .	64.60	34
The Coulter West Side Ditch	Coulter creek	June 1, 1882	1	1	65.50	35
The Bivert Ditch, first enlargement	Owl creek	June 1, 1882	1	1.50	66.50	36
The Lemond Ditch	Brush creek	June 7, 1882	.80	.80	67.50	37
The Robinson Ditch	Roaring Fork	June 15, 1882	5	5	68.30	38
The Lewish Ditch	Cattle creek	June 15, 1882	.60	...	73.30	39
The Lime Creek Ditch	Lime creek	June 20, 1882	1	... . . . .	73.90	40
The Capitol Park Ditch	Capitol creek	July 11, 1882	2.50	2.50	74.90	41
The Thompsonsou Ditch	Thompsonou creek	July 15, 1882	1.30	... . . . .	77.40	42
The Cummings-Springs Ditch	Spring in 32 and 33, 7, 87	Aug. 15, 1882	.80	.80	78.70	43
The Wheeler Ditch	Roaring Fork	Sept. 1, 1882	10	... . . . .	79.50	44
The Van Cleve Ditch No. 1	Spring in 33, 6, 88	Sept. 5, 1882	1.40	... . . . .	83.50	45
The Van Cleve Ditch No. 2	Spring in 33, 6, 88	Sept. 15, 1882	.90	.90	90.90	46
The Cosy Point Ditch	Brush creek	Oct. 1, 1882	1.50	... . . . .	91.50	47
The Brush Creek Ditch	Brush creek	Oct. 3, 1882	3	3	93.30	48
The Basin Ditch	Roaring Fork	Oct. 20, 1882	5	5	96.30	49

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet of water per sec- ond decreed to each prority and decree to each creek, canal or ditch, etc., to each creek to which each priority is entitled	Cubic feet per sec- ond appropriated to each prority district in dis- trict previously appro- priated in dis- trict	Order of priority in district
The Aspen Ditch, first enlargement	A spring in Spar gulch .	Nov. 5, 1882	3	5	101,30
The Rockford Ditch	Rock creek	Jau. 11, 1883	10	... . . . .	104,30
The Robertson Ditch	Roaring Fork	Feb. 11, 1883	4 .	4	114,30
The Staton Ditch	Cattle creek	Feb. 15, 1883	1	1	118,30
The Barger Ditch	Cattle creek	Mar. 1, 1883	.50	.50	119,30
The Walter Ditch	Snow Mass creek	April 2, 1883	2.40	... . . . .	119,80
The Strang Ditch No. 2	Cattle creek	April 5, 1883;	.30	... . . . .	122,20
The Boran & White Ditch, first enlargement	Capitol creek	April 19, 1883	2.60	5.10	122,50
The Cramer Ditch	Sopris creek	April 15, 1883	1	1	125,10
The Burke Ditch	Blush creek	April 15, 1883	1.70	1.70	126,10
The Frying Pan Ditch	Frying Pan creek	April 20, 1883	.30	... . . . .	127,80
The Kirkpatrick Ditch, first enlargement	Sopris creek	April 25, 1883	.50	8	128,10
The Capitol Park Ditch, first enlargement	Capitol creek	April 30, 1883	2.50	5	128,60
The Bennett Ditch	Antler or Prince creek	May 1, 1883	2.20	131,10
The Smith & Rex Ditch	Brush creek	May 2, 1883	.50	133,.30	64

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The Walthen Ditch	Woody creek	May 10, 1883	3	3	133.80	65
The Wenger Ditch No. 2	Owl creek	June 1, 1883	.50	.50	136.80	66
The Prior Ditch, first enlargement	Coultier creek	June 14, 1883	.70	1.40	137.30	67
The Kirkpatrick Ditch, second enlargement	Sopris creek	June 15, 1883	.50	8.50	138	68
The Stapleton Ditch, first enlargement	Owl creek	June 16, 1883	.80	2.80	138.50	69
The Manning Ditch	Sopris creek	June 28, 1883	1.40	... . . . .	139.30	70
The Sloss Ditch	Sopris creek	June 30, 1883	2.50	2.50	140.70	71
The Strang Ditch No. 1	Mesa creek	July 2, 1883	1.20	1.20	143.20	72
The North Side Pioneer Ditch; first enlargement	Roaring Fork	July 20, 1883	2.40	3.40	144.40	73
The Edgerton Ditch	Edgerton creek	July 23, 1883	.50	.50	146.80	74
The Tillison Ditch	Sopris creek	Aug. 1, 1883	.20	... . . . .	147.30	75
The Coulter West Side Ditch, first enlargement	Coulter creek	Aug. 20, 1883	1	2	147.50	76
The Gainer, Sr., Ditch	Brush creek	Oct. 5, 1883	.90	... . . . .	148.50	77
The Harris & Reed Ditch	Roaring Fork	Nov. 2, 1883	9	... . . . .	149.40	78
The Staton Ditch, first enlargement	Cattle creek	Mar. 1, 1884	1	2	158.40	79
The Thomas Ditch No. 1, first enlargement	Thomas creek	April 1, 1884	1.20	2.20	159.40	80
The Bowles & Holland Ditch	Rock creek	April 9, 1884	2.80	... . . . .	160.60	81
The Thomas Ditch, No. 2	Thomas creek	April 10, 1884	2	... . . . .	163.40	82
The Middle Ditch	Cummings Springs chan'l	April 17, 1884	5	... . . . .	165.40	83
The Prewitt Ditch	Sopris creek	April 25, 1884	1.50	... . . . .	170.40	84
The H., C. & L. Ditch	Cattle creek	May 1, 1884	1.40	1.40	171.90	85
The Strang Ditch No. 1, first enlargement	Mesa creek	May 1, 1884	1	2.20	173.30	86

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet per second de-creed to each priority and decreed to each property	Summarized in each ditch	Cubic feet per second de-creed to each priority and decreed to each property	Order of priority in district
			Cubic feet per second ap-plied privately in dis- trict	Cubic feet per second ap-plied privately in dis- trict	Cubic feet per second ap-plied privately in dis- trict	Cubic feet per second ap-plied privately in dis- trict
The Priuce Ditch, first enlargement	Antler creek	May 1, 1884	1.60	2.60	174.30	87
The Walthen Ditch, first enlargement	Woody creek	May 4, 1884	3.20	6.20	175.90	88
The Gray Ditch	Edgerton creek	May 10, 1884	2	2	179.10	89
The Red Mountain Ditch	Hunter creek	May 15, 1884	2	2	181.10	90
The Edgerton Ditch, first enlargement	Edgerton creek	May 15, 1884	.50	1	183.10	91
The Quaking Aspe Ditch	Owl creek	May 20, 1884	.60	2	183.60	92
The Hook Ditch, first enlargement	Sopris creek	May 20, 1884	2.50	4	184.20	93
The Wenger Ditch No. 2, first enlargement	Owl creek	May 25, 1884	.70	1.20	186.70	94
The Carrolls Ditch, first enlargement	Brush creek	May 31, 1884	1.70	4.20	187.40	95
The Jote Smith Ditch, first enlargement	Brush creek	June 5, 1884	.70	2.70	189.10	96
The Henschkel and Chapman Ditch	Cattle creek	June 20, 1884	.30	.30	189.80	97
The Kirkpatrick Ditch, third enlargement	Sopris creek	July 1, 1884	.20	8.70	190.10	98
The Gainer Jr. Ditch	Brush creek	July 4, 1884	.30	2	190.30	99
The Needham Ditch	Cattle creek	July 11, 1884	3	3	190.60	100
The Keley Ditch	Sopris creek	Aug. 10, 1884	2.80	2	193.60	101

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The Castle Creek Ditch	Castle creek	Aug. 15, 1884	2	• • • •	196.40	102
The Prior Ditch, second enlargement	Coulter creek	Aug. 25, 1884	.40	1.80	198.40	103
The Miller Ditch	Woody creek	Sept. 1, 1884	.40	• • • •	198.80	104
The Waco Ditch, first enlargement	Woody creek	Nov. 12, 1884	2.50	5	199.20	105
The Southard and Cavanaugh Ditch	Rock creek	Mar. 23, 1885	1.50	1.50	201.70	106
The Sopris High Line Ditch	Sopris creek	Mar. 25, 1885	4.50	• • • •	203.20	107
The Basin Ditch, first enlargement	Roaring Fork	Mar. 27, 1885	5	10	207.70	108
The Atkinson Ditch, first enlargement	Four-Mile creek	Mar. 39, 1885	3	7	212.70	109
The Mason Ditch	Cattle creek	April 1, 1885	.1	1	215.70	110
The Crainer Ditch, first enlargement	Sopris creek	April 1, 1885	1.50	2.50	216.70	111
The Robertson Ditch, first enlargement	Roaring Fork	April 1, 1885	3.50	7.50	218.20	112
The Barger Ditch, first enlargement	Cattle creek	April 1, 1885	1	1.50	221.70	113
The Kelso Ditch	Roaring Fork	April 15, 1885	1	• • • •	222.90	114
The Burke Ditch, first enlargement	Brush creek	April 18, 1885	.50	2.20	223.70	115
The Kelly Ditch	Spring creek	April 20, 1885	2	• • • •	224.20	116
The Weaver & Leonhardy Ditch	Rock creek	April 20, 1885	4.80	• • • •	226.20	117
The Rowden Ditch	Three-Mile creek	May 1, 1885	.50	• • • •	231	118
The Williams Ditch	Little Woody creek	May 8, 1885	.10	• • • •	231.50	119
The Tierney Ditch	Little Woody creek	May 8, 1885	.20	• • • •	231.60	120
The Van Cleve Ditch No. 2, first enlargement	Springs in 33-6-88	May 15, 1885	2	2.90	231.80	121
The Brush Creek Ditch, first enlargement	Brush creek	May 20, 1885	3	6	233.80	122
The Hook Ditch, second enlargement	Sopris creek	June 1, 1885	.30	4.30	236.80	123

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet per sec- ond decreed to each priority	Summation of decrees to each ditch or canal	Cubic feet per sec- ond previously appropriated in district and pre- ferred in district	Order of priority in district
The Highland Ditch	Snow Mass creek	June 15, 1885	5	• • • •	237.10	124
The Martin Ditch.	W. Fork of W. Sopris cr'k	June 16, 1885	.50	.50	242.10	125
The Somers Ditch	Cattle creek	June 20, 1885	.20	.20	242.60	126
The Smith & Rex Ditch, first enlargement	Brush creek	June 20, 1885	.70	1.20	242.80	127
The C. and M. Ditch	Cattle creek	June 26, 1885	6	• • • •	243.50	128
The Willow Creek Ditch	Willow creek	July 1, 1885	3	3	249.50	129
The Mount Sopris Ditch	{ W. Sopris cr'k and trib- utaries & Prince cr'k }	July 15, 1885	5	5	252.50	130
The H. C. and L. Ditch, first enlargement	Cattle creek	July 20, 1885	.10	1.50	257.50	131
The Glenwood Ditch	Cattle creek	July 25, 1885	18	• • • •	257.60	132
The Monarch Ditch.	Cattle creek	July 31, 1885	5	5	275.60	133
The Monarch Ditch.	Cattle creek	Sept. 10, 1885	5	10	280.60	134
The McNulty Ditch	A Spring	Sept. 15, 1885	.40	• • •	285.60	135
The Kaiser and Sievers Ditch	Rock creek	Nov. 2, 1885	4	4	286	136
The Swearingen Ditch	Dry Fork of Sopris creek	Mar. 5, 1886	.70	• • •	290	136½
The Basin Ditch, Ryan enlargement	Roaring Fork	Mar. 25, 1886	1.80	11.80	290,70	137

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The Coal Creek Ditch	Coal or Edgerton creek	April 15, 1886	1	292.50	138
The Fonder Ditch	Cattle creek	April 15, 1886	1	293.50	139
The Robinson Ditch, first enlargement	Roaring fork	April 15, 1886	2.50	7.50	294.50	140
The Cravent's Ditch	Roaring fork	April 15, 1886	5	7	297	141
The Grace & Shehi Ditch	Roaring fork	April 23, 1886	8.50	.....	302	142
The Little Elk Ditch	Elk creek	April 25, 1886	.80	.....	310.50	143
The Orchard Ditch	Harris or Johnson creek	May 1, 1886	.10	.....	311.30	144
The Waco Ditch, second enlargement	Woody creek	May 1, 1886	1.80	6.80	311.40	145
The High Line Ditch	Thompson creek	May 3, 1886	5.20	.....	313.20	146
The Atkinson Ditch, second enlargement	Four Mile creek	May 5, 1886	.70	7.70	318.40	147
The W. W. Kelly Ditch	Waste water Basin ditch	May 15, 1886	1	.....	319.10	148
The Foley Ditch	Harris creek	May 16, 1886	.50	.....	320.10	149
The Martin Ditch, first enlargement	W. fork of W. Sopris crk	May 25, 1886	.20	.70	320.60	150
The Mesa Ditch	Thomas and Prince creek	May 39, 1886	2.60	.....	320.80	151
The Sweedes Ditch	Cattle creek	June 1, 1886	.50	.....	323.40	152
The Chatfield Ditch	Sopris creek	June 1, 1886	.10	.....	323.90	153
The Jacobs Ditch No. 2	Sopris creek	June 1, 1886	.60	.....	324	154
The Carroll Ditch, second enlargement	Brush creek	June 2, 1886	.80	5	324.60	155
The Hatch Ditch, first enlargement	Sopris creek	June 5, 1886	.50	2	325.40	156
The Smith & Rex Ditch, second enlargement	Brush creek	June 5, 1886	1.50	2.70	325.90	157
The Evergreen Ditch, first enlargement	Owl creek	June 5, 1886	.60	1.60	327.40	158
The Clavel Ditch	Little Woody creek	June 15, 1886	5	.....	328	159

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet per sec- ond decreed to each district		Summarization of de- crees to each district	Cubic feet per sec- ond previously ap- propriated in each priority	Order of priority in districts
			Cubic feet per sec- ond decreed to each priority,	Cubic feet per sec- ond decreed to each priority,			
The Willow and Owl Ditch	Willow creek	July 20, 1886	13	.....	333	160	
The Bane Ditch	Thomas creek	July 23, 1886	1.40	.....	346	161	
The Sloss Ditch, first enlargement	Sopris creek	Aug. 15, 1886	2.30	4.80	347.40	162	
The Needham Ditch, first enlargement	Cattle creek	Sept. 3, 1886	11	14	349.70	163	
The McNulty Ditch No. 2	Shippey Run creek	Sept. 20, 1886	.50	.50	360.70	164	
The Bane & Thomas Ditch	Rock creek	Oct. 10, 1886	4	.....	361.20	165	
The Kaiser & Sievers Ditch, first enlargement	Rock creek	Oct. 12, 1886	3.60	7.60	365.20	166	
The Robinson Ditch, second enlargement	Roaring fork	Nov. 15, 1886	2	9.50	368.80	167	
The Cramer Ditch, second enlargement	Sopris creek	Mar. 30, 1887	.20	2.70	370.80	168	
The Carbondale Ditch	Rock creek	April 1, 1887	5	.....	371	169	
The Southard & Cavanaugh Ditch, first enlargement	Rock creek	April 4, 1887	1.20	2.70	376	170	
The Mason Ditch, first enlargement	Cattle creek	April 10, 1887	1.50	* 2.50	377.20	171	
The Cummings Spring Ditch, first enlargement	Springs in 32 and 33-7-8	April 15, 1887	.80	1.60	378.70	172	
The Robinson & Harris Ditch	Johnson or Harris creek	April 20, 1887	.40	.....	379.50	173	
The Willow Creek Ditch, first enlargement	Willow creek	May 1, 1887	3	6	379.90	174	

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The Somers Ditch, first enlargement	Cattle creek	May 2, 1887	.50	.70	382.90	175
The Snow Mass Ditch	Snow Mass creek	May 15, 1887	4.80	...	383.40	176
The Burke & Giddings Ditch, first enlargement	Brush creek	May 17, 1887	.80	1.80	388.20	177
The Good Friend Ditch	Sopris creek	May 25, 1887	2	...	389	178
The Home Supply Ditch	Roaring Fork	May 27, 1887	20	...	391	179
The Highland Ditch No. 2	West Sopris creek	June 8, 1887	2	...	411	180
The Kelly & Askins Ditch	Brush creek	June 27, 1887	1.90	...	413	181
The Collins Creek Ditch	Collins creek	Sep. 1, 1887	1.50	3.50	414.90	182
The Mount Sopris Ditch, first enlargement	West Sopris creek and { tributary, and Prince cr'ks }	Oct. 1, 1887	1.50	6.50	416.40	183
The Shippee Ditch	Sopris creek	Feb. 1, 1888	.30	...	417.90	184
The Dearing Ditch	Four-Mile ditch	Mar. 12, 1888	.90	...	418.20	185
The Eagle Ditch	Sopris creek	Mar. 17, 1888	.50	...	419.10	186
The Lemond Ditch, first enlargement	Brush creek	April 2, 1888	.70	1.50	419.60	187
The Blue Creek Ditch	Blue creek	April 14, 1888	.90	...	420.30	188
The Thompson & Edgerton Ditch	Thompson, Edgerton & Yank cr'ks & branch. }	May 16, 1888	30	...	421.20	189
The M'Nulty Ditch No. 2, first enlargement	Shippy Run creek	June 1, 1888	1.50	2	451	190
The Highland Ditch, first enlargement	Snow Mass creek	June 5, 1888	2	4	452.50	191
The Paradise Ditch	Woody creek	June 14, 1888	3	...	454.50	192
The Hueschkel & Chapman Ditch, first enlargement	Cattle creek	June 15, 1888	.50	.80	457.50	193
The Bryant Ditch	Sopris creek	June 16, 1888	.70	...	458	194
The West Highline Ditch	Coulter creek	June 18, 1888	3.60	...	458.70	195
The Dutchman Ditch	Cattle creek	June 20, 1888	6.80	...	461.30	196

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet of water per second de- creed to each district		Summa- tion of de- cree fees to each ditch, canal or reservoir	Cubic feet per second de- creed to each district	Second pre- mises to canal or ditch, each district	Cubic feet per second pre- mises ap- proved in dis- trict	Order of priority in district
			Cubic feet per second de- creed in dis- trict	Cubic feet per second de- creed in dis- trict					
The East Highline Ditch	Coulter creek	June 20, 1888	1.90	.....	469.10	197	.....	.....	.....
The Ralston Ditch	Coulter creek	June 21, 1888	2	.....	471	198	.....	.....	.....
The C. and L. Highline Ditch	Cattle creek	June 23, 1888	1.40	.....	473	199	.....	.....	.....
The Lewis and Lavine Ditch	Coulter creek	June 28, 1888	2	.....	474.40	200	.....	.....	.....
The Gregory Ditch	Cattle creek	July 17, 1888	.90	.....	476.40	201	.....	.....	.....
The Perham Ditch	Philip creek	July 30, 1888	1.60	.....	477.30	202	.....	.....	.....
The D'Avignon Ditch	Woody creek	Sep. 24, 1888	2.80	.....	478.90	203	.....	.....	.....
The Red Mountain Ditch, first enlargement	{ Middle and North Thompson creek, branches and springs Nov. 12, 1888 }		50	.....	481.70	204	.....	.....	.....
The Lower Thompson Ditch	Hunter creek	Nov. 27, 1888	13	15	531.7	205	.....	.....	.....
Total in district					544.70				

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 38, GIVING THE DATE, ORDER OF PRIORITY AND AMOUNT OF EACH APPROPRIATION FOR THE RESERVOIRS IN SAID DISTRICT, AS THE SAME HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE NINTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF RESERVOIR	Name of stream from which water is taken	Date of priority	Cubic feet of water decreed to each priority	Cubic feet previously appropriated in district	Order of priority in district
The Bourg Reservoir	Dry Woody creek	Nov. 23, 1882	27,000	.....	1
The Edgerton Reservoir	Guilch, tributary of Idgertton creek	April 15, 1887	41,000	27,000	2
The Thomas Reservoir	Thomas creek	July 5, 1887	418,000	63,000	3
The Bennett Reservoir	Antler or Prince creek	Oct. 1, 1887	262,000	486,000	4
The Mesa Reservoir	Antler, or Prince, and Thomas creeks	Oct. 1, 1887	700,000	743,000	5
Total in district . . . . .	.....	.....	.....	1,448,000	

Water District No. 39—A. S. Himebaugh, Water Commissioner for 1889. Residence, De Beque, Mesa county; and Frank B. Squires for 1890.

Mr. Himebaugh reports having been called out June 19, 1889, and submits a tabulated statement of water distribution for that season.

No report was submitted for 1890.

COMMISSIONER'S REPORT, A. D. 1889.

DIVISION No. 5—DISTRICT No. 39.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 39, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

NAME OF DITCH	Stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The D. F. Webster Ditch	Grand river	Dec. 29, 1888	Aug. 21, 1888	12.18	Daniel F. Webster
The McGourlick Ditch	Four-Mile creek	Feb. 21, 1889	Feb. 14, 1884	2.85	Peter McGourlick
The Excelsior Ditch	Grand river	Mar. 18, 1889	Dec., 1885	33.26	Charles M. Rulison
The Shields Ditch	Grand river	Mar. 18, 1889	Jan. 15, 1887	4	Edwin Baker, Henry J. Blevins, H. W. Hallett, B. Laugesen, Albert Ziesemiss, C. J. Hallett, J. H. Vixor, J. F. Hickman
The C. J. Ditch	Rifle creek	Mar. 28, 1889	Sept. 12, 1883	15.46	Geo. W. Mings
The Minks Ditch	Cañon creek	April 18, 1889	June 4, 1886	5.90	Eliza Sherrill
The Connally Ditch, Sherrill en . .	E. Fork Elk creek	May 10, 1889	Spring, 1882	60 in.	{ M. C. Vanderventer, J. B. Ptniam and William Lloyd Peacocke
The Star Ditch	East Elk creek	May 25, 1889	Feb. 23, 1889	18	Geo. Mings, W. L. Copeland and E. T. Wolverton
The Mings, Chenowith & Wol- verton Ditch	Cañon creek	July 10, 1889	June 4, 1886	5.90	E. T. Wolverton
The Wolverton Ditch	Cañon creek	July 31, 1889	Mar. 1, 1884	8	William Bridges
The Bridges Ditch	Brush creek	Aug. 12, 1889	May 10, 1887	2	William Bridges
The Hayes Ditch	Brush creek	Aug. 12, 1889	April 15, 1888	3	William Bridges and James S. Hayes
The Barrett Ditch	E. Fork Elk creek	Sept. 2, 1889	Aug. 15, 1889	1	Thomas Barrett
The Arkansaw Ditch	Roan creek	Sept. 5, 1889	June 4, 1889	1.75	Truman S. Caldwell
The Box Cañon Ditch	E. Fork Rifle creek	Sept. 18, 1889	April 15, 1885	3	Walter L. Wilder

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The Cannon Ditch	Brush creek	Sept. 24, 1889	May 10, 1887	1.50	F. P. Cannon F. P. Cannon, John T. Van Cleave and W. B. Weaver
The Van Cleave Ditch	Brush creek	Sept. 24, 1889	April 10, 1884	4.50	{ W. Van Cleave, John T. Van Cleave and C. D. Stanley
The Darrow Ditch	Rodin creek	Sept. 24, 1889	April 1, 1889	3	
The Darrow Ditch	East Elk creek	Sept. 26, 1889	June 6, 1889	65	C. W. Darrow
The Darrow Ditch, supplemental statement	East Elk creek	Sept. 26, 1889	July 26, 1889	Not given	C. W. Darrow
The Rifice Falls Ditch	East Rifle creek	Oct. 4, 1889	May 1, 1885	2	Joseph M. Watson
The Crystle Falls Ditch	East Rifle creek	Oct. 11, 1889	May 1, 1886	5	Agustus E. Browning
The Johnson Ditch	North Canyon creek	Oct. 11, 1889	May 21, 1889	2.06	Alexander W. Johnson
The Waggoner Ditch	E. Fork Elk creek	Dec. 26, 1889	Dec. 1, 1889	2.75	William A. Waggoner
The Jennings Ditch	E. Fork Elk creek	Jan. 8, 1890	Feb. 10, 1889	3.75	James Jennings
The Hadley Ditch	Middle Elk creek	Jan. 31, 1890	April 1, 1887	6	A. C. Hadley
The Snow Ditch	Rhone creek	Jan. 31, 1890	Feb., 1887	7.50	George S. Snow
The Hadley & Clinetop Ditch	Middle Elk creek	Feb. 12, 1890	Jan. 1, 1890	4.80	Harry Clinetop, Sarah Clinetop and A. C. Hadley
The Mountain Ditch	Middle Elk creek	Feb. 12, 1890	Feb. 5, 1890	4.80	Harrison, Sarah and Lucy Clinetop
The Glover Ditch	Rowley gulch	Mar. 19, 1890	June 1, 1885	1	L. A. Harrison, Dietrich Shultz, Paul Kremling, Herman Kremling and Theodore Kremling
The Crystal Valley Irrigating Ditch	Crystal creek	April 3, 1890	May 10, 1888	29.70	{ Mrs. E. E. Sherrill
The Oak Grove Ditch	East Elk creek	April 14, 1890	Feb. 10, 1890	2.384	
The Nelson Ditch	M. Fork Rifle creek	April 30, 1890	Sept. 15, 1888	2	Henry Nelson and Elijah R. Parker
The Burton Ditch	Mitchell creek	May 19, 1890	June 20, 1885	1	Edgel M. Herriott
The Piggott Ditch No. 1	Magpie creek	June 28, 1890	April 1, 1887	5	H. C. Piggott
The Piggott Ditch No. 2	Thompson creek	June 28, 1890	April 1, 1887	Not given	H. C. Piggott
The Tanney Ditch	Spring creek	July 25, 1890	June 28, 1890	.50	William H. Tanney

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Cooley Ditch	Garfield creek	Sept. 11, 1890	April 13, 1890	1,357	Orson W. Cooley
The Cooley Ditch No. 2	Garfield creek	Sept. 11, 1890	July 18, 1890	.3125	Orson W. Cooley
The Nott Ditch No. 1	Mitchell creek	Oct. 1, 1890	Sept. 29, 1890	1.23	S. W. Nott
The Nott Ditch No. 2	Mitchell creek	Oct 1, 1890	Sept. 29, 1890	1.95	S. W. Nott
The Webster and Langstaff Ditch	Grand river	Oct. 9, 1890	Aug. 2, 1888	12.18	John J. Langstaff and D. F. Webster
The Ellen Connally Ditch No. 2	F. Fork Elk Creek	Oct. 23, 1890	Sept. 28, 1890	2.50	Ellen Connally
The Independent Ditch	{ Hoffman's Fork of Rille creek.	Oct. 27, 1890	Sept. 25, 1890	1.40	A. A. Harris
The Cornell Ditch	Parachute creek	Nov. 12, 1890	Feb. 1, 1886	3.50	Isaac N. Cornell <i>et al</i>
The Cornell Ditch, enlargement	Parachute creek	Nov. 12, 1890	July 31, 1888	5	Isaac N. Cornell <i>et al</i>

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 39, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The P. M Reservoir	Rifle creek	Grand tunnel	Dec. 29, 1888	Aug. 15, 1888	20,000,000	{ J. More, Ephriam Perfontaine and Alphonse Perfontaine
The Dela Matyr Reservoir	No 1 No. 2 No. 3	Dry Fork Roan creek	"Aug. 15, 1889 Aug. 15, 1889 Aug. 15, 1889	July 15, 1887 May 1, 1889 May 15, 1889	65,280 399,000	. . . . . Walter A. Dela Matyr
The Nelson Reservoir	Not given	Not given	Aug. 15, 1889	May 15, 1889	1,372,000	. . . . . Henry Nelson
The Figgott Reservoir	Magpie creek	On the stream	Apr. 30, 1890	Apr. 26, 1890	Not given . . . . .	. . . . . H. C. Piggott
The Independent Reservoir	Hoffman's Fork of Rifle creek	Independent	June 28, 1890 Oct. 27, 1890	Mar. 1, 1890 Sept. 25, 1890	600,000 1,025,000	. . . . . A. A. Harris

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 39, GIVING THE DATE, ORDER OF PRIORITY, AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, AS THEY HAVE BEEN ESTABLISHED BY THIS DECREE OF COURT IN THE NINTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THIS DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH, CANAL OR RESERVOIR	Stream from which water is taken	Date of appropriation	Cubic feet per second decree to each priority			Cubic feet per second decreed to each canal or ditch, cañon and reservoir	Cubic feet per second appropriated in previous district and previous priority	Order of priority in district
			Summation of decree to each priority	Cubic feet per second decreed to each priority	Cubic feet per second decreed to each priority			
The Pioneer Ditch	Rifle creek	May 10, 1882	5	5	5	1	.. .	1
The Grand Tunnel Ditch	Rifle creek	May 15, 1882	2	2	5	2	.. .	2
The Oasis Ditch	Oasis creek	Oct. 10, 1882	1.6	1.6	7	3	.. .	3
The Thompsons Ditch	Middle Branch of Elk creek	Mar. 19, 1883	.8	.. .	8.6	4	.. .	4
The Rifle Creek Cañon Ditch	Rifle creek	Mar. 19, 1883	4	4	9.4	5	.. .	5
The Italian Ditch	West or Dry Fork of Elk creek	April 1, 1883	2.6	2.6	13.4	6	.. .	6
The Wisdom Ditch	Rifle creek	April 1, 1883	4	4	16	7	.. .	7
The Reynolds and Cain Ditch	Mitchel creek	April 19, 1883	5	.. .	.. .	8	.. .	8
The Daisy Ditch	Parachute creek	May 17, 1883	6.4	6.4	25	9	.. .	9
The Squier Ditch	Rifle creek	May 23, 1883	.5	.5	31.4	10	.. .	10
The Coryell Ditch	Elk creek	June 1, 1883	2.8	2.8	31.9	11	.. .	11

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The King Ditch	Kimball creek	June 1, 1883	1	1	34.7
The Newton Ditch	Clear creek	July 1, 1883	1.5	1.5	35.7
The Mitchel and Cooper Ditch	Oasis creek	July 5, 1883	.8	.8	37.2
The Ware and Wards Ditch	Elk creek	Oct. 1, 1883	4	4	38
The Excelsior Ditch	Rifle creek	Nov. 5, 1883	2	2	42
The Stobaugh Ditch	Grand River	Nov. 20, 1883	4	4	44
The C. O. and C. P. Pierson Ditch	Middle Fork of Elk creek	Feb. 15, 1884	3	... . . .	48
The Fyre Ditch	Grand river	Feb. 15, 1884	4	4	51
The Daisy Ditch, first enlargement	Parachute creek	Feb. 25, 1884	3.2	9.6	55
The Roan Creek Ditch	Roan creek	Feb. 28, 1884	6	6	58.2
The King Ditch, first enlargement	Kimball creek	March 10, 1884	1	2	64.2
The Conwell Ditch	Con creek	April 13, 1884	2.8	2.8	65.2
The Grand Tunnel Ditch, first enlargement	Rifle creek	April 13, 1884	2	4	68
The Connally Ditch	East Fork of Elk creek	May 1, 1884	1.6	... . . .	70
The Oasis Ditch, first enlargement	Oasis creek	June 1, 1884	2	3.6	71.6
The Coryell Ditch, first enlargement	Elk creek	June 8, 1884	1.7	4.5	73.6
The Upper Roan Creek Ditch	Carl's Run creek	Aug. 10, 1884	3	3	75.3
The Italian Ditch, first enlargement	Elk creek	Sept. 2, 1884	1	3.6	78.3
The Saints Ditch	West Fork of Elk creek	Sept. 2, 1884	1.6	~ 1.6	79.3
The Roan Creek Ditch No. 2	Roan creek	Sept. 10, 1884	7	7	80.9
The Roan Creek Ditch No. 3	Roan creek	Oct. 13, 1884	2.6	2.6	87.9
The Roan Creek Ditch No. 2, first enlargement	Roan creek	Oct. 20, 1884	2	9	94.5

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet per second and decree to each ditch or canal and decree to each ditches to each district		
			Cubic feet per second out privately and decree to each district	Summation of decrees to each district	in district
The Creek & Newman Ditch	Roan creek	Nov. 15, 1884	4	4	92.5
The Diamond Ditch	Parachute creek	Mar. 15, 1885	2.5	2.5	96.5
The Cottonwood Ditch	Dry Fork of Roan creek	Mar. 20, 1885	1	1	99
The Italian Ditch, second enlargement	Elk creek	April 1, 1885	1	4.6	100
The Saints Ditch, first enlargement	W. Fork of Elk creek	April 1, 1885	1.6	3.2	101
The Hibschle, Parris & Mann Ditch	E. Fork of Rifle creek	April 15, 1885	2	2	102.6
The Grand Tunnel Ditch, second enlargement	Rifle creek	April 15, 1885	4	8	104.6
The Gilmore Ditch	Oasis creek	April 16, 1885	2.7	... . . . .	108.6
The Mitchel & Cooper Ditch, first enlargement	Oasis creek	May 1, 1885	.4	1.2	111.3
The Manning & Ritter Ditch	Middle Fork Rifle creek	May 10, 1885	.4	.4	111.7
The Himebaugh Ditch	Clear creek	May 15, 1885	2.6	... . . . .	112.1
The Kimball Ditch	Kimball creek	June 1, 1885	1.5	... . . . .	114.7
The Cannon Ditch	Brush creek	June 3, 1885	3.2	3.2	116.2
The Allen Ditch	Cottonwood creek	June 5, 1885	2	119.4
The Newton Ditch, first enlargement	Clear creek	June 20, 1885	1.6	3.1	121.4

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The G. E. Harris Ditch No. 2	Clear creek	July 1, 1885	.8	.8	123	49
The Upper Roan Creek, first enlargement	Carr's Run creek	Nov. 14, 1885	1.2	4.2	123.8	50
The Cornell Ditch	Parachute creek	Feb. 1, 1886	3.5	3.5	125	51
The Conwell Ditch, first enlargement	Con creek	Feb. 10, 1886	1.6	4.4	128.5	52
The Baker & Bowdish Ditch	Con creek	Feb. 11, 1886	2	... .	130.1	53
The Rifle Creek Cañon Ditch, first enlargement	Rifle creek	Feb. 15, 1886	4	8	132.1	54
The Roan Creek Ditch No. 3, first enlargement	Roan creek	Feb. 15, 1886	4	6.6	136.1	55
The Rifle Creek Ditch No. 1	W. Fork of Rifle creek	Mar. 1, 1886	.6	.6	140.1	56
The Ware & Hinds Ditch, first enlargement	Elk creek	Mar. 1, 1886	6.5	10.5	140.7	57
The Cañon Creek Ditch	Cañon creek	Mar. 15, 1886	3	... .	147.2	58
The Eyre Ditch, first enlargement	Grand river	Mar. 15, 1886	1.5	5.5	150.2	59
The Roan Creek Ditch, first enlargement	Roan creek	Mar. 15, 1886	3.3	9.3	151.7	60
The Pioneer Ditch, first enlargement	Rifle creek	April 1, 1886	1.9	6.9	155	61
The Clear Creek Ditch	Clear creek	April 9, 1886	7.3	7.3	156.9	62
The Dry Fork Ditch	Dry Fork of Roan creek	April 12, 1886	1.4	1.4	164.2	63
The Mansfield Ditch	West Fork of Elk creek	April 16, 1886	1	... .	165.6	64
The Frazer Ditch	Kimball creek	April 16, 1886	2.9	... .	166.6	65
The Heinze Ditch	Middle Fork Rifle creek	April 20, 1886	1	... .	169.5	66
The Mauning Ditch	Middle Fork Rifle creek	April 26, 1886	1.6	1.6	170.5	67
The Anderson & Hayes Ditch	Dry Fork of Roan creek	April 28, 1886	1	1	172.1	68
The McNeal Ditch No. 1	Cottonwood creek	May 5, 1886	2	... .	173.1	69
The Creek & Newman Ditch, first enlargement	Roan creek	May 11, 1886	5	9	175.1	70

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH	Stream from which water is taken	Date of ap- plication	Cubic feet per second to each creek and central ditch, and dredged each property		
			Cubic feet per sec- ond dredged to each property	Summa- tion of de- creees to each ditch, and central or each property	in district
The Mekeal Ditch No. 2	Government creek	May 15, 1886	.8	...	180.1
The Dutchman Ditch	Dry Fork of Elk creek	May 15, 1886	.6	...	180.9
The Vetter Ditch	Rifle creek	May 16, 1886	.6	...	181.5
The Hibschle & Benbow Ditch	East Fork of Rifle creek	May 17, 1886	1.4	1.4	182.1
The Cataract Ditch	Kimball creek	June 5, 1886	2.4	2.4	183.5
The Clear Creek Ditch, first enlargement	Clear creek	June 8, 1886	.8	8.1	185.9
The Parris & Mann Ditch	East Fork of Rifle creek	Aug. 20, 1886	2.2	...	186.7
The Clear Creek Ditch, second enlargement	Clear creek	Oct. 15, 1886	1.6	9.7	188.9
The A. V. & D. Ditch	Kimball creek	Nov. 10, 1886	1	1	190.5
The Rifle Creek Cañon Ditch, second enlargement	Rifle creek	Nov. 15, 1886	16	24	191.5
The Roan Creek Ditch No. 2, second enlargement	Roan creek	Nov. 15, 1886	3.5	12.5	207.5
The Grand Tunnel Ditch, third enlargement	Rifle creek	Dec. 1, 1886	12	20	211
The Low Cost Ditch	Parachute creek	Jan. 4, 1887	5	5	223
The Reservoir Ditch	Roan creek	Jan. 21, 1887	15	...	228
The Hayes Ditch	Dry Fork of Roan creek	Jan. 25, 1887	1.5	...	243

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The De LaMartyr & Anderson Ditch	Dry Fork of Roan creek	Jan. 26, 1887	3	244.5
The Mecham Ditch	Kimball creek	Feb. 7, 1887	1.6	247.5
The Omundson & Frost Ditch	Dry Fork of Roan creek	Feb. 12, 1887	2	.....	249.1
The Anderson & Hayes Ditch, first enlargement	Dry Fork of Roan creek	Feb. 22, 1887	.7	1.7	251.1
The G. E. Harris Ditch	West Rifle creek	Feb. 25, 1887	.9	.....	251.8
The Wisdom Ditch, first enlargement	Rifle creek	Feb. 26, 1887	1	5	252.7
The Pioneer Ditch, second enlargement	Rifle creek	Mar. 1, 1887	2	8.9	253.7
The Diamond Ditch, first enlargement	Parachute creek	Mar. 1, 1887	3.2	5.7	255.7
The Williams Ditch	Con creek	Mar. 2, 1887	2	.....	258.9
The Clear Creek Ditch, third enlargement	Clear creek	Mar. 8, 1887	1.8	11.5	260.9
The Gerricke Ditch	Kimball creek	Mar. 14, 1887	1.8	.....	262.7
The Saints Ditch, second enlargement	West Fork of Elk creek	Mar. 15, 1887	1	4.2	264.5
The Duncan Ditch	E. Fork of Dry Elk creek	Mar. 20, 1887	.7	.....	265.5
The Caughman Ditch	Kimball creek	April 1, 1887	1.4	.....	266.2
The Grand Tunnel Ditch, fourth enlargement	Rifle creek	April 1, 1887	4	24	267.6
The Cannon Ditch, first enlargement	Brush creek	April 1, 1887	1.8	5	271.6
The Hoover Ditch	West Fork of Rifle creek	April 4, 1887	2.8	.....	273.4
The Cataract Ditch, first enlargement	Kimball creek	April 13, 1887	2.3	4.7	276.2
The Squier Ditch, first enlargement	Rifle creek	April 14, 1887	.7	1.2	278.5
The Carr & Himebaugh Ditch	Clear creek	April 22, 1887	2.2	.....	279.2
The Wittingham Ditch	{ West or Dry Fork of { Elk creek	April 25, 1887 April 25, 1887	2	2	281.4
The Raynard Ditch	Rifle creek	7	7	7	281.6

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH	Stream from which water is taken	Date of appropriation	Cubic feet per second pre- viously appro- priated in dis- trict			Order of priority in district
			Creeks to each ditch, canal or reservoir	Creeks to each ditch, canal or reservoir	Cubic feet per second decreed to water per sec- ond decreed to each priority	
The Stobaugh Ditch, first enlargement	Grand river	April 30, 1887	2.6	6.6	288.6	108
The Upper Roan Creek Ditch, second enlargement	Carr's Run creek	April 30, 1887	1.5	5.7	291.2	109
The Rulison Ditch	Cottonwood creek	May 4, 1887	2.8	... . .	293.7	110
The Cornell Ditch, first enlargement	Parachute creek	May 5, 1887	.8	4.3	295.5	111
The Cottonwood Ditch, first enlargement	Dry Fork of Roan creek	May 11, 1887	1	2	296.3	112
The Loveless Ditch	Dry Fork of Roan creek	May 15, 1887	.8	... . .	297.3	113
The Hibschle & Benbow Ditch, first enlargement	East Fork of Rifle creek	May 15, 1887	.4	1.8	298.1	114
The Dutchman Ditch, first enlargement	Dry Fork of Elk creek .	June 1, 1887	.3	.9	298.5	115
The Wisdom Ditch, second enlargement	Rifle creek	June 6, 1887	3.6	8.6	298.8	116
The McCabe Ditch	Hay Cañon	June 10, 1887	.8	... . .	302.4	117
The Manning & Ritter Ditch, first enlargement	Rifle creek	June 25, 1887	.8	1.2	303.2	118
The Raynard Ditch, first enlargement	Rifle creek	July 18, 1887	3.4	10.4	304	119
The Mullen Ditch	Middle F'k of Rifle cr'k	Aug. 15, 1887	-	3.2	... . .	307.4
The Hibschle, Parris & Mann Ditch, first enlargement	East Fork of Rifle creek	Oct. 10, 1887	1.3	3.3	310.6	121
The Bastain Ditch	Dry Fork of Elk creek .	Jan. 10, 1888	1	311.9	122

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The Benson, Pierson & Nelson Ditch	Middle Fork of Elk creek	Feb. 5, 1888	4	• • •	312.9	123
The Grand Tunnel Ditch, fifth enlargement	Rifle creek	Feb. 5, 1888	2.5	26.5	316.9	124
The Heinze Ditch, first enlargement	Rifle creek	Feb. 15, 1888	.8	1.8	319.4	125
The Rifle Creek Ditch No. 1, first enlargement	West Fork of Rifle creek	Feb. 20, 1888	.6	—	320.2	126
The G. E. Harris Ditch No. 2, first enlargement	Clear creek	Mar. 10, 1888	.4	1.2	320.8	127
The Clark Ditch	West Fork of Rifle creek	Mar. 15, 1888	1	• • •	321.2	128
The Creek & Newman Ditch, second enlargement	Roau creek	Mar. 20, 1888	2.8	11.8	322.2	129
The Eagan Ditch	Dry Fork of Elk creek .	April 1, 1888	.4	• • •	325	130
The Parachute Ditch	Parachute creek	April 1, 1888	3.6	• • •	325.4	131
The Low Cost Ditch, first enlargement	Parachute creek	April 1, 1888	9	14	339	132
The Manning Ditch, first enlargement	Middle Fork of Rifle c'k	April 1, 1888	.4	2	338	133
The Armstrong Ditch	Dry fork of Roan creek .	April 25, 1888	4.6	• • •	338.4	134
The Dry Fork Ditch, first enlargement	Dry Fork of Roan creek .	April 27, 1888	1	2.4	343	135
The Ware & Hinds Ditch, second enlargement	Elk creek	May 1, 1888	5.5	16	344	136
The Whittingham Ditch first enlargement	Dry Fork of Elk creek .	May 1, 1888	.3	.5	349.5	137
The Clear Creek Ditch, fourth enlargement	Clear creek	May 1, 1888	.8	12.3	349.8	138
The Hibschle & Benbow ditch, second enlargement	East Fork of Rifle creek	May 10, 1888	2.7	4.5	350.6	139
The A. V. & I. Ditch, first enlargement	Kimball creek	May 15, 1888	1	2	353.3	140
The West Elk Ditch	{ West Fork of Middle branch of Elk creek }	June 15, 1888	10	• • •	354.3	141
The Cornell Ditch, second enlargement	Parachute creek	July 31, 1888	3	7.3	354.3	142
The Vetter Ditch, first enlargement	Rifle creek	Oct. 27, 1888	.3	.9	357.3	143
Total in district	• • •	• • •	• • •	• • •	367.6	144

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 39, GIVING THE DATE, ORDER OF PRIORITY AND AMOUNT OF EACH APPROPRIATION FOR THE RESERVOIRS IN SAID DISTRICT, AS THE SAME HAVE BEEN ESTABLISHED BY THE DECREE OF COURT IN THE NINTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF RESERVOIR	Stream from which water is taken	Date of appropriation	Cubic feet creed to de- cree priority each	Summa- tation of de- cree to reservoir	Cubic feet pre- viously appro- priated in dis- trict	Order of priori- ty in dis- trict
			Cubic feet creed to de- cree priority each	Cubic feet creed to de- cree priority each	Cubic feet creed to de- cree priority each	Cubic feet creed to de- cree priority each
The Ilischie Reservoir	Rifle creek	May 1, 1884	521,000	521,000	...	1
The Thompson Reservoir	West Fork of Rifle creek	April 1, 1883	844,000	844,000	524,000	2
The Saint Reservoir	Dry Fork of Elk creek	April 26, 1883	1,399,000	1,399,000	1,368,000	3
The Omundson and Frost Reservoir	Dry Fork of Roan creek	Aug. 6, 1883	576,000	576,000	2758,000	4
Total in district . . . . .	.....	.....	.....	.....	3,334,000	...

Water District No. 40—John A. Curtis, Water Commissioner. Residence, Delta, Delta county.

Mr. Curtis was called out June 25, 1889, and continued in the active discharge of his duties until September 23, a period of ninety-six days. He reports that, owing to the great extent of territory comprised within District No. 40, and the large number of small streams from which the ditches draw their supply of water, it became necessary to appoint a number of assistants, which was done, as follows: Frank Woodring, W. B. Aker, E. E. Burt, A. H. Brown and J. S. Neall. His statistical statement for 1889 gives no information further than the names and mileage of ditches.

For 1890, was called out July 8, and reports some trouble on Laroux creek during August, through ditch owners raising head-gates; that several arrests were made, but no convictions. The effect, however, was salutary, as he had very little further trouble. He further reports that, in his opinion, the larger portion of streams in his district will furnish ample water for all lands under them.

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION No. 5—DISTRICT No. 40.

NAME OF DITCH	Length thereof in miles	Number of days water was carried therein	Average amount of water per second of time that can be carried through a section of 1800 cu ft per sec.	Number of acres that can be irrigated thereby from a ditch	Number of acres of alfalfa irrigated that can be irrigated thereby from a ditch	Number of acres of grasses irrigated therefrom	Number of acres irrigated in each acreage	Total number of ditches irrigated in district			
The preston Ditch . . . . .	.25	220	2	60	3	3	16	10	10	10	10
The Young Ditch . . . . .	.75	216	1.50	5.5	12	17	• • •	• • •	• • •	• • •	• • •
The Crawford Clipper Ditch	1.50	210	40	3,000	123	10	33	537	537	537	537
The Daisy Ditch	5.25	200	4.25	270	12.50	3	60	28	28	28	28
The Lone Rock Ditch	2.75	205	3.50	170	2.50	• • •	90	3.50	3.50	3.50	3.50
The Wilson & Sankey Ditch	1.50	191	40 inches	130	35	30	60	3	3	3	3
The Hill Ditch	2.25	204	4	140	3	7	70	7	7	7	7
The Needle Rock Ditch	2	176	7	755	112	15	50	63	63	63	63
The Gove Ditch	1	200	2	145	7	30	• • •	8	8	8	8
The Pilot Rock Ditch	2.25	210	3.25	385	47	5	• • •	69	69	69	69
The Speck Ditch . . . . .	.75	205	1.25	72	• • •	• • •	• • •	67	67	67	67
The Clear Fork Ditch	1.25	209	3.50	260	4.5	25	57	18	18	18	18
The Custer Ditch	1	200	20 inches	200	20	20	20	65	65	65	65

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The Fluke Ditch	1.50	200	615 inches	410	34	23	100	40
The Jerome Fluke Ditch	1.25	190	{					
The R. S. Fluke Ditch . . . . .	.75	190						
The McIntyre Ditch . . . . .	.50	200	2	130	20	15	2	25
The Cathedral Ditch . . . . .	.25	205	2	190	5	10	35	65
The Quackenbush Ditch	2	220	2	160	22	20	20	40
The A. A. Smith Ditch . . . . .	.50	218	20 inches	115	1	• • •	• • •	5
The Friend Ditch	1	218	.10	50	20	• • •	• • •	15
The Clark & Wade Ditch	2	205	6	425	90	15	• • •	48
The Hartman & McIntyre Ditch . . . . .	.75	220	7	300	• • •	23	210	41
The Cluff Ditch	1.25	215	1.50	125	6	5	• • •	22
The Crystal Ditch	1.25	220	40	1,738	118	107	545	91
The Augwine Ditch . . . . .	.50	210	1.50	120	2	3	• • •	60
The McNeil Ditch . . . . .	.12½	200	30 inches	100	2.50	• • •	• • •	10
The Cedar Ridge Ditch (Not used)	.75	• • •	• • •	• • •	• • •	• • •	• • •	• • •
The J. Gilwick Ditch	1	200	1	160	25	• • •	8	• • •
The German Ditch	2.75	210	3.50	480	35	• • •	• • •	74
The Holy Terror Ditch . . . . .	.75	200	.60	40	3	• • •	• • •	11
The Alfalfa Ditch	7.25	{ Continuously	12	3,520	720	300	• • •	1,860
The Irwin Ditch . . . . .	.25	• • •	.25	20	• • •	• • •	2	8
The Curraint Creek Ditch	6	• • •	3	750	200	• • •	200	335
The Holckiss Ditch	1	• • •	1.70	30	• • •	• • •	11	• • •

COMMISSIONER'S REPORT, A. D. 1890—Continued.

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The Hill Ditch	2.25	204	4	140	3	7	7	70
The Needle Rock Ditch	2	176	7	755	112	15	50	63
The Gove Ditch	1	200	2	145	7	30	.....	8
The Pilot Rock Ditch	2.25	210	3.25	385	47	5	.....	69
The Speck Ditch	.75	205	1.50	72	.....	.....	67	.....
The Clear Fork Ditch	1.25	209	3.50	260	45	25	57	18
The Georgia Ditch	1	200	.50	90	65	.....	20	.....
The Flinck Ditch	1.50	200	6.38	410	34	23	100	40
The Jerome Flinck Ditch	1.25	190	.....	.....	.....	.....	.....	.....
The R. S. Flinck	.75	190	.....	.....	.....	.....	.....	.....
The McIntyre Ditch	.50	200	2	130	20	15	2	25
The Cathedral Ditch	.25	205	2	190	5	10	35	65
The Quackenbush Ditch	2	220	2	160	22	20	20	40
The A. Smith Ditch	.50	218	.50	115	1	.....	.....	5
The Friend Ditch	1	218	.25	50	20	.....	.....	15
The Clark & Wade Ditch	2	205	6	425	90	15	.....	48
The Hartman & McIntyre Ditch	.75	220	7	300	.....	23	210	41
The Cliff Ditch	1.25	215	1.50	125	6	5	.....	22
The Crystal Ditch	1.25	220	40	1,758	118	107	545	91
The Augrevine Ditch	.50	210	1.50	120	2	3	.....	60
The McNeil Ditch	.13	210	.75	100	.....	.....	.....	10

COMMISSIONER'S REPORT, A. D. 1890—*Concluded.*

NAME OF DITCH.	Length thereof in miles	Number of days water was carried.	Average amount of water carried during season of water time	Number of acres that can be irrigated three times	Number of acres of alfalfa irrigated three times	Number of acres of seeded grasses other than alfalfa irrigated three times	Number of acres of natural grasses from which seeds were obtained three times	Number of acres of other crops irrigated three times	Number of acres irrigated from seepage	Total number of acres irrigated in district
* The Cedar Ridge Ditch . . . . .	.75	200	1	160	25	35	35	8	8	.
The L. Gilwick Ditch	1	210	3.50	480	3	40	3	74	74	.
The German Ditch	2.75	200	1.50	300	3	3	3	11	11	.
The Holy Terror Ditch . . . . .	.75	86.38	16,805	2,465	680	1,609	1,609	4,369.5	4,369.5	9,123.5
Totals in district										

* Not used.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 40, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

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NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Feeder Ditch	Gniches Nos. 1, 2, 3 { Waste and seep age waters . . . }	May 3, 1889	April 24, 1889	20	Thomas B. Hanoun <i>et al</i>
The Chenoweth Ditch	Gunnison river . . .	Oct. 22, 1889	Aug. 17, 1889	3	Isaac E. Chenoweth
The Braisted Ditch	Gunnison river . . .	Oct. 24, 1889	Oct. 10, 1889	9	Horace K. Braisted
The Relief Ditch	Gunnison river . . .	Dec. 25, 1889	Dec. 14, 1889	15.06	Robert Landreth <i>et al</i>
The Low Line Ditch	{ North Fork Gunnison river . . . }	Feb. 15, 1890	Oct. 15, 1889	6.70	John W. Cotton
The Hartland Ditch, amended statement	Gunnison river . . .	May 27, 1890	Not given	52.50	J. Rollins <i>et al</i>
The Black Canyon Ditch	Gunnison river . . .	June 23, 1890	Mar. 25, 1890	28.30	Matt Arch
The Diamond Joe Ditch	Smith's Fork . . .	July 21, 1890	Jan. 10, 1890	6.25	John C. Smith
The Sand Creek Ditch	Sand creek . . .	July 25, 1890	May 7, 1890	20	A. J. King <i>et al</i>
The Anderson Ditch	{ Guilford and Daniels creek }	Aug. 1, 1890	April 25, 1890	2.64	Henry W. Anderson
The Turner and Sweezy Ditch	Minnestota creek . . .	Aug. 11, 1890	Mar. 1, 1888	3.82	Elijah P. Turner <i>et al</i>
The Surface Creek Ditch, amended statement	{ Camp, Cottonwood, Beaver, Kiser, Lick and Surface creeks }	Aug. 16, 1890	Not given	127	The Surface Creek Ditch and Reservoir Co.
The Well Gnich Ditch	Well gnich	Oct. 25, 1890	Not given. Plat only	447	Not given. Plat only

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 10, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in state engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Park Reservoir	W. Br. Surface Creek	On the stream	Nov. 6, 1889	Aug. 18, 1889	130,400,232	J. B. Hart and 12 others
The Currant Creek Reservoir . . .	Currant creek	On the stream	Mar. 26, 1890	Not given	17,424,000	. . . . . Peter Magnus
No. 1 Kiser creek	Kiser creek	On the stream	Aug. 15, 1890	Sept. 6, 1886	36,400,000	
No. 2 Kiscr creek	Kiscr creek	On the stream	Aug. 16, 1890	Sept. 6, 1886	28,500,000	
No. 3 Kiser creek	Kiser creek	On the stream	Aug. 16, 1890	July 29, 1889	5,427,200	
No. 4 Ward creek	Ward creek	On the stream	Aug. 16, 1890	Aug. 11, 1886	16,280,600	
No. 5 Ward creek	Ward creek	On the stream	Aug. 16, 1890	Aug. 11, 1886	45,738,000	
No. 6 Ward creek	Ward creek	On the stream	Aug. 16, 1890	July 29, 1889	5,427,200	The Surface Creek Ditch and Reservoir Compy
No. 7 Ward creek	Ward creek	On the stream	Aug. 16, 1890	Aug. 11, 1886	10,318,300	
No. 8 W. Br. Ward creek	W. Br. Ward creek	On the stream	Aug. 16, 1890	July 29, 1889	86,248,800	
No. 9 W. Br. Ward creek	W. Br. Ward creek	On the stream	Aug. 16, 1890	July 29, 1889	31,920,000	
No. 10 W. Br. Ward creek	W. Br. Ward creek	On the stream	Aug. 16, 1890	July 29, 1889	4,791,600	
No. 11 W. Br. Ward creek	W. Br. Ward creek	On the stream	Aug. 16, 1890	July 29, 1889	4,356,000	
The Weir & Johnson Reservoir No 1	Not given	On the stream	Oct. 15, 1890	June 25, 1889	4,356,000	Albert A. Weir and Eric Johnson

The Weir & Johnson Reservoir {	Not given	On the stream . . .	Oct. 15, 1890	June 25, 1887	12,380,000	} Albert A. Weir and Erick Johnson
No. 2	Not given	On the stream . . .	Oct. 20, 1890	Sept. 11, 1890	4,181,000	
The Bonito Reservoir	Not given	On the stream . . .	Oct. 25, 1890	Not given	4,350,000	William C. Stone
⁵¹ The Well Gulch Reservoir	Well gulch	On the stream . . .	Oct. 25, 1890	Not given	61,000,000	Not given
The Lake Reservoir	Not given	On the stream . . .	Oct. 25, 1890	Not given	816,750	Not given
The J. C. Gunn Reservoir	Not given	On the stream . . .	Oct. 25, 1890	Not given	9,500,000	C. H. Gresham <i>et al</i>
The Twin Lakes Reservoir No. 1 . . . . .	. . . . .	The lake itself . . .	Nov. 6, 1890	Sept. 25, 1889	7,000,000	C. H. Gresham <i>et al</i>
The Twin Lakes Reservoir No. 2 . . . . .	. . . . .	The lake itself . . .	Nov. 6, 1890	Sept. 25, 1889	2,613,000	A. A. Smith
The A. A. Smith Reservoir	East Fork of Bellcreek	Feeder ditch . . .	Nov. 25, 1890	Aug. 26, 1890		

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 40, PREPARED BY THE SUPERINTENDENT OF IRRIGATION OF WATER DIVISION No. 5, FROM THE CERTIFIED COPY OF THE DECREE GOVERNING APPROPRIATIONS IN THIS DISTRICT, FURNISHED HIM BY THE CLERK OF THE DISTRICT COURT.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second decreed to each section of ditch or canal		Cubic feet per acre-foot appropriated by previous order of priority in district	No. on stream	Order of priority in district
			Cubic feet of dredge material of each ditch or canal	Cubic feet per acre-foot appropriated by previous order of priority in district			
The Alfalfa Ditch	Surface creek	Dec. 17, 1881	106	1	1	1	1
The Speck Ditch	Clear Fork	Jan. 15, 1882	1	106	1	2	
The Garden Ditch	Surface creek	Feb. 4, 1882	1	107	2	3	
The Cook Ditch	Surface creek	Mar. 1, 1882	1	108	3	4	
The Santa Fé Ditch	Forked Tongue, etc	Mar. 1, 1882	1	109	1	4a	
The Irving Ditch	Leroux creek	April 1, 1882	1	110	1		
The Cluff Ditch	Cottonwood creek	April 1, 1882	1	111	1	5a	
The Forked Tongue Ditch	Forked Tongue, etc	April 15, 1882	9.13	112	2	6	
The Alkali Ditch	Alkali creek No. 1	April 15, 1882	1	121.13	1	6a	
The Kiser Ditch	Forked Tongue, etc	June 1, 1882	2.60	122.13	3	7	
The McIntyre Ditch	Little Clear creek	July 1, 1882	1	124.73	1	8	
The West Ditch	Forked Tongue, etc	Feb. 1, 1883	5.60	125.73	4	9	

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The Preston Ditch	Smith's Fork	Feb. 4, 1883	1	131.33	1
The Broncho Ditch	Forked Tongue, etc . . .	April 16, 1883	2.50	132.33	5
The Quackenbush Ditch	Bill creek	May 1, 1883	8	134.83	1
The Clark & Wade Ditch	Minnesota creek	May 5, 1883	4.50	142.83	1
The Orchard Ranch Ditch	Surface creek	May 9, 1883	25	147.33	4
The Sandstone Bluff Ditch	Forked Tongue, etc . . .	June 1, 1883	10.50	172.33	6
The Park Ditch	Forked Tongue, etc . . .	June 30, 1883	6	182.83	7
The Current Creek Ditch	Leroux creek	Aug. 4, 1883	10	188.83	2
The Hotchkiss Ditch	Leroux creek	Aug. 11, 1883	1.70	198.83	3
The Kennicut & Mower Ditch	Forked Tongue, etc . . .	Aug. 15, 1883	7.13	200.53	8
The Clark & Wade Ditch, second appropriation	Minnesota creek	Aug. 18, 1883	2.50	207.66	2
The Leroux Ditch	Leroux creek	Aug. 20, 1883	43	210.16	4
The Clear Fork Ditch	Clear Fork	Oct. 1, 1883	8	253.16	2
The Hartman & McEntyre Ditch	Muddy creek	Oct. 9, 1883	10	261.16	1
The Cedar Cañon and Iron Spring Ditch	Crystal creek	Oct. 24, 1883	50	271.16	1
The Cathedral Ditch	Little Clear Fork	Nov. 1, 1883	4	321.16	2
The Fawcett Ditch	Holy Terror creek	Nov. 13, 1883	2	325.16	1
The Myers and Orth Ditch	German creek	Dec. 11, 1883	4	327.16	1
The Maud S. Ditch	Dough-spoon creek	Jan. 11, 1884	4	331.16	1
The Peterson, Carr and Barrow Ditch	Leroux creek	Feb. 18, 1884	22.50	335.16	5
The Georgia Ditch	Clear Fork	Mar. 15, 1884	1	357.66	3
The Settle Ditch	Surface creek	Mar. 25, 1884	15	358.66	5

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Order of priority in district	
			Cubic feet second per acre and decree to each priority creek or canal	Cubic feet water per acre and decree to each priority ditch or stream
The Spring Ditch	Alkali creek No. 1	Mar. 25, 1884	8	373.66 2 34
The Cedar Ridge Ditch	Alkali creek No. 2	April 1, 1884	1	381.66 1 32
The Young Ditch	Smith's fork	Sept. 15, 1884	1	382.66 2 33
The Shepherd Ditch	Surface creek	Oct. 25, 1884	13.50	383.66 6 34
The Hall & Yoder Ditch	Leroux creek	Nov. 4, 1884	4	397.16 6 35
The Childs Ditch	Forked Tongue, etc	Nov. 28, 1884	6	44.16 9 36
The Red Bluff Ditch	Forked Tongue, etc	Nov. 30, 1884	16	407.16 10 37
The Lucas Ditch	Angwine creek	Dec. 15, 1884	4	423.16 1 38
The Howard Ditch	Surface creek	Jan. 21, 1885	.50	427.46 7 39
The Big Falls Ditch	Surface creek	Jan. 21, 1885	6.50	427.66 8 39a
The still water Ditch	Surface creek	Jan. 21, 1885	8	434.16 9 39b
The Gard Ditch	Forked Tongue, etc	Mar. 1, 1885	.60	442.16 11 40
The Gelwick Ditch	McDonald creek	Mar. 11, 1885	2	442.76 1 41
The Fogg Ditch	Surface creek	April 2, 1885	15	444.76 10 42
The Forest Ditch	Surface creek	April 7, 1885	10.25	459.76 11 43

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The "Cedar Park" Ditch	Forked Tongue, etc	May 25, 1885	8	• • • •	470.01	12	44
The Oak Valley Ditch	Forked Tongue, etc	June 1, 1885	4	• • • •	470.01	13	45
The Crawford Clipper Ditch	Smith's fork	Oct. 19, 1885	83.52	• • • •	482.01	3	46
The Flinck Ditch	Clear fork	Oct. 27, 1885	11.25	• • • •	565.53	4	47
The Butler's Ditch	Surface creek	Nov. 24, 1885	12	• • • •	576.78	12	48
The High Line Ditch	Leroux creek	Dec. 1, 1885	18.50	• • • •	588.78	7	49
The Erick Johnson Ditch	Surface creek	Dec. 2, 1885	1.50	• • • •	607.28	13	50
The Butler Ditch, second appropriation	Surface creek	Feb. 8, 1886	3	15	608.78	14	51
The Fogg Ditch, second appropriation	Surface creek	Mar. 20, 1886	1	16	611.78	15	52
The Forest Ditch, second appropriation	Surface creek	April 10, 1886	.75	11	512.78	16	53
The Big Fall Ditch, second appropriation	Surface creek	April 12, 1886	1.50	8	613.53	17	54
The Gove Ditch	Coal creek	April 14, 1886	12	• • • •	615.03	1	55
The Pilot Rock Ditch	Coal creek	April 16, 1886	5.50	• • • •	627.03	2	56
The Perkins Ditch	Forked Tongue, etc	April 20, 1886	7.50	• • • •	634.53	14	57
The Sessions Ditch	Forked Tongue, etc	April 21, 1886	.75	• • • •	640.03	15	58
The McNeil Ditch	McNeil creek	July 12, 1886	1.60	• • • •	640.78	1	59
The Lake Fork Ditch	Forked Tongue, etc	July 26, 1886	10.15	• • • •	642.38	16	60
The A. A. Smith Ditch	Bill creek	Aug. 20, 1886	2.60	• • • •	652.53	2	61
The Old Reliable Ditch	Surface creek	Dec. 31, 1886	11	• • • •	655.13	18	62
The Patterson Ditch	Leroux creek	Mar. 29, 1887	16	• • • •	666.13	8	63
The Ellington Ditch	Leroux creek	April 2, 1887	9	• • • •	682.13	9	64
The Horse Shoe Ditch	Surface creek	April 11, 1887	15	• • • •	691.13	19	65

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Cubic feet per second decreed to each ditch or canal	Summation of cubic feet previously appropriated in each district to which each stream belongs	Cubic feet per second decreed to each district in which each stream is taken	No. on stream	Order of priority in district
			Cubic feet per second decreed to each district in which each stream is taken	No. on stream	Cubic feet per second decreed to each district in which each stream is taken	No. on stream	Order of priority in district
The Allan Mesa Ditch	Leroux creek	April 29, 1887	20	706.13	10	66	
The Carbon Ditch	Forked Tongue, etc . . .	June 20, 1887	1	726.13	16	67	
The Allan Ditch	Leroux creek	June 21, 1887	7	727.13	11	68	
The Spruce Tree Ditch	Surface creek	July 9, 1887	1	734.13	20	69	
The Barlow Ditch	North Fork	July 10, 1887	1	735.13	1	70	
The Daisy Ditch	Smith's Fork	Oct. 11, 1887	12	736.13	4	71	
The Desire Friend Ditch	Bill creek	Nov. 25, 1887	2	748.13	3	72	
The Lone Rock Ditch	Smith's Fork	Dec. 20, 1887	4.50	750.13	5	73	
The Jerome Ditch	Clear Fork	Jan. 10, 1888	2	754.63	5	74	
The R. T. Fluke Ditch	Clear Fork	Jan. 14, 1888	4	756.63	6	75	
The Wilson and Pankey Ditch . . .	Smith's Fork	Jan. 20, 1888	3.50	760.63	6	76	
The Hice Ditch	Smith's Fork	Jan. 25, 1888	4	764.13	7	77	
The Eubank and Gower Ditch . . .	German creek	Feb. 1, 1888	2.50	768.13	2	78	
The Needle Rock Ditch	Smith's Fork	July 16, 1888	25	770.63	8	79	
The Perkins Ditch, second appropriation . . .	Forked Tongue, etc . . .	Not given	1.50	795.63	18	797.63	

Water District No. 41—A. L. Selig, Moutrose, Colorado, Commissioner for 1889, and D. G. Salisbury, Delta, Delta county, for 1890.

Commissioner Selig reports for 1889, that he was called out May 20, and continued in service until September; that considerable difficulty was experienced during the season, owing to the very low stage of water in the Uncompahgre river, as well as from the fact that it was the first season water, had been distributed by a Water Commissioner.

He further reports that several large ditches were drawing water from the Uncompahgre river, with their head-gates located on the military reservation on the upper part of the river, whose priorities are subsequent to those of several ditches on the lower end of the stream, near Delta; but, owing to the fact that said reservation is under martial law, it was found impossible to regulate the head-gates of these ditches, as the owners would break off locks and open their gates as fast as they were shut down by the Commissioner.

In July, by mutual agreement of ditch owners, the river was divided into three districts, and the waters rotated, giving each district water during two days of each week; but this arrangement was soon broken by the demands of older ditches for their water.

He also reports a great injustice to consumers of water in this district, in the fact there is no adjudication of water rights in District No. 68, embracing twenty-five miles of the upper Uncompahgre river and all of its principal tributaries, and hence no regulation of the distribution.

Most of the ditches in this district are new, supplied with rotary flumes.

Two assistants were employed during the season.

Commissioner Selig submits statistical statement, which is wanting in much of the data sought, for reason therein assigned that "owners of ditches refuse to furnish the necessary information."

For 1890, Commissioner Salisbury reports to Superintendent as being called out July 10, and continued service with one assistant until November 20; that the distribution of the waters of the district were very satisfactory, with the exception of the question of his jurisdiction as to ditches and canals taking their supply of water from the river on the U. S. Military Reservation. As the same question had arisen the previous season, it was deemed advisable to have it passed upon by the courts. With this end in view, complaint was made before Hon. J. C. Bell, judge of the District Court for Montrose county, praying that a warrant should issue from his court for the arrest and punishment of the party named, in accordance with the law, for tampering with the head-gate after it had been closed by the Commissioner. As to the charges in the complaint, there was no dispute, as the defendant acknowledged them.

The court held that he had no jurisdiction over acts committed upon a military reservation, and refused to issue any warrant for the party. The Commissioner, therefore, discontinued further efforts to regulate the gates of all ditches so situated, and as a consequence, a much larger quantity of water was carried by them during the entire season of low water than they were entitled to carry, to the great injury of the people lower down the river.

It is perhaps well here to state that the Superintendent of this division reported the circumstances connected with the above unlawful diversion of water, during the summer of 1889, and requested instructions thereon.

From this statement, it appears that the Uncompahgre river passed through a small portion of the military res-

ervation, that certain ditches had their head-gates located within the boundaries of the same, and that the water-rights of said ditches had been adjudicated by the State courts and decrees issued thereon, but that the right to regulate their head-gates had been denied and resisted on the ground of their peculiar location.

It appeared to this Department, that if the State courts took cognizance of ditches thus situated, so far as to adjudicate their rights to water, determining the quantity to which they were entitled, and the date of their priority, it was reasonable to infer that the State would also have the right to regulate the intake of the ditches, in accordance with the decrees so issued; accordingly instructions were given the Water Commissioner to close and lock the gates wherever the ditches were not entitled to water. This was attempted by the Commissioner, with the result above stated.

The Water Commissioner further reports the seepage water in his district very perceptably on the increase, not only in the natural streams, but in heretofore dry gulches and arroyas under the lines of ditches, and that it is being very generally taken advantage of by the residents wherever it is practicable to do so.

In response to inquiries relative to reservoirs and reservoir sites, he reports the district abundantly supplied with favorable sites, but that little has been done toward their location or construction.

FIFTH BIENNIAL REPORT,

COMMISSIONER'S REPORT, A. D. 1890.

DIVISION No. 5—DISTRICT No. 41.

NAME OF DITCH	Length thereof in miles	Number of days water was carried therein	Average amount of water carried during season of 1890 in cubic feet per second of time	Number of acres that can be irrigated thereforefrom	Number of acres irrigated three times	Number of acres irrigated three times	Number of acres irrigated three times	Number of acres of natural grasses irrigated three times	Number of acres of other crops irrigated three times	Number of acres of other crops irrigated three times	Number of acres of natural grasses irrigated three times	Number of acres of other crops irrigated three times	Number of acres of other crops irrigated three times	Total number of acres irrigated in district	
The Ironstone Ditch	1,140	16	...	...	...	2,210	90	...	...	...	...	...
The Hull Private Ditch	58	...	...	...	74	3	...	...	...	...	...
The Ross Brothers Ditch	255	...	...	...	159	10	...	...	...	...	...
The Eagle Ditch	67	...	...	...	165	497	5	...	...	...	...
The Satisfaction Ditch	386	...	...	...	10	99	17	...	...	...	...
The Home Run Ditch	60	...	...	...	120	440	—	9	...	...	...
The Home Stake Ditch	300	25	2	...	...	...	...
The J. L. Foster Ditch	20	6	...	...	...	...	...
The Delta Chief Ditch	149	...	35	448	15	...	...
The Colorow Ditch	115	...	155	98	8	...	...
The East Side Ditch	37	...	3	57	4
The Swanson Ditch	24	...	55	40	8
The Eggleston Ditch	15	...	62	182	1

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The Purdy Vickers Ditch	33	200	5
The Stiteler Ditch	33	149	9
The Rice Ditch	214	45	• • •
The Eckerly Ditch	411	404	20
The Garnett Ditch	281	318	78
The Clipeta Beaudry Ditch	64	187	14
The Boulds & Mauny Ditch	107	141	7
The Uncompahgre Ditch	4,292	99	15
The Uncompahgre Canal	166	10	• • •
The Logan Ditch	300	10	• • •
The Reservation Ditch	12	35	570
The Stark, Valkman & Co.'s Ditch	18	1	9
The Supply Ditch	160	65	55
The Valverde Ditch	2	3	3
The Ben Davis Ditch	145	69	8
The Midland Ditch	371	7	• • •
The Loutsenhizer Ditch	362	32	20
The Clipeta Ditch	75	4	35
The Silver Springs Ditch	1	• • •	15
The Woodgate & Calloway Ditch	13	• • •	6
The Plymouth Rock Ditch	56	11	10
The Uncompahgre & Cedar C. Val. Ditch	2	230	2

COMMISSIONER'S REPORT, A. D. 1890—Concluded.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 41, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890, FOR WHICH NO DECREES HAVE AS YET BEEN ISSUED.

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NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Magnolia Ditch	Mexican gulch	April 6, 1889	Feb. 1, 1889	29	David Wood
The Seepage Ditch	Gulch, unnamed	May 16, 1889	April, 1885	18.48	John J. Marsh
	{ No. 1	May 16, 1889	April, 1885	7	
	{ No. 2	May 16, 1889	1885		
The Wilson Davis Ditch, amended plat	Gulch No. 2, unnamed	Dec. 26, 1889	Not given		Not stated
The Lyra Ditch	Uncompaingre river	Jan. 27, 1890	Dec. 19, 1889	9.30	Nelson Vizina and George E. Carver
The Prospect Ditch	Dry creek	Feb. 8, 1890	Feb. 4, 1890	20	The town of Delta
The Flying Dutchman Ditch	Seepage waters	Mar. 12, 1890	Feb. 10, 1890	4	Emma E. Talcott
The Krebs Ditch	Dry creek	April 19, 1890	Feb. 4, 1890	14	John F. Krebs
The Moutrose Canal Extension	Not given	April 25, 1890	Jan. 1, 1890	41	The Montrose Canal Company
The Griffith and Fadely Ditch	Gulch, unnamed	{ Waste and seepage waters	Not given	9	Thomas A. Griffith and Henry Fadely
The Snipe Creek Ditch	{ Waste, seepage and spring waters	June 13, 1890	May 1, 1890	5.50	James McLachlan
The Chapperal Ditch	Dry creek	June 13, 1890	Nov. 15, 1886	5	

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 41, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Magnolia Reservoir . . .	Mexican Gulch . . .	On the stream . . .	April 6, 1889	Jan. 1, 1889	24,175,800	David Wood

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STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 41, GIVING THE DATE AND ORDER OF PRIORITY AND AMOUNT OF EACH APPROPRIATION, TOGETHER WITH THE TOTAL AMOUNT OF EACH PRECEDING APPROPRIATION OF DITCHES AND CANALS IN SAID DISTRICT, AS THEY HAVE BEEN ESTABLISHED BY DECREE OF COURT IN THE SEVENTH JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF DITCH, CANAL, OR RESERVOIR	Stream from which water is taken	Date of appropriation	Cubic feet per second of appropriation	Summarization of decree, canal or reservoir to which each priority is decreed	Cubic feet per second and priority of each previous decree in district	Order of priority in district
			Date of appropriation	Summarization of decree, canal or reservoir to which each priority is decreed	Cubic feet per second and priority of each previous decree in district	Order of priority in district
The Reservation (U. S.) Ditch	Uncompahgre river . . .	July 1, 1880	2.69	• • • •	• • • •	1
The Eggleston Ditch	Uncompahgre river . . .	Nov. 21, 1881	6	• • • •	2.69	2
The Uncompahgre Ditch, Delta county	Uncompahgre river . . .	Dec. 8, 1881	12	• • • •	8.69	3
The Homestake Ditch	Uncompahgre river . . .	Jan. 5, 1882	11	• • • •	20.69	4
The Gus. A. Frost Ditch	Uncompahgre river . . .	Jan. 27, 1882	2.50	• • • •	31.69	5
The Hull Private Ditch	Uncompahgre river . . .	Feb. 3, 1882	3	• • • •	34.19	6
The Eagle Ditch	Uncompahgre river . . .	Feb. 10, 1882	17.85	• • • •	37.19	7
The Satisfaction Ditch	Uncompahgre river . . .	Feb. 11, 1882	12	• • • •	55.04	8
The Uncompahgre (Loutsenizer) Ditch	Uncompahgre river . . .	Feb. 23, 1882	18	18	67.04	9
The Chipeta-Beaudery Ditch	Uncompahgre river . . .	Mar. 1, 1882	9	9	\$5.04	10
The Delta Ditch	Uncompahgre river . . .	Mar. 2, 1882	15	• • •	94.04	11
The West Montrose Ditch	Uncompahgre river . . .	Mar. 10, 1882	8	• • •	109.04	12
The Sunrise Ditch	Uncompahgre river . . .	April 30, 1882	6	6	117.04	13

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Order of priority in district			
			Cubic feet per second to each ditch, canal or reservoir to each territory and decree to each district	Summation of cubic feet per second to each ditch, canal or reservoir to each territory and decree to each district	Cubic feet per second to each territory and decree to each district	Cubic feet per second to each territory and decree to each district
The Rice Ditch	Uncompahgre river	April 30, 1882	7.50	7.50	123.04	14
The Swanson Ditch	Uncompahgre river	May 1, 1882	5.50	5.50	130.54	15
The Supply Ditch	Uncompahgre river	May 7, 1882	2	2	136.04	16
The Dry Creek Ditch	Dry creek	June 1, 1882	.98	.98	138.04	17
The S. E. Dillon Ditch	Spring creek	Oct. 1, 1882	.99	.99	139.02	18
The Foster Ditch	Uncompahgre river	Oct. 1, 1882	2.50	2.50	140.01	
The Stark, Volkman, Rose, Silvers Ditch	Uncompahgre river	Oct. 12, 1882	13	13	142.51	19
The Ross Bros. Ditch	Uncompahgre river	Nov. 1, 1882	6	6	155.51	
The Ross Bros. Ditch	Spring creek	Nov. 1, 1882	6	6	161.51	
The Ironstone Ditch	Uncompahgre river	Nov. 7, 1882	37.50	37.50	167.51	21
The Foster Ditch, first enlargement	Uncompahgre river	Nov. 27, 1882	1.83	4.33	205.01	22
The Cushman Ditch	Dry creek	Dec. 17, 1882	96.50	96.50	206.84	23
The Val Verde Ditch	Uncompahgre river	Feb. 20, 1883	5	5	203.34	24
The Uncompahgre (Loutsenhizer) Ditch, first enlargement	Uncompahgre river	Feb. 23, 1883	39	57	308.34	25
The Stitelier Ditch	Uncompahgre river	Mar. 2, 1883	2.05	2.05	347.34	26

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The Uncompahgre Canal		April 7, 1883	100	100	100	349.39	27
The Ben Davis Ditch		May 1, 1883	3	• • • .	449.39	28	
The Neugart Ditch		June 1, 1883	2.08	• • • .	452.39	29	
The Spring Valley Ditch		June 13, 1883	65.10	• • • .	454.47	30	
The Garnett Ditch		June 18, 1883	45	• • • .	519.57	31	
The Home-Ran Ditch		Aug. 25, 1883	25	• • • .	564.57	32	
The Selig Ditch		Oct. 29, 1883	14.50	14.50	589.57	33	
The Geo. B. Jones and North Mesa Ditch		Nov. 30, 1883	7	7	664.07	34	
The Buckhorn Ditch		Dec. 10, 1883	6.25	• • • .	611.07	35	
The Woodgate & Calloway Ditch		Dec. 15, 1883	2	• • • .	617.32	36	
The Chipeta (Montrose Co.) Ditch		Jan. 24, 1884	17.50	• • • .	619.32	37	
The Keystone Ditch		Mar. 7, 1884	14.58	• • • .	636.82	38	
The Montrose City Ditch		April 5, 1884	18	• • • .	651.40	39	
The Uncompahgre Canal, additional appropriation		April 7, 1884	100	200	(65) 40	40	
The Beaton Creek		April 10, 1884	8.33	• • • .	780.40	41	
The Sunrise Ditch, first enlargement		April 15, 1884	3	9	777.73	42	
The N. O. K. Lamb Ditch		May 20, 1884	3.53	• • • .	780.73	43	
The Baldy Ditch		East Fork of Dry creek .	30	• • • .	784.26	44	
The Delta Chief Ditch		Uncompahgre river .	Aug. 24, 1884	21	• • • .	814.26	45
The Silver Springs Ditch		Uncompahgre river .	Sept. 23, 1884	7	• • • .	835.26	46
The Logan Ditch		Uncompahgre river .	Sept. 24, 1884	15	• • • .	842.26	47
The Shavano Valley Ditch		Spring creek .	Nov. 21, 1884	7.81	• • • .	857.26	48

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH.	Stream from which water is taken	Date of appropriation	Order of priority in district		
			Cubic feet per second pre- viously appro- priated in dis- trict	Cubic feet per second per ditch, canal or reservoir	Summation of de- crees to each ditch, canal or reservoir
The Uncompahgre Ditch	Cedar creek	Dec. 13, 1884	44.10	...	865.07
The Malloy Ditch	Uncompahgre river . . .	Feb. 1, 1885	3	...	909.17
The Heath Ditch	Spring creek	Feb. 21, 1885	2	...	912.17
The Cedar Creek Ditch	Cedar creek	Feb. 24, 1885	9.86	...	914.17
The Chipeta-Beaudery Ditch, first enlargement	Uncompahgre river . . .	Mar. 8, 1885	6	15	924.03
The Reservation Ditch	Uncompahgre river . . .	Mar. 20, 1885	15	...	930.03
The Stiteler Ditch, first enlargement	Uncompahgre river . . .	Mar. 31, 1885	5.32	7.37	945.03
The Uncompahgre Ditch, additional appropriation	Uncompahgre river . . .	Mar. 31, 1885	50	250	950.35
The Uncompahgre & Cedar Creek Valley Ditch	Uncompahgre river . . .	April 1, 1885	25	...	1,000.35
The Fendall Ditch	Cedar creek	April 6, 1885	2.08	...	1,925.35
The Colorow Ditch	Uncompahgre river . . .	July 31, 1885	24.64	...	1,027.43
The Wahl Ditch	Cedar creek	Feb. 1, 1886	4.16	...	1,052.07
The Midland Ditch	Uncompahgre river . . .	Mar. 20, 1886	27.95	...	1,056.23
The Ironstone Ditch, first enlargement	Uncompahgre river . . .	Mar. 31, 1886	76	113.50	1,084.18
The Wahl & Dahl Ditch	Cedar creek	April 1, 1886	4.79	...	1,160.18

The Freeman Ditch	Pelton gnlch	April 15, 1886	.99	.99	1,164.97	64
The T. J. T. Ditch	Sheep Ranch creek . . .	May 24, 1886	30	30	1,165.96	65
The Geo. B. Jones & North Mesa Ditch, first enlargement . . .	Uncompahgre river . . .	July 12, 1886	33.33	40.33	1,195.96	66
The Selig Ditch, first enlargement	Uncompahgre river . . .	Feb. 7, 1888	58.10	72.60	1,229.29	67
The Platt Ditch	Uncompahgre river . . .	Mar. 12, 1888	2.08	2.08	1,287.36	68
Total in district						1,289.47

STATEMENT CONCERNING RESERVOIRS

IN DISTRICT NO. 41, GIVING THE DATE, ORDER OF PRIORITY AND AMOUNT OF EACH APPROPRIATION FOR THE RESERVOIRS IN SAID DISTRICT, AS ESTABLISHED BY THE DECREE OF COURT IN THE JUDICIAL DISTRICT, FROM THE CERTIFIED COPY OF THE DECREE AS FURNISHED BY THE CLERK OF THE COURT.

NAME OF RESERVOIR	Name of stream from which water is taken	Date of appropriation	Cubic feet decreed to each priority decree	Cubic feet appropriated in each reservoir	Order of priority in district
The Keystone Reservoir	Spring creek	Mar. 7, 1884	Not given . . . . .	. . . . .	. . . . .
The Buckhorn Reservoir	Beaton creek	Mar. 18, 1884	Not given . . . . .	. . . . .	. . . . .
The Cushman Reservoir	East Fork of Dry creek	Jan. 18, 1887	Not given . . . . .	. . . . .	. . . . .
The Reservoir No. 1	Dry creek	Dec. 23, 1887	Not given . . . . .	. . . . .	. . . . .
Total in district . . . . .	.....	.....	.....	.....	.....

• *Water District No. 42*—F. W. Halbauer, Commissioner; residence, Grand Junction.

For 1889, Mr. Halbauer reports being called out April 17, that he served, individually, thirty-nine days, and by assistant, eight days, the last day of service being September 17; that there was a great scarcity of water on Kannah creeks, the only streams adjudicated, but that he got along very satisfactorily.

For 1890, the Commissioner was called out June 26. Rating flumes had been generally constructed and rated with satisfactory results. He reports a large reservoir, constructed at the head of Kannah creek, but owing to defective work in the dam, it washed out, in the early spring.

No statistical statement is furnished for the season of 1890, the Commissioner assigning as a reason therefor, that the County Commissioners requested he should not incur the expense.

COMMISSIONER'S REPORT, A. D. 1889.

DIVISION NO. 5—DISTRICT NO. 42—

NAME OF DITCH	Total number of districts irrigated in state.									
	Number of acres irrigated from ditches.									
The William Ponsford Ditch . . . . .	.80	...	...	...	...	25	4	6	...	...
The Kanuah Creek Extension Ditch	6.40	...	...	5	800	46	60	...	...	...
The Smith Irrigating Ditch	5.50	...	...	1.75	640	30	50	...	...	...
The North-western Ditch	1.60	...	...	2	230	70	48	...	...	...
The Brown & Campion Ditch	2.75	...	...	4.75	1,500	219	301	...	...	...
The Sullivan Ditch	1.75	...	...	1	230	22	19	...	...	...
The Washburn & Downing Ditch . . . . .	.90	...	...	.60	200	20	17	...	...	...
The Bales, Williams & Morrison Ditch	1.25	...	...	.50	130	7	13	...	...	...
The Junita Ditch	5.75	...	...	3.25	1,120	34	75	...	...	...
The Bolen Ditch . . . . .	.50	...	...	...	...	...	...	...	...	...
The Henshel Ditch8050	40	5	10	5	10	...
The Segar & Bedford Ditch	4.75	1.25	320	6	24
The Bauer Ditch90	100	4	11

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The Tenderfoot Ditch	4	320	100	25
The Dunlap Ditch25	6	2	
The Jones Ditch	2	280	80	5
The Harxhurst Ditch	1.50	250	25	50
The Glen Ditch . . . . .	.35	30	5	20
The Cook Ditch	2	160	10	20
The Berthoff & Coakley Ditch	1	35	5	15
The Atkinson Ditch		50	8	10
The Glenpon Plateau Creek Ditch . . . . .	.65	32	5	25
The Coakley & Kiggins Ditch . . . . .	.25	385	5	30
The Newark Ditch		16	5	20
The Wild Cat Ditch . . . . .	.50	995.95	35	195
The Silver Gauge Ditch . . . . .	.35	985	40	20
The Tens Ditch	2	242	35	6
The Palmer Ditch	1.50	633	20	5
The Atkinson Ditch . . . . .	.25	16	2	10
The Berthoff & Updyke Ditch	1.50	1,085	50	250
The McKee Ditch . . . . .	.30	130	5	4
The Rockwell & Needles Ditch . . . . .	.75	220	20	15
The Dunlap Ditch	1.75	230	15	20
The Rockwell Ditch . . . . .	.75	55	5	
The Grove Creek Ditch	2	120	5	

COMMISSIONER'S REPORT, A. D. 1889—Continued.

The Cook Ditch, enlargem't and extens'n	1	230	10	-50
The Johnson and Stewart Ditch . . .	1.50	280	25	50
The Coakley and Riggins Ditch, from 60 Big creek	{ 2.50	140	50	50
The Oakland Ditch . . . . .	.50	140	25	25
The Parkison Ditch	1.16	130	5	40
The Fitzpatrick Ditch, from Grove creek	2.50	160	10	45
The Blackman, Dunlap and Clark Ditch	2.44	310	10	60.
The King Ditch, from Mesa creek . . .	5	640	5	40
The Kanago and Roberts Ditch . . .	5	320	5	25
The Alwill Ditch, from Coon creek . .	2	320	5	40
The Norman Mesa Ditch, enlargement	3.33	140	25	25
The Gulch Ditch		80	2	2
The Ewer Ditch . . . . .	.60	30	8	10
The Williams Ditch	2.50	160	20	25
The River View Ditch	4	260		
The Orchard Mesa Ditch	19	440		
The Brendon Ditch	6	90	10	15
The Grape Vine Ditch	1	140	5	5
The Rapid Creek Ditch	* 2.50	400	5	10
The Grove Creek Ditch No. 1, enlarge- ment of	{ 2	340	12	25
The Berthoff, Lanahan and Updike Ditch, enlargement of	{ 2	200	5	20
The Ciquita Ditch	2	400		

COMMISSIONER'S REPORT, A. D. 1889—Concluded.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 42, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THIS STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF DITCH OR CANAL,	Stream from which water is diverted	Date of filing in state Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Crawford Irrigating Ditch	Rapid creek	Dec. 15, 1888	Nov. 29, 1888	5.76	George A. Crawford
The Lanham, Bertholf and Updyke Ditch, enlargement of	Big creek,	Dec. 17, 1888	Dec. 3, 1888	4	David E. Chesser
The Grand Mesa Reservoir's Ditch	Reservoirs	Jan. 5, 1889	Sept. 12, 1888	Not given	The Grand Mesa Reservoir Company
The Thompson-Edgerton Ditch	{ S. F. N. Thompson's son creek	Feb. 18, 1889	May 16, 1888	29,20	{ The Thompson Irrigation, Land and Water Supply Company
The Kiggins & Goyn Ditch,	Big creek,	April 5, 1889	Mar. 23, 1887	9	Link Kiggins <i>et al</i>
The enlargement of same	Big creek,	July 31, 1889	July 27, 1889	12	Samuel M. Burwell
The Ashbury Ditch	Grand river	Sept. 28, 1889	June 21, 1889	2	G. L. Ashbury
The Coy Ditch	Coon creek	Sept. 28, 1889	May, 1886	2	Eugene A. Coy
The Fonda Ditch,	Reeder Reservoir	Sept. 28, 1889	May 1, 1889	3	J. H. B. Fonda
The Feeder Ditch to Harris Reservoir . . .	Reservoir Ditch	Sept. 28, 1889	June 28, 1889	1	William Harris
The Hoosier Ditch	Plateau creek	Sept. 28, 1889	Nov. 27, 1887	18	John Carmichael <i>et al</i>
The Lapham Irrigating Ditch	Little Salt creek	Sept. 28, 1889	Mar. 20, 1889	6	Harry Timmons
The Last Time Ditch	Plateau creek	Sept. 28, 1889	Aug. 16, 1889	2,38	William Wigglesworth
The Layton Irrigating Ditch	Waste waters	Sept. 28, 1889	Mar. 1, 1886	2	James A. Layton
The Orchard Mesa Lower Canal	Grund river	Sept. 28, 1889	Mar. 6, 1889	110,70	George P. and J. H. Smith

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Anderson-Davenport Irrigating Ditch, enlargement of	Cottonwood creek	Oct. 14, 1889	Aug. 3, 1889	11.14	Lars C. Arnoldson
The Blackman, Dunlap and Clark Irrigating Ditch, enlargement of	Plateau creek	Nov. 11, 1889	Oct. 15, 1889	10	Samuel G. Stevens
The Fruita Ditch	Waste waters	Jan. 9, 1890	April 15, 1888	2	. . . . .
The Grand Junction Canal	Grand river	Feb. 8, 1890	Nov. 12, 1889	4,895	Frank C. Kendrick
The Hamrah Ditch	Big creek	Mar. 21, 1890	Aug., 1883	2,49	Charley T. Jones
The Park View and Pioneer Plateau Ditch, enlargement of	Cottonwood and Bull creeks	Mar. 21, 1890	Sept. 5, 1889	4	. . . . .
The Rose Point Power Irrigating Canal	Grand river	Mar. 21, 1890	Oct. 3, 1889	1,000	Samuel Mosher
The Feeder Ditch to Reeder Reservoir	{ N. fork of Kan-nah creek	Mar. 21, 1890	Dec. 18, 1889	Not given	Charles N. Cox
The Harding & Sinner Ditch enlargement of the Dunlap Ditch, enlargement of	Cache creek	April 26, 1890	Nov. 1, 1886	6	John D. Reeder
The Independent High Line Ditch	{ N. fork Buzzard creek	May 15, 1890	Oct. 10, 1889	9.44	Dempsey E. Harding
The Mormon Mesa Ditch, enlargement, No. 2	Cottonwood creek	May 15, 1890	July 24, 1889	3	J. H. Berthoff
The Mount Lincoln Ditch	Cottonwood creek	May 15, 1890	April 14, 1890	27.44	. . . . .
The Showell Ditch, enlargement of	Grand river	May 19, 1890	Mar. 1, 1890	35	Lucinda H. Dame
The Park View Ditch, enlargement of	Cottonwood creek	June 26, 1890	Feb. 24, 1890	6	Deloss M. Webb
The Gunderson Ditch	Cottonwood creek	June 26, 1890	Mar. 1, 1890	6	F. M. Burger
The Feeder Ditch to Juniper Reservoir	Buzzard creek	June 26, 1890	Sept. 1, 1889	6	Barnett Colclasure
The Indian Creek Ditch	Juniper ditch	June 26, 1890	May 20, 1890	12	N. P. Cox
The W. E. Smailley Ditch	Indian creek	June 26, 1890	Oct. 20, 1889	75	John and Ole Gunderson
The Slocomb Ditch	Dunlap creek	June 26, 1890	Mar. 25, 1890	3	S. L. Purdy et al.
The F. Gross Ditch	Adobe creek	Aug. 2, 1890	July 15, 1890	3	L. N. and W. L. Farmer
The Shindlecker Ditch	Little Salt Wash	Oct. 7, 1890	Mar. 1, 1890	15	W. E. Smalley
The River View Ditch, extension and enlargement	Shindlecker crk.	Nov. 10, 1890	June 15, 1890	6	Edwin M. Slocomb
	White Water creek	Nov. 10, 1890	Oct. 23, 1890	5	Charles H. Gray & Enos T. Hotchkiss
					Jas. R. Snyder and G. A. Bird

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STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No 42, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEERS' OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State, Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Grand Mesa Reservoir No. 1 . . .						
The Grand Mesa Reservoir No. 2 . . .						
The Grand Mesa Reservoir No 3 . . .						
The Grand Mesa Reservoir No. 4 . . .						
The Grand Mesa Reservoir No. 5 . . .						
The Harris Reservoir	Reservoir Ditch .	Feeder	Sept. 28, 1889	June 28, 1889	2,475,000	William Harris
The Reeder Reservoir	Kannah creek	Feeder	Mar. 21, 1890	Dec. 13, 1889	7,830,000	John D. Reeder
The Juniper Reservoir	Juniata Ditch	Feeder	June 26, 1890	May 2, 1890	8,682,608	{ S. L. Purdy, J. M. Walker and J. F. Purdy
The Indian Creek Reservoir	Indian creek	River View	June 26, 1890	Oct. 20, 1889	Not given	{ L. N. & W. L. Farin
The River View Ditch Reservoir	White Water crk.		Nov. 10, 1890	Oct. 23, 1890	6,000,000	Jas. R. Snyder & G. A. Bird

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 42, PREPARED BY THE SUPERINTENDENT OF IRRIGATION OF WATER DIVISION NO. 5, FROM THE CERTIFIED COPY OF THE DECREE GOVERNING APPROPRIATIONS OF WATER IN SAID DISTRICT, FURNISHED HIM BY THE CLERK OF THE DISTRICT COURT.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Summarization of decree and decrees to each ditch or canal		
			Cubic feet per second appropriated to each territory and decree to each ditch or canal	Cubic feet per second appropriated to each territory and decree to each ditch or canal	Order of stream on priority
The Wm. J. Pousford Ditch		Dec., 1881	.60	.60	1
The Kaunah Creek Extension Ditch	Nov. 1, 1884	15.60	15.60	.60	2
The Smith Irrigating Ditch	Aug. 11, 1885	1.30	.....	16.20	3
The Northwestern Ditch	Aug. 11, 1885	4 "	.....	17.50	4
The Brown & Campion Ditch	Nov. 4, 1885	8.60	.....	21.50	5
The Sullivan Ditch	Dec. 3, 1885	3.57	.....	30.10	6
The Smith Irrigating Ditch, second appropriation	Mar. 26, 1886	19.60	20.90	33.67	7
The Brown & Campion Ditch, second appropriation	Dec. 16, 1886	22	30.60	53.27	8
The Washburn & Downing Ditch	Jan. 21, 1888	2.77	.....	75.27	9
The Bates, Williamson & Morrison Ditch	April, 1882	2.70	.....	78.04	10
The Junietta Ditch	Jan. 7, 1884	21.25	80.74	11
Total appropriation on Kaunah creek					101.99

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FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—Continued.

NAME OF DITCH OR CANAL.	Stream from which water is taken	Date of appropriation	Summation of de- creees to each ditch or canal and decreeed to each priority		Cubic feet per second pre- viously appro- priated on stream	Order of priority on stream
			Cubic feet per second per sec- ond decree to each priority	Cubic feet per second decree to each priority		
The Blackman, Dunlak & Cook Ditch				5.50	5	1.84
The Perkins Ditch	Plateau creek		2.31	5	7.34	
The Atkinson Ditch, second appropriation . . . . .			.29	6	9.65
The Blackman D. & C. Ditch, second appropriation			1.44	7	9.93	
Total appropriation on Plateau Creek					11.37	
The Rockwell Ditch . . . . .			.98	1	...
The Fitzpatrick Ditch			2.85	2	.98	
The Burkhalf & Coakly Ditch . . . . .			.62	3	3.83
The Grove Creek Ditch Co.'s Ditch No. 1	Grove creek		2.13	4	4:45	
The Rockwell & Needles Ditch			3.91	5	6.58	
The Murray Ditch			2.13	6	10.49	
The G. C. Ditch Co.'s Ditch, second appropriation			6.40	7	12.62	
Total appropriation on Grove Creek					19.02	
The Mason & Eddy Ditch			5.70	1	...	
The Mesa Creek Ditch			16.62	2	5.70	

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The West Side Ditch	Mesa creek	4.97	22.32	3
The Independent Ditch		8.17	21.29	4
The Arkansas Ditch		14.20	35.46	5
The King Ditch		11.40	49.66	6
Total appropriation on Mesa Creek			61.06	
The Jones Ditch	Kimball creek	4.97	22.32	3
The McKee Ditch		2.31	4.97	2
The Cook Ditch		2.85	7.82	3
The Newman Ditch . . . . .		.28	10.67	4
The Cook Ditch, second appropriation		4.08	10.95	5
The Snider Ditch		1.78	15.03	6
Total appropriation on Kimball Creek			16.81	
The Snipes Ditch	Cottonwood creek	2.49	22.32	3
The Hall Ditch		4.97	24.49	2
The Mormon Mesa Ditch		22.70	7.46	3
The Davenport Ditch		8.50	30.16	4
The Park View Ditch		2.13	38.66	5
The Mormon Mesa Ditch, second appropriation		2.49	40.79	6
The Shotwell Ditch		2.85	43.28	7
Total appropriation on Cottonwood Creek			46.13	
The Fowers Ditch	White Water creek . . . . .	.53	1.60	1
The Brandon Ditch				2

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH OR CANAL	Stream from which water is taken	Date of appropriation	Order of priority on stream			
			Cubic feet per second appro- priated pre- viously to each creek to canal ditch or each creek to each water per sec- ond decreed to each priority	Cubic feet per second appro- priated pre- viously to each creek to canal ditch or each creek to each water per sec- ond decreed to each priority	Cubic feet per second appro- priated pre- viously to each creek to canal ditch or each creek to each water per sec- ond decreed to each priority	Cubic feet per second appro- priated pre- viously to each creek to canal ditch or each creek to each water per sec- ond decreed to each priority
The Pioneer of White Water Ditch	White Water creek		3.55	7.81	4.62	4.44
The Orchard Mesa Ditch			3.55	7.81	4.62	4.44
The River View Ditch						
Total appropriation on White Water Creek						
The Hauxhurst Ditch	Buzzard creek		4.44	5.68	5.70	.72
The Dunlap Ditch			4.44	5.68	5.70	.72
Total appropriation on Buzzard Creek						
The Coon Creek Ditch	Coon creek . . . . .		.72	14.20	.72	.72
The Atwell Ditch . . . . .			.72	14.20	.72	.72
Total appropriation for Coon Creek						
The Chiquita Dolores Ditch	East creek . . . . .		.72	.71	3.60	.72
The Anderson Ditch . . . . .			.72	.71	3.60	.72
The Unawep Ditch						
The East Creek Ditch						
Total appropriation from East Creek						

The Loba Ditch No. 1	1	.11	1
The Loba Ditch No. 2	2	.36	.11
The Loba Ditch No. 3	3	.18	.47
Total appropriation from Loba Creek, East Fork . . . . .		.65	
The Loba Ditch No. 4	4	.18	1
The Oakland Ditch		2.49	1
The Kauaga & Roberts Ditch		5.70	1
The Bull Creek Ditch		7.60	1
The Pioneer of Plateau Ditch		6.21	2
The Stuart Ditch		1.07	3
The Pioneer of Plateau Ditch, second appropriation		2.49	4
Total appropriation from Bull Creek		8.70	14.88
The Grape Vine Ditch		1.44	17.37
The Rapid Creek Ditch		7.10	1.44
The Crawford Ditch		3.55	2
Total appropriation from Rapid Creek		8.54	3
The Tender-foot Ditch		5.70	1
The Willow Creek Ditch		2.85	1
The Williamson Irrigating Ditch		2.85	1
The Upper Salt Wash Ditch		2.57	2
Total appropriation from Big Salt Wash Creek		12.09	5.42

Water District No. 45—James Tallmadge, Commissioner for 1889; residence, New Castle, Colo. Peter Churchfield, for 1890, appointed July 21, 1890; residence, Crested Butte.

Water District No. 45 consists of all lands situated on the south side of Grand river, and irrigated from ditches or canals taking water from the Grand river and its tributaries between the mouth of Roaring Fork river and the north line of Mesa county.

For the year 1889, Mr. Tallmadge makes a statistical report and a concise statement of difficulties met with in his district, as follows:

NEW CASTLE, Dec. 11, 1889.

HON. J. P. MAXWELL,
State Engineer.

SIR:—Herewith I transmit statement of ditches and amounts of cultivated land on the forms provided for that purpose.

It will appear that the 67 ditches within the district have a total length of 86 $\frac{1}{2}$ miles.

I have noted in this report that only 4 ditches of the 67 enumerated draw water from the Grand river (two of which are not adjudicated) all others are dependent upon the small tributaries from which 17,290 feet per minute of time has been drained. During the season of 1889 only 6,360 feet per minute of time could be supplied, and that average amount only for one irrigation in many instances. This marked insufficiency of water supply is the origin of never-ending discord among claimants for water during the irrigating season, and complications are constantly arising not defined by any statutory provisions or by any instructions emanating or that can emanate from your department, owing to their complex and intricate character.

The position of the Commissioner is, therefore, one wherein great forbearance, acute judgment and the finest sense of equity and justice may all fail to afford satisfaction. Instances have occurred in this district where priorities of right to the use of water are held at the lower end of the creek. All the water the creek affords fails to supply even a small portion of the amount decreed owing to the sinking away or wasting of the water in transit. The amount of water thus wasted in the bed of the creek was sufficient to accomplish a beneficial purpose if given to ditches at points higher up. In such a case, I have presumed to give the water to ditches where good could be

accomplished, believing the act to fall within the meaning of the law, or if not, at least within the range of common sense.

On Garfield creek worse conditions exist, as compared with those enumerated above. The prior right is held at the upper ditch on the creek. The second right in priority is held at the lower ditch of all.

Years of irrigation from the upper or prior ditch has caused seeps or springs to form, which supplies the lower portion of the creek with a cubic foot of water per second of time, after the water ceases to flow in the creek, above the head-gate of the prior ditch.

An intervening appropriator claims this water does not belong to the lower ditch or second priority, that in the natural course of things it all would have disappeared and that he constructed his ditch diverting and appropriating to the uses of his ditch the identical water arising from the springs. Without venturing any opinion relative to this controversy, I will express the belief that such matters should be subject to final decision in your department and litigation thereby estopped.

I will again call your attention to a question as to the boundaries of this District (No. 45) and District No. 42.

Wallace creek discharges its waters into the Grand river within the limits of Garfield county, and within the boundaries of Water District No. 45. The prior appropriator of water from that stream claims to be, and is in Mesa county, and has adjudicated his water right in District No. 42, and the act creating District No. 42 clearly implies that he is within that district. A later appropriation was made from that creek by the "Homestake" Ditch, which is within the county of Garfield and has been adjudicated in this district. There is not an amount of water sufficient to supply both appropriations in Wallace creek, hence a conflict.

Regretting to have wearied you with so long a letter upon matters of inferior importance, I will in conclusion add that the water of the Grand river flows by Water District No. 45, and in supply sufficient probably to irrigate 1,000,000 acres of land.

The great expense of a canal from the Grand river to supply the 100,000 acres of arable land in this district will delay its construction possibly for all time, certainly until the State sees the great importance of reclaiming a fine valley adapted to the growth of every product common to Colorado, and in fruit possibilities exceeding, probably, any other portion of the State. Colorado's golden age will dawn when the water of the Grand river is utilized upon the lands of this State.

Yours very truly,

JAMES TALLMADGE,

Commissioner.

Mr. Churchfield reports for 1890, twenty days' service on Battlement, Cache and Beaver creeks; that no loss of crops or dissatisfaction occurred. He recommends the enactment of a law whereby the Commissioner will have supervision over the distribution of water from ditches to consumers.

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COMMISSIONER'S REPORT, A. D. 1889.

DIVISION No. 5—DISTRICT No. 45.

NAME OF DITCH	Length thereof in miles	Average amount of water carried during three months	Number of days water was carried during three months	Average number of days water was carried during three months	Number of acres that can be irrigated thereby	Number of acres that can be irrigated thereby	Number of acres of alfalfa irrigated thereby	Number of acres of other crops irrigated thereby	Number of acres of natural grasses irrigated thereby	Number of acres of other grasses irrigated thereby	Number of acres of alfalfa irrigated thereby	Number of acres of other crops irrigated thereby	Total number of acres irrigated in district
The Murray & Yule Ditch . . . . .	.87½	60	4	500	100	...	200	60	...	...	...	...	...
The Wm Gant Ditch . . . . .	.25	70	1	130	7	...	40	11	...	...	...	...	...
The Moore Ditch . . . . .	.50	90	1	100	4	...	35	16	...	...	...	...	...
The East Divide Ditch . . . . .	.125	65	5	420	45	15	65	25	...	...	...	...	...
The Wm. H. Reynolds Ditch . . . . .	.50	65	.25	40	...	1	...	10	...	...	...	...	...
The Clausen & Byrne Ditch	1	90	1	200	16	2	15	60	...	...	...	...	...
The Camp Bird Ditch	1.50	100	1.50	300	7	...	75	12	...	...	...	...	...
The Clausen Ditch . . . . .	.50	95	#1	75	...	...	...	20	30	...	...	...	...
The Little Nuckells Ditch . . . . .	.25	10	.25	15	...	...	...	2	...	...	...	...	...
The Don Ditch	1.25	50	1.50	125	20	...	...	30	20	...	...	...	...
The Rustler Ditch	1	60	1	100	1	* 10	...	...	...	...	15	...	...
The Clear Creek Ditch . . . . .	.75	50	1	150	18	...	...	40	17.50	...	...	...	...
The Rising Sun Ditch	2.50	100	4	640	25	5	...	...	...	...	...	...	100

* This ditch draws its water from the Grand river.

COMMISSIONER'S REPORT, A. D. 1889—*Continued.*

NAME OF DITCH	Length thereof in miles	Number of days water was carried three times per second of time that can be triggered from alfalfa irri-	Number of acres of alfalfa irri-	Number of acres of grasses of natural grasses triggered three times per second of time that can be triggered from alfalfa irri-	Number of acres of grasses of natural grasses triggered three times per second of time that can be triggered from alfalfa irri-	Total number of acres triggered from alfalfa irri-	Number of acres triggered from alfalfa irri-	Total number of districts affected in
The Mann Ditch . . . . .	.75	90	2	600	40	90	55	.
The Starke Ditch . . . . .	.12½	90	.75	75	1	2	30	.
The Nuckolls Ditch	1	Not used in 1889						.
The Ward & Reynolds Ditch	1.50	40	2	300	7	..	85	.
The Hunter & Gant Ditch . . . . .	.75	100	2	300	27	3	100	57
The Buffalo Ditch	1.25	90	.75	80	1	..	2	20
The Boulton & Banta Ditch	1	90	1	225	27	..	42	.
The Battlement Ditch	1.50	100	2.50	400	58	15	14	55
The Harding & Skinner Ditch	1.25	90	1	250	10	5	..	30
The Huntley Ditch	1.50	90	1.50	550	15	4	25	75
The Taughinbaugh Ditch	2	100	1	700	25	5	..	80
The Tallmadge & Gibson Ditch	4	40	3	710	24	..	85	82
The J. A. Clark Ditch	1	90	1	140	15	..	10	20
The Homestake Ditch . . . . .	.50	20	1	150	..	..	..	20

The Porter Ditch	8	20	5	1,000	26	• • •	20	148
The Upper Mann Ditch . . . . .	.50	50	1	300	2	• • •	25	25
©The Emanuel Gant Ditch . . . . .	.75	60	1	150	15	• • •	50	4
The West Divide Ditch	2.50	20	3	600	13	• • •	5	67
The Hudson & Sullivan Ditch	1.25	60	2	250	12	• • •	110	45
The R. F. Ditch	1.25	50	3	750	20	• • •	75	60
The Teepe Ditch . . . . .	.75	40	1	100	4	• • •	20	22
The O'Brien Feeder Ditch	2	50	1	200	2	• • •	30	25
The Lonis Reynolds Ditch . . . . .	.25	25	.50	25	2	• • •	7	7
The Canary Bird Ditch . . . . .	.25	100	.50	75	• • •	• • •	5	5
The Sliding Ditch	1	20	1	125	• • •	• • •	10	15
The Spring Creek Ditch . . . . .	.75	100	.25	75	• • •	• • •	5	5
The Cottonwood Ditch	1.50	70	2.50	600	20	• • •	75	40
The Ward, Dow & Taylor Ditch	1.25	30	2	400	30	• • •	80	35
The Mocking Bird Ditch	1	60	1	150	• • •	• • •	10	23
The Young, Mackey & O'Conner Ditch	1.75	30	1	300	10	• • •	• • •	45
The Jay Bird Ditch . . . . .	.75	45	1	300	5	• • •	20	25
The Hewitt & Melburn Ditch	1	40	1	325	2	2	25	15
The Smith Ditch	1	30	1	100	• • •	• • •	20	20
The Smith & New Ditch	1.50	30	1	225	2	1	20	5
The Anderson Ditch . . . . .	.50	25	1	150	2	• • •	25	20
The Musconetcong Ditch	1.25	20	1	250	2	• • •	30	—

COMMISSIONER'S REPORT, A. D. 1890—Concluded.

The Mountain Sheep Ditch . . . . .	.25	15	1	40	15	20	2
† The Clarkson (Grand river) Ditch . .	2	90	2	150	15	10	7
† The Bermuda (Grand river) Ditch . .	1.50	100	2	150	20	10	10
† The Tahauac (Water creek) Ditch . .	1.50	90	2	320	25	35	15
Totals in District	86.875	106.25	17,315	810	67	1,802	2,106.50
							4,791.50

* This ditch draws its water from the Grand river.

† Not adjudicated.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 45, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Mesa Ditch	Springs	Feb. 19, 1889	Dec. 14, 1888	17	Augustus C. Smith <i>et al</i>
The Necessity Ditch	East Mamm creek	July 5, 1889	April 6, 1889	6	S. L. Lewis
The B-ruddy Ditch	Graud river . . .	July 13, 1889	April 1, 1887	50	Fred Bernudy
The Shutt Reservoir Feeder Ditch	Battlement creek . . .	Aug. 19, 1889	Aug. 10, 1889	70	Gleason W. Shutt
The Grandstaff Ditch	South Cañon creek . . .	Sept. 5, 1889	May 10, 1888	2	William J. Grandstaff
The Dennis & Barton Ditch	Divide creek	Mar. 10, 1890	Mar. 10, 1887	5	Lucien N. Drake <i>et al</i>
The Most Ditch	Alkali creek	May 9, 1890	Nov. 4, 1890	3.58	Henry Mast and Brothers
The Keno Ditch	Alkali creek	May 9, 1890	May 5, 1890	10.50	Frank W. Toland <i>et al</i>
The Gilbert McLean Ditch	Alkali gulch	May 12, 1890	Not given	2.60	Gilbert McLean
The East Divide Ditch, the Gallagher extension of	East Divide creek	June 21, 1890	Aug. 9, 1882	10	John C. Gallagher
The Probasco Ditch No. 1	West Divide creek . . .	Oct. 28, 1890	June 20, 1886	3	Frank Probasco
The Probasco Ditch No. 2	West Divide creek . . .	Oct. 28, 1890	Nov. 1, 1887	. . . . .	Frank Probasco
The Probasco Waste Water Ditch	Hall's gulch	Oct. 28, 1890	. . . . .	3	Frank Probasco

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO 15, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Gant Reservoir	West Mann creek	On the stream	May 9, 1889	April 21, 1888	7,500,000	Johnathan Gant <i>et al</i>
The Necessity Reservoir	East Mann creek	Necessity Ditch	July 5, 1889	April 6, 1889	700,000	S. L. Lewis
The Shutt Reservoir	Battlement creek	Shutt Ditch	Aug. 19, 1889	April 10, 1889	3,000,000	Gleason W Shutt

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 50, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Pleasant View Ditch	Troublesome creek	Dec. 13, 1889	April 5, 1882	9-10	George Serrell
The Side Mountain Ditch	Springs	Dec. 13, 1889	June 5, 1884	Not given	George Serrell
The Serrell Ditch, enlargement	Troublesome creek	Dec. 13, 1889	May 15, 1890	Not given	George Serrell et al

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 51, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL,	Name of stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Hammond Ditch No. 2, amended statement	St. Louis creek	April 18, 1889	Aug. 20, 1883	24.50	Julius H. Hammond
The Berthoud Pass Canal, E. branch	Frazier river	Jan. 2, 1890	Oct. 1, 1889	350	George H. Church
The Berthoud Pass Canal, W. branch	Frazier river	Jan. 2, 1890	Oct. 1, 1889	350	George H. Church
The Clayton-Smith Ditch	Willow creek	Oct. 8, 1890	. . . . .	11.25	Clayton Smith
The Coffey & McNeary Ditch	Grand river	Oct. 21, 1890	. . . . .	22.50	N. H. Coffey <i>et al</i>
The McNeary Ditch	McNeary creek	Nov. 5, 1890	June 6, 1890	12.50	William R. Kinney

STATEMENTS CONCERNING DITCHES

IN WATER DISTRICT NO. 32, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Antelope Creek Ditch	Antelope creek	Feb. 20, 1889	Jan. 20, 1889	5.60	. . . . . A. W. James
The Peter Brunner Ditch	Box Cañon creek	May 27, 1889	April 15, 1889	15.50	Peter Brunner
The Layton Irrigating Ditch	Horse creek	June 4, 1889	May 25, 1889	2.61	. . . . . J. J. Layton
The Osage Ditch	Sheephorn creek	Aug. 9, 1889	Aug. 15, 1884	5	. . . . . Harvey B. Dice
The Wilmot Ditch	Big Cottonwood crk	Aug. 19, 1889	June 1, 1884	7.81	Stephen D. Wilmot
The North Piney Ditch	Piney river	April 10, 1890	Oct. 15, 1889	3	Zachary T. Freeman
The South Piney Ditch	Piney river	April 10, 1890	Oct. 15, 1889	3	Zachary T. Freeman
The Bona Dea Ditch	Grand river	April 14, 1890	Dec. 17, 1889	26.04	James H. Myers <i>et al</i>
The Burneson Ditch	Burneson creek	April 17, 1890	May, 1888	5	Daniel G. Burneson
The South Piney Ditch	Piney river	April 21, 1890	Oct. 15, 1889	3	Zachary T. Freeman

STATEMENT CONCERNING DITCHES

GIN WATER DISTRICT NO. 53, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

STATE ENGINEER.

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NAME OF DITCH	NAME OF STREAM FROM WHICH WATER IS TAKEN	DATE OF FILING IN STATE ENGINEER'S OFFICE	TIME OF COM- MENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET, PER SECOND	NAME OF CLAIMANT
The S. D. Ditch	Egeria creek	Dec. 13, 1888	June, 1885	12	Samuel D. Wilson
The Deep Creek Irrigating Ditch	Deep creek	Jan. 19, 1889	May 29, 1887	10	James Dilts
The S. D. Ditch, enlargement	Egeria creek	Mar. 8, 1889	Oct. 18, 1888*	11.10	Levi L. Newcomer and Frank Groh
The Red Dirt Ditch	Red Dirt creek	Mar. 29, 1889	Dec. 29, 1888	8.48	M. M. Grimes
The Oak Knoll Ditch	Antelope creek	April 17, 1889	Sept. 15, 1888	7.60	Alvin Dieter
The Nelson Irrigating Ditch	Horse creek	April 29, 1889	Mar. 12, 1889	7.81	Edwin H. Nelson
The High Water Ditch	S. Folk Nigeria creek	May 14, 1889	Oct. 18, 1888	7.70	Louis Anserg and Anthony Steiner
The Sease Irrigating Ditch No 2	Sheep Cañon creek	May 25, 1889	Not given	3.91	S. S. Sease
The Frederick Irrigating Ditch	Turret creek	July 39, 1889	April 15, 1887	5.21	Christian Frederick
The Elkhorn Ditch	Sarvis creek	Oct. 6, 1889	April, 1886	13.50	Thomas Smith and William J. Armour
The Moody Creek Ditch	Watson creek	Oct. 7, 1889	Sept. 11, 1889	3	James O. Swinney
The Fix Ditch, extension	Sarvis creek	Oct. 26, 1889	Aug. 1, 1886	8	Elijah Moody
The Couger Ditch	John's creek	Nov. 23, 1889	Indefinite	5	James O. Swinney
The Elliott Ditch	Rock creek	Dec. 11, 1889	April 15, 1887	22.88	John D Conger et al.

STATEMENT CONCERNING DITCHES—*Concluded.*

NAME OF DITCH	Stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	NAME OF CLAIMANT	
				Capacity claimed in cubic feet, per second	Capacity claimed in cubic feet, per second
The Groff Ditch	Spring creek	Jan. 6, 1889	May, 1886	11	Naunie I. Elliott
The North Egeria Ditch	N. Fork Egeria creek	Feb. 19, 1889	April 16, 1885	7	John Groff
The Elliott Ditch	Rock creek	Dec. 11, 1889	May, 1886	11	Naunie I. Elliott
The North Egeria Ditch	N. Fork Egeria creek	Feb. 19, 1889	April, 1886	13.50	Thomas Smith and William J. Armour
The John McCluskey Ditch ?	Horse creek	April 11, 1889	Mar. 6, 1889	3	John McCluskey

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 53, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Nelson Reservoir	Horse & Willow c'ks	Nelson Ir. Ditch.	April 29, 1889	Mar. 12, 1889	318,655	. . . . . Edwin H. Nelson

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 50, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890,

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Hinkle-Hamilton Irrigating Ditch	Ohio creek	Dec. 17, 1888	Dec. 8, 1888	24	Jacob R. Hinkle and J. W. Hamilton
The Hamilton Ditch	Ohio creek	Dec. 17, 1888	Dec. 8, 1888	5	. . . . . J. W. Hamilton
The High Line Ditch	Little Mill creek	Jan. 1, 1889	Dec. 8, 1888	20	Allan F. Cunningham and Jonathan McKillip
The Gunnison River-Ohio Creek Irrigating Ditch	Gunnison river	May 15, 1889	Mar. 5, 1889	9	. . . . . Robert L. Marshall
The McCraney Ditch	Fisher's gulch	June 17, 1889	June 13, 1889	5	. . . . . Thomas McCraney
The Gunnison Town Ditch	Gunnison river	July 10, 1889	April 20, 1889	35	. . . . . The Town of Gunnison
The Lone Pine Ditch	Ohio creek	July 27, 1889	July 10, 1889	7.45	William Kembrew, Byron Spry, A. J. Seaman
The Mary O. Smith Ditch	Carbon creek	Jan. 2, 1890	Oct. 1, 1886	9	. . . . . Mary O. Smith
The Fisher Ditch	Lone Pine ditch	April 17, 1890	Nov. 22, 1889	24.41	Andrew P. Marston, H. H. Horton, A. B. Matthews
The Roaring Judy Ditch	Roaring Judy gulch	May 28, 1890	May 1, 1886	9.04	. . . . . Arthur I. Sims
The Marston Ditch	East river	Oct. 2, 1890	June 15, 1880	26.04	. . . . . John P. Marston

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 60, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1885, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Robinson Ditch	Springs	Nov. 15, 1889	Nov. 15, 1880	2.75	Mary Robinson
The Robinson Ditch No. 2	No. 3 spring { Branch of F. Fork	Nov. 15, 1889	April 20, 1886	.42	Mary Robinson
The Little Chief Ditch	{ of Big Bear creek	Oct. 14, 1890	Aug. 23, 1890	7.50	Olaf Nelson and Fred Fortier

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 60, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Pleasant Valley Reservoir	Br. of Bear river	Built on stream	Oct. 31, 1890	June 2, 1890	266,666	N. T. Bowman <i>et al</i>

STATEMENT CONCERNING DITCHES.

IN WATER DISTRICT NO. 61, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THIS STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Albee Channel Ditch	Springs, waste water .	Aug. 8, 1890	Dec. 20, 1885	1,000	Charles Albee
The Main Canal No. 1	Dolores river	Aug. 27, 1890	Nov. 25, 1885	700	The Colorado Consolidated Land and Water Company
The Main Canal No. 2	Dolores river	Aug. 27, 1890	July 6, 1886	600	

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 61, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	NAME OF STREAM SUPPLYING WATER THEREFOR	NAME OF DITCH LEADING WATER THERETO	DATE OF FILING IN STATE ENGINEER'S OFFICE	DATE OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET	NAME OF CLAIMANT
The Narraguinnep Reservoir	Dolores river	Main Canal No. 2	Aug. 27, 1890	Nov. 25, 1885	280,000,000	
The Quahntenoc Reservoir	Dolores river	Main Canal No. 1	Aug. 27, 1890	July 5, 1886	24,300,000	The Colorado Consolidated Land and Water Company.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 62, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT	
The Beaver Creek Irrigating Ditch . . .	Beaver creek	April 2, 1889	Spring, 1896	15	..... C. P. Foster and R. G. Radeka	
The Foster Irrigating Ditch	McDonough gulch . . .	April 2, 1889	Spring, 1877	2	..... . . . . . C. P. Foster	
The Little Cimarron Ditch	Little Cimarron	April 29, 1890	Not given	Not given	..... . . . . . Not stated	
The Cimarron Feeder of Garnet Ditch . .	W. Branch Cimarron . .	May 22, 1890	Sept. 23, 1889	110	..... . . . . . The Garnet Ditch Company	

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 63, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Sherard and Hughes Ditch	East creek . . .	Jan. 16, 1889	May, 1884	13.50	. . . . . P. H. Sherard and Geo. H. Hughes
The Boyle Ditch	Clark creek . . .	May 15, 1890	April 25, 1890	3	. . . . . H. C. Boyle
The Riley Watson Irrigating Ditch	Springs	May 20, 1890	Nov. 1, 1879	2.25	. . . . . Prescott T. Stevens
The Harms and Hazel Ditch . .	West creek . . .	June 26, 1890	May 1, 1890	4	. . . . . Louis Harms and George H. Hazel

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 68, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Virginus Ditch	Sueffles creek	June 27, 1890	June 1, 1890	20	. . . . . The Caroline Mining Company

WATER DIVISION No. 6.

Green River Division embraces all Water Districts now or hereafter to be formed, consisting of land in the State of Colorado irrigated by water taken from the Green river and its tributaries.

No Superintendent has been appointed for this division. The Water Districts in the division are numbered 43, 44, 54, 55, 56, 57 and 58.

Water District No. 43—W. H. Clark, Commissioner, Meeker, Rio Blanco county.

Mr. Clark reports for the year 1889, that he was called upon to divide water, June 15; that he appointed B. F. Clark assistant, to take charge of Flag and Coal creeks, and M. P. Burch to take charge of ditches on Pi-ce-ance creek; that the former was employed eleven days, and the latter thirty-five days; that there was a greater scarcity of water in the above named creeks than ever known before, and, as a consequence, about three-fourths of the crops were lost; that on Pi-ce-ance creek many of the ditches were wrongfully decreed, thereby depriving older ditches of their rightful quantity of water; that a petition was filed with the Court praying for a rehearing, which was granted. That water for domestic use was claimed, in many cases, but no ditch was permitted to carry water for that purpose alone.

He further reports that Senate Bill No. 14, Session Laws, 1889, which provides "that the person upon whose lands seepage or spring waters first arise, shall have the prior right to such waters, if capable of being used upon his lands," practically annuls the decree on all the smaller streams in his district, and especially as

to Pi-ce-ance creek; that the latter creek, with its numerous tributaries heading on the Book Plateau, at an elevation of about 8,000 feet, drains between 650 and 800 square miles of territory; that nearly all of these tributaries have water near their sources during the greater part of the irrigating season, but are, with the exceptions of Stuart Gulch, Willow and Black Sulphur creeks, dry at the mouth; that, in all cases where the streams head on the Great Divide, there are to be found springs near the mouth, discharging from one to ten cubic feet per second; that the waters from these springs have been appropriated and decreed to ditches lower down, but that subsequently the land immediately below and including the springs have been occupied and the waters from the springs claimed thereon to the great damage of older and decreed rights.

He thinks the law should be repealed, so far as it affects spring waters, as it effectually defeats the ends of justice in that part of the State.

Mr. Clark also reports more attention being given to the building of reservoirs for the storage of storm waters, and that the year 1889 has demonstrated the adaptability of the White River Valley soils for the raising of wheat—the yield in many cases being over fifty bushels per acre.

For 1890, Mr. Clark reports an increased water supply over 1889, and no loss of crops, the supply being sufficient for all purposes.

Following will be found statistical statement for 1890:

COMMISSIONER'S REPORT; A. D. 1890.

DIVISION No. 6—DISTRICT No. 43.

The Willow Creek Ditch No. 1 . . . . .	.70	180	2	60	30
The Willow Creek Ditch No. 2 . . . . .	.50	100	1	45	25
The Willow Creek Ditch No. 3 . . . . .	.50	100	1	40	20
The Niblock Ditch	2.25	220	5.40	300	15
The South Side High Line Ditch	2.50	230	6	600	10
The Schuttee Ditch . . . . .	.50	90	.50	40	20
The Little Beaver Ditch	2.75	40	1	160	3Q.
The Hughes Ditch No. 1	1	160	1	80	60
The Neitz and Reigan Ditch	2	60	1	125	40
The Payson Ditch . . . . .	.30	30	.50	60	20
The Harp Ditch	1.50	50	1	80	45
The Lone Tree Ditch . . . . .	.50	40	.40	40	10
The Miller Ditch . . . . .	.75	..	..	..	..
The Coal Creek Mesa Ditch	4.25	25	1	80	40
The Cox Ditch	1	200	1	80	15
The Hayes Ditch	1	75	1	50	30
The Little Ditch	1.25	210	2.50	110	50
The Big Beaver Ditch	2	180	1.75	100	40
The High Line Ditch	8.25	220	31.12	3,500	40
The Wilson Ditch . . . . .	.50	25	.50	60	450
The Lawyer Ditch	1	180	1	60	40
The Hughes Ditch No. 2	1.50	150	.30	60	40

COMMISSIONER'S REPORT, A. D. 1890—Continued.

NAME OF DITCH	Length thereof in miles	Average amount of water carried during irrigating season of year per second foot irrigated the time	Number of acres of land irrigated three times	Number of acres of land irrigated three times from elatifolia alfalfa	Number of acres of land irrigated three times from grasses other than alfalfa	Number of acres of land irrigated three times from three species of grasses	Total number of acres irrigated in district
The Gilmore Ditch	1	.75	1	.55	80	30	30
The Nichols Ditch	1.25	.200	.75	1	.320	25	30
The B., A. & B. Ditch	3	.100	1	1	100	15	50
The Coal Creek Valley Ditch	1.50	.190	1	1	100	40	55
The Wagner Ditch . . . . .	.75	—	—	—	—	—	—
The Pi-E-ance Ditch	1.50	.180	2	.120	—	60	10
The Hay Ditch . . . . .	.75	.100	1	.80	—	40	—
The Melvin Ditch	1.50	.180	.50	.110	—	25	20
The Howard Ditch	1	.120	1	.80	—	45	5
The Larson Ditch	2.50	.150	1	.300	.20	70	80
The Home Supply Ditch . . . . .	.75	—	—	—	—	—	—
The Rooney Ditch	1	.200	1.25	100	—	20	30
The Emily Ditch	1	.200	1.25	120	—	30	25
The Lowland Ditch . . . . .	.80	.185	.2	.120	—	80	25

The Case & Storey Ditch	1.75	50	1	140	• • • • •	40	• • • • •
The B., M. & H. Ditch	4	200	3	360	40	200	120
The Pile Ditch . . . . .	.50	100	.50	40	• • • • •	20	• • • • •
The Burch Ditch No. 1	1.50	200	.50	120	• • • • •	40	20
The Howey Ditch	1.25	160	1	100	• • • • •	60	30
The Wallace Ditch . . . . .	.50	160	1.25	100	• • • • •	40	5
The D. D. Taylor Ditch	1.25	180	2	100	• • • • •	40	10
The Latham Ditch . . . . .	.50	120	.70	140	• • • • •	80	5
The M., H. & M. Ditch	3.50	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •
The Beard & Watson Ditch	1	120	.75	100	• • • • •	20	40
The Oldland Ditch	1.50	150	1.50	160	• • • • •	80	5
The Griffith Ditch . . . . .	.50	60	.50	50	• • • • •	10	12
The Yough Ditch	1.25	180	1.50	90	• • • • •	15	45
The Duck Creek Ditch . . . . .	.50	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •
The Spaulding Ditch . . . . .	.75	125	1.50	100	• • • • •	20	25
The B. & M. Ditch	2.50	140	1.50	400	• • • • •	48	40
The Jessup Ditch No. 1 . . . . .	.10	60	1	50	• • • • •	20	4
The Blue Grass Ditch . . . . .	.10	60	.50	45	• • • • •	30	5
The Sayer Spring Ditch . . . . .	.25	90	1.25	60	• • • • •	35	—
The Burch Ditch No. 2	1	90	1	80	• • • • •	• • • • •	30
The White River City Ditch	2.25	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •
The Oak Ridge Park Ditch	3.50	40	6	1,000	• • • • •	20	220

COMMISSIONER'S REPORT, A. D. 1890—*Concluded.*

NAME OF DITCH.	Length thereof in miles.	Number of days water was carried three times.	Average amount of water carried during season of 1890 in cubic feet per second of time.	Number of acres of land that can be irrigated three times.	Average number of cubic feet of water carried during season of 1890 in each acre per second of time.	Number of acres of land irrigated three times.	Number of acres of land irrigated three times from other crops irrigated therefrom.	Number of acres of land irrigated three times from other crops irrigated therefrom.	Number of acres of land irrigated three times from alfalfa raised seedbeds.	Number of acres of land irrigated three times from alfalfa raised grasses.	Number of acres of land irrigated three times from three different crops.	Total number of acres irrigated in district.
The Mouth Ditch	1.25	25	.	.	.	.	.	.	.	.	.	.
The Jessup Ditch No. 2 . . . . .	.10	60	1	50	.	.	.	.	20	4	.	.
The Upper Ditch . . . . .	.50	90	1	40	.	.	.	.	20	.	.	.
The Barnhart Ditch	1.25	.	.	.	.	.	.	.	.	.	.	.
The Reign Ditch No. 1 . . . . .	.60	50	.50	40	.	.	.	.	25	.	.	.
The Reign Ditch No. 2 . . . . .	.80	50	.75	30	.	.	.	.	30	.	.	.
The Taylor Ditch . . . . .	.40	40	.50	40	.	.	.	.	20	.	.	.
The Hunter Ditch . . . . .	.40	50	.50	50	.	.	.	.	15	.	.	.
The Ebler Ditch . . . . .	.50	40	.60	50	.	.	.	.	20	20	.	.
The Florence Ditch	1.50	80	1	40	.	.	.	.	15	.	.	.
The Niblock Ditch, extension of	11	.	.	.	.	.	.	.	.	.	.	.
The Little Colorow Ditch	2.50	230	4	150	.	.	.	.	50	60	.	.
The Monitor Ditch	1.75	180	2	75	.	.	.	.	45	10	.	.
The Fawn Creek Ditch . . . . .	.50	80	.50	40	.	.	.	.	25	.	.	.
The Douglas Creek Ditch	5.50	180	2.50	360	.	.	.	.	25	20	.	.
The Buckeye Ditch	1.50	220	2	100	.	.	.	.	20	25	.	.
Totals in district	133.55	...	191.17	160.60	255	329	4,976	3,419	55	55	9,034	.

The following districts have no Water Commissioners, applications for their appointment not having been made:

Water District No. 44—Consists of all lands irrigated by water taken from that portion of the Yampa river above the mouth of Snake river and below the mouth of Fortification creek, and from the streams draining into the said portion of the Yampa river.

Water District No. 54—Consists of all lands in the State of Colorado irrigated by water taken from that portion of the Little Snake river and its tributaries above the most westerly intersection of said river with the Colorado State line.

Water District No. 55—Consists of all lands in the State of Colorado irrigated by water taken from that portion of the Yampa river below Water District No. 44, and from the streams draining into the said portion of Yampa river not included in Water District No. 54.

Water District No. 56—Consists of all lands in the State of Colorado irrigated by water taken from that portion of the Green river embraced within the boundaries of the county of Routt, and from the streams draining into the said portion of the Green river, except the Yampa river and its tributaries.

Water District No. 57—Consists of all lands irrigated by water taken from that portion of the Yampa river above Water District No. 44 and below the mouth of Elk creek, and from the streams draining into the said portion of the Yampa river.

Water District No. 58—Consists of all lands irrigated by water taken from the Yampa river above Water District No. 57, and from the streams draining into the said portion of the Yampa river.

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 43, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE, FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	NAME OF STREAM FROM WHICH WATER IS TAKEN	DATE OF FILING IN STATE ENGINEER'S OFFICE	TIME OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET PER SECOND	NAME OF CLAIMANT
The Douglas Creek Ditch	Douglas creek	Dec. 17, 1888	Aug. 1, 1888	11.50	Charles P. Hill
The Buckeye Ditch	Flag creek	Dec. 31, 1888	Oct. 5, 1888	1.16	W. S. Collins
The Coal Creek Ditch No. 1	Coal creek	Jan. 19, 1889	May 14, 1883	Not given	William H. Card <i>et al</i>
The Martin Ditch	Coal creek	Jan. 19, 1889	June 7, 1883	2	George W. Martin
The Florence Ditch	Stewart gulch	May 1, 1889	June 3, 1888	3	Florence E. Collins
The George E. Howard Ditch	Dry Piecance creek	May 27, 1889	May 28, 1887	5.70	George Edmond Howard
The Fawn Creek Ditch	E. Fork Fawn creek	June 17, 1889	May 1, 1887	3	John M. Pulver
The H. S. Jessup Ditch	Stewart gulch	July 13, 1889	June 14, 1887	7.19	H. S. Jessup
The Highland Ditch	White river	Sept. 28, 1889	May 1, 1886	60.60	The Highland Ditch Company
The Hammond Ditch	White river	Nov. 13, 1889	May 1, 1886	10.93	Lyman C. Hammond
The Jessup Extension of Oldland Ditch	Piecance creek	Dec. 7, 1889	April 22, 1887	9.82	Charles W. Jessup
The Maylin Ditch	Taylor creek	Jau. 4, 1890	Not given	4	Owen Maylen
The G. V. Ditch, first enlargement	Miller creek	Feb. 3, 1890	May 1, 1886	5.625	Frank Smith <i>et al</i>
The G. V. Ditch, second enlargement	Miller creek	Feb. 3, 1890	April 1888	10.85	Frank Smith <i>et al</i>
	Miller creek	Feb. 3, 1890	Sept. 15, 1889	18.475	Frank Smith <i>et al</i>

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The Schweizer Ditch*	Black Sulphur creek	Feb. 21, 1890	Aug. 7, 1886	6.90	John D. Schweizer and Scott Sawyer
The Big Beaver Ditch	Big Beaver creek	Feb. 24, 1890	April 5, 1886	6.94	David Steel
The Coon Ditch	Big Beaver creek	Feb. 24, 1890	June 25, 1888	6.94	Marcus Coon
The German Ditch	Piceance creek	Mar. 29, 1890	Mar. 25, 1889	11.30	Hermann Richner
The McKee Ditch	Piceance creek	Mar. 29, 1890	May 11, 1884	14.31	Hermann Richner
The Frank Smith Ditch	Miller creek	April 3, 1890	May 1888	10.67	Frank Smith
The West Fork Ditch No. 1	W. Fork Miller creek	April 3, 1890	May 1888	17.47	Irwin D. Myers
The West Fork Ditch No. 2	W. Fork Miller creek	April 3, 1890	May 1888	10.67	Frank J. Myers
The Frank Myers Ditch	Miller creek	April 3, 1890	Aug. 27, 1889	14.236	The White River Irrigation Co
The White River Irrigation Co.'s Ditch	Miller creek	April 25, 1890	Feb. 8, 1890	11.72	James Smith
The Jim Smith Ditch	Beaver creek	May 17, 1890	April 16, 1890	7.44	Ellen Reigen
The Pat Reigan Ditch	Piceance creek	May 17, 1890	April 20, 1885	37.50	William B. Loring <i>et al</i>
The Loring Ditch	White river	June 17, 1890	Oct. 13, 1888	10.32	Mrs. Ora H. Watson
The Ute Creek Ditch	Ute creek	Aug. 21, 1890	July 25, 1890	10.32	Mrs. Ora H. Watson
The Ute Mesa Ditch	Ute creek	Aug. 21, 1890	Aug. 13, 1890	9.33	Marcus C. Beckman
The Park Creek Ditch	Park creek	Oct. 25, 1890	June 7, 1890	11.15	Marcus C. Beckman
The Sulphur Spring Ditch	Sulphur Spring creek	Oct. 25, 1890	May 5, 1885	5.77	H. M. Driefuss <i>et al</i>
The Driefuss Ditch	White river	Nov. 5, 1890	May 15, 1885	5.125	W. G. Warren
The Warren Ditch	White river	Nov. 12, 1890	May 15, 1885	5.125	Conrad Streb
The Streb Ditch	N. Fork White river	Nov. 25, 1890	Oct. 15, 1890	5.50	Conrad Streb
The Cherry Creek Ditch	Cherry creek	Nov. 25, 1890	June 14, 1889	5.50	Conrad Streb

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 43, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	NAME OF STREAM SUPPLYING WATER THEREFOR	NAME OF DITCH LEADING WATER THERETO	DATE OF FILING IN STATE ENGINEER'S OFFICE	DATE OF COMMENCEMENT OF WORK THEREON	CAPACITY CLAIMED IN CUBIC FEET	NAME OF CLAIMANT
The Douglas Creek Reservoir	Douglas creek	On the stream	Dec. 17, 1888	April 7, 1888	1,803,963	Charles P. Hill
The Larson Reservoir	Gulch, unnamed	On the stream	Jan. 18, 1889	July 29, 1888	Not given	Henry C. Larson
The Larson Reservoir No. 2 . .	{ Branch Nineteen- Mile creek	On the stream	Sept. 9, 1889	May 10, 1889	1,018,750	Henry C. Larson
The Morgan Reservoir	Piceance creek	On the stream	Oct. 1, 1890	Sept. 15, 1889	3,480,000	Frank Morgan, John Prechtel

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STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 44, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Deer Creek & Morrapas Ditch	{ Morrapas & Deer creeks	Dec. 17, 1888	1887	Not given	Riley Hamilton <i>et al</i>
The North Fork Ditch	Big Gulch creek	Mar. 4, 1889	Oct. 13, 1888	12.80	John W. Stearly and Thomas W. Smith
The Dodson Ditch No. 1	Hodges creek	April 9, 1889	May 25, 1887;	2	John M. Dodson
The Dodson Ditch No. 2	Hodges creek	April 9, 1889	Not given	2	John M. Dodson
The Weldon Ditch	{ N. Fork E. branch of Williams fork	July 8, 1889	April 19, 1889	5	Weldon Rider
The Freeman Ditch	Milk creek	Sept. 30, 1889	Sept., 1888	4	A. D. Freeman
The Yampa Valley Stock Breeding Co. Irrigating Ditch	Yampa river	Nov. 19, 1889	Oct. 22, 1887	15	The Yampa Valley Stock Breeding Co
The Yampa Valley Stock Breeding Co. Irrigating Ditch, encl	Yampa river	Dec. 7, 1889	Oct. 23, 1889	5	The Yampa Valley Stock Breeding Co
The Mary Dunn Ditch	Beaver creek	Dec. 16, 1889	July 1, 1889	5.80	Mary Dunn
The Peterson & Dunn Ditch	Beaver creek	Dec. 16, 1889	April 10, 1889	12.70	H. C. Peterson <i>et al</i>
The Honestad Gulch Irrigating Ditch	Homestead gulch	April 19, 1890	May 7, 1888	1.50	J. C. Peck
The N. Name Irrigating Ditch.	No Name gatch	April 19, 1890	Aug. 27, 1885	1.50	Nancy A. Searcy
The Peck Ditch	Creek, unnamed	April 19, 1890	May 16, 1887	4	James C. Peck
The Spring Creek Irrigating Ditch	Spring creek	April 19, 1890	Aug. 27, 1885	1.50	Nancy A. Searcy

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Deep Cut Irrigating Ditch	Bear river	April 21, 1890	May 1, 1886	48	J. L. Tower <i>et al</i>
The Waste Ditch	Waste waters	May 21, 1890	April 5, 1889	19	Samuel H. Tharp
The W. Fork of Oak Creek Ditch	Oak creek ditch	May 21, 1890	Mar. 25, 1889	10	Samuel H. Tharp
The Coal Bank Gulch Irrigat. Ditch	Coal Bank gulch	May 26, 1890	May 25, 1888	100 inches	J. C. Peck
The Bear River Ditch	Yampa river	Oct. 2, 1890	Not given	10	Abram and Charles R. Fiske

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT No. 54, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH	Stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT	
					1884	1890
The Morgan Ditch	N. F'k Snake river	July 13, 1889	Sep., 1884	22.50	.....	William T. Morgan
The Ole Bull Ditch	E. F'k Solomon cr'k	Aug. 25, 1890	Aug. 12, 1890	63.20	.....	The Ole Bull Mining & Smelting Company
The Morgan Ditch, enlargement .	N. F'k Snake river	Aug. 28, 1890	Sep., 1884	2.50	.....	T. S. Gardner

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 55, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF DITCH OR CANAL	Name of stream from which water is taken	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT	
					NAME OF CLAIMANT	NAME OF CLAIMANT
The Smith Ditch	Efk Head creek	Dec. 31, 1888	Sept. 13, 1886	18	Albert Squire, Michael H. Smith & Dallas, Nich., Elmer, Oscar Elmer, Matt Elmer, William Pritchard, A. M. Walker and L. E. Kitchens	
The Gibralter Ditch	Bear river	Jan. 3, 1889	Mar. 8, 1888	43	{ Louis M. Long, John F. Long and J. P. Sabin	
The J. J. L. Ditch	Fish creek	Jan. 7, 1889	Aug. 30, 1888	30	{ Robert H. Green	
The Brock Creek Ditch	Bear river	Feb. 13, 1889	Oct. 1, 1888	17.50	William N. Mason	
The Mason Ditch	Dry creek	Mar. 6, 1889	May 1, 1888	15	{ Henry Dennis, Joseph Dennis, Henry Blewitt and Christ'r Blewitt	
The Dennis-Blewitt Ditch	Bear river	Mar. 8, 1889	Nov. 12, 1888	17	Isabella A. McBride	
The Wolf Creek Ditch	Wolf creek	Mar. 25, 1889	May 18, 1886	20	William H. Rose	
The Straight Line Irrigating Ditch	Fortification creek	Mar. 8, 1889	Sept. 15, 1886	10	James Wadge	
The Little Morrison Creek Ditch	Little Morrison creek	Mar. 2, 1889	Oct. 21, 1888	5.52		
The Yellow Jacket Ditch	Bear river	Mar. 2, 1889	Oct. 2, 1888	9.94	Douglas D. Lees	
The Buchanan Enlarge't of Smith Ditch	Efk Head creek	April 10, 1889	Dec. 7, 1888	7.20	R. H. Buchanan	
The Stockbridge Ditch	Fish creek	Ang. 3, 1889	Sept., 1888	5	Charles H. Stockbridge	
The Reis Ditch	Middle creek	Jan. 3, 1890	Summer, 1888	7	Stephen Reis	
The Connell Ditch	Trout creek	Jan. 20, 1890	Sept. 15, 1889	10	Dennis Connell	

The Shelton Ditch	Bear river	Jan. 27, 1890	Spring, 1883	75	William R. Walker and eleven others
The "Marshall Roberts" Ditch	Bear river	Feb. 1, 1890	Nov. 22, 1888	22	{ Roberts & McLaughlin and A. J. Marshall
The Davis Irrigating Ditch	Williams fork	Feb. 8, 1890	Nov. "4, 1889	5	E. H. Davis
The Peck Irrigating Ditch No. 2	Williams fork	Feb. 12, 1890	Sept. 1, 1888	10	J. C. Peck and N. A. Searcy
The Baker High Line Ditch	Fortification creek . . .	Feb. 17, 1890	Not given	Not given	Charles E. Baker
The Milner Ditch	Burgess creek	Mar. 24, 1890	Fall, 1888	8	. . . . . F. E. and James M. Milner
The McKinlay Ditch	{ No. 1 Elk Head creek	May 14, 1890	Mar. 1, 1890	22.50	{ The Elk Head Ranch Company
	{ No. 2 Elk Head creek	May 14, 1890	Mar. 1, 1890	30	
The Salt Creek Ditch	Salt creek	Ang. 1, 1890	June 2, 1890	8	Peter S. Anderson and F. O. Drown
The Felix Borghi Ditch	Bear river	Aug. 1, 1890	May 15, 1890	5	Felix Borghi
The Cow Creek Ditch No. 1	Cow creek	Sept. 26, 1890	June 11, 1890	8	. . . . . Joseph Dennis
The Island Home Ditch	Bear river	Oct. 22, 1890	April 15, 1889	7	. . . . . John Robinson

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT NO. 57, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water therefor	Name of ditch leading water thereto	Date of filing in State Engineer's office	Date of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Drown Reservoir . . .	Stream unnamed . . .	On the stream . . .	Sept. 4, 1890	Not given	Not given	. . . . . / Not stated

STATEMENT CONCERNING DITCHES

IN WATER DISTRICT NO. 58, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

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NAME OF DITCH OR CANAL,	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Burgess Ditch	Walton creek	Dec. 12, 1888	Nov. 10, 1888	12.50	Phillip A. Burgess
The Whipple Ditch	Bear river	Dec. 13, 1888	May, 1888	15	D. W. & J. W. Whipple
The Wheeler Ditch	Van Camp creek	Dec. 21, 1888	Sep. 24, 1888	6	William E. Wheeler
The Ira J. Van Camp Irrigating Ditch	Roaring Fork	Jan. 18, 1889	Oct. 13, 1887	10	Ira J. Van Camp
The Mandall Ditch	Roaring Fork	Jan. 18, 1889	May 7, 1888	102	{ M. Randal, William Bird, A. C. Burgess, John Phillips, Frank Bird, Berton Acton and Martin Boor.
The Raspberry Creek Ditch	Raspberry creek	Jan. 18, 1889	Dec. 24, 1888	9	{ Charles A. Jones
The Figeria Ditch	Bear river	Feb. 2, 1889	May 1, 1888	66.70	{ D. W. Whipple, Louis L. Wilson, Mrs. A. J. Stafford, J. W. Whipple, R. W. Laughlin and Lawson Bird, R. W. Laughlin and Nannie D. Stafford
The Stafford Ditch	Bear river	Feb. 16, 1889	June, 1884	15.47	J. J. Ducey
The Ducey Ditch No. 2	Mid. Fork Deep creek	April 1, 1889	Aug. 20, 1888	4.50	J. J. Ducey
The Roaring Fork Ditch Co.'s Ditch	Roaring Fork	April 17, 1889	Sept 27, 1888	62	The Roaring Fork Ditch Company
The Buckingham & Mandall Ditch	Roaring Fork	Mar. 24, 1889	1886	26.25	{ A. H. Buckingham, N. Mandall, E. Mandall and J. F. Smith.
The Speckled Trout Ditch	Bear river	July 6, 1889	June 1, 1886	4.34	William F. King
The North Hunt Creek Ditch	North Hunt creek	July 17, 1889	April 15, 1889	Not given	Alexander Gray and W. R. Wilson
The Lower Hunt Creek Ditch	Hunt creek	July 17, 1889	May, 1884	4.37	Alexander Gray
The Raspberry Creek Ditch No. 2	Raspberry creek	July 17, 1889	Not given	12	B. F. Jones

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—*Continued.*

NAME OF DITCH OR CANAL	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet per second	NAME OF CLAIMANT
The Old Cabin Ditch	Bear river	July 31, 1889	June, 1885	7.70	. . . Herod Fulton and S. H. Tharp
The Graham & Bennett Ditch.	Elk river.	Aug. 3, 1889	May, 1888	8	. . . C. C. Graham and N. W. Bennett
The St. John Ditch	Elk river.	Aug. 3, 1889	Spring, 1889	6	. . . . . W. N. St. John
The South Side Ditch	Bear river	Aug. 3, 1889	Apr. 6, 1889	8.15	{ B. F. Jones, W. M. Denney and Herod Fulton.
The James Wheeler Ditch	Elk river.	Aug. 7, 1889	Fall, 1888	6	. . . . . James Wheeler
The Wheeler Brothers Ditch'	Elk river.	Aug. 7, 1889	Fall, 1888	7	. . . Charles and James Wheeler
The Oakton Ditch	Bear river	Aug. 12, 1889	Mar. 27, 1889	10	{ William P. King, Alexander Gray, L. J. Garbarino, and S. H. Tharp
The Hoover & Jacques Ditch	Elk river.	Aug. 17, 1889	July, 1887	8	. . . J. B. Hoover and Maurice Jacques
The W. B. Moore Ditch	Harrison creek.	Aug. 19, 1889	July 28, 1889	20	. . . . . W. B. Moore
The Elgin Creek Ditch	Elgin creek	Aug. 21, 1889	July 13, 1889	10	Paul H. Elgin and Mor. R. Lancaster
The Pennsylvania Ditch.	Roaring Fork	Sept. 3, 1889	June, 1883	13.20	. . . . . William W. Montgomery
The South Side Ditch	A spring branch	Sept. 3, 1889	Apr. 18, 1887	11,10	
The Island Ditch	Bear river	Sept. 7, 1889	Sept. 18, 1888	30	. . . A. H. Allen and Annie C. Burgess
The Bellman Ditch	Antelope creek	Sept. 11, 1889	Sept. 5, 1889	4	. . . . . W. F. Bellman
The Brown Cañon Ditch.	Bear river	Sept. 11, 1889	Sept. 3, 1889	4	. . . . . Walter H. Brown
The Lafon Ditch.	South Fork Hunt creek	Sept. 11, 1889	April, 1888	8.30	. . . . . Nicholas A. Lafon
The North Side Ditch	Bear river	Sept. 11, 1889	April 4, 1889	5.145 Benjamin F. Jones

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The Trout Creek Ditch No 1	Trout creek	Sept. 19, 1889	May 20, 1889	8.28
The Trout Creek Ditch No. 2	Trout creek	Sept. 19, 1889	May, 1888	15.65
The Priest Ditch	Priest creek	Sept. 25, 1889	Sept. 19, 1889	4
The I. Lancaster & J. Elgin Ditch	Roaring Fork	Sept. 28, 1889	April 19, 1889	8
The Trout Creek Ditch No. 3	Trout creek	Oct. 7, 1889	April 15, 1889	23.22
The Scribner Ditch	Middle Hunt creek	Oct. 8, 1889	July 19, 1889	10
The Priest Ditch No. 2	Walton creek	Oct. 9, 1889	Sept. 10, 1889	5
The Priest Ditch, enlargement	Priest creek	Oct. 9, 1889	Sept. 17, 1889	4
The Weiskopf Ditch	Bear river	Oct. 23, 1889	Sept. 4, 1889	6
The Pleasant Valley Ditch	Bear river	Nov. 6, 1889	Aug. 21, 1889	44.28
The Hernage & Coleby Ditch	Roaring Fork	Nov. 13, 1889	July 1888	24
The Crowell Ditch	Slate creek	Nov. 23, 1889	Oct. 26, 1889	5
The Baxter Ditch	Bear river	Dec. 13, 1889	Sept. 30, 1889	20.56
The Welch & Monson Ditch,	Harrison creek	Dec. 16, 1889	Oct. 9, 1889	11.80
The Campbell Ditch	Campbell creek	Jan. 10, 1890	Oct. 25, 1889	5
The Franz Ditch	Elk river	Jan. 10, 1890	Mar., 1887	10
The Hopf Ditch	Roaring Fork	Jan. 10, 1890	July 1889	6
The Hoag & Laughlin Ditch	Watson creek	Jan. 10, 1890	July 1885	8
The Laughlin & Hoag Ditch	Bear river	Jan. 10, 1890	July 1885	10
The Simon Ditch	Hunt creek	Jan. 10, 1890	June, 1888	10
The Union Ditch	Bear river	Jan. 10, 1890	Nov. 14, 1889	10
The Lee Irrigating Ditch	Elk river	Mar. 29, 1890	June 14, 1888	12

FIFTH BIENNIAL REPORT,

STATEMENT CONCERNING DITCHES—Concluded.

NAME OF DITCH	Stream from which water is diverted	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet, per second	NAME OF CLAIMANT
The Deer Creek Ditch	Deer creek	April 5, 1890	Oct. 31, 1889	6	John Hart
The Laramore Ditch	Watson creek	April 19, 1890	April, 1885	11	W. T. Laramore
The Trelease Ditch	Trull creek	May 9, 1890	April 24, 1890	5	Charles Trelease
The Adams Ditch	Eddy creek	May 14, 1890	May 4, 1890	7	William A. Adams
The Trull & Morin Ditch	Elk river	May 16, 1890	May 1, 1890	10	George E. Trull and J. M. Morin
The Americo Ditch	Bear river	May 21, 1890	April 24, 1890	6	Americo Borghi
The Larson Ditch	Elk river	May 21, 1890	May 1, 1889	12	{ Charles Larson, Charles Osberg and J. M. Morin.
The Swope & Robinson Ditch	The Franz Ditch	May 21, 1890	Mar., 1888	10	{ W. R. Swope and I. H. Robinson
The Eddy Ditch	Brush creek	June 6, 1890	May 26, 1890	5	Maryett Hdy
The Rawlinson Ditch	Fish creek	June 23, 1890	April 15, 1888	7	John Rawlinson
The C. W. Ditch	Raspberry creek	June 25, 1890	April 23, 1890	9.50	C. W. Denney
The Jack Creek Ditch	Jack Creek	June 25, 1890	May, 1889	12	Crowell Bickford
The Suttle Ditch	Bear river	July 11, 1890	Nov. 3, 1887	25	{ Leander Lyean, Ferd. Gochens, R. R. Tharp, J. H. Suttle, Benj. Booco, G. S. Lyon, Merton Lyon & F. A. Metcalfe
The Price Ditch	Elk river	July 19, 1890	May 1, 1888	5	{ James F. Price
The Felix Borghi Ditch	Bear river	Aug. 1, 1890	May 15, 1890	5	Felix Borghi
The Salt Creek Ditch	Salt creek	Aug. 1, 1890	June 2, 1890	8	P. S. Anderson and F. O. Drown
The B. Coleman Ditch	Branch of Deep creek	Aug. 6, 1890	June 20, 1890	8	Edwin Coleman

The Renfro Ditch	Branch of Deep creek .	Aug. 6, 1890	June 20, 1890	12	Charles Renfro
The Smith Ditch	Deep creek	Aug. 6, 1890	Sept. 5, 1887	10	Ernest Smith
The Forsha-Baxter Ditch, extension of .	Bear river	Sep. 10, 1890	Aug. 27, 1890	4.56	W. H. Forsha & Wm. I. Milner
The Cow Creek Ditch No. 2	Cow creek	Sep. 26, 1890	June 11, 1890	8	Joseph Dennis
The Tanner Ditch	Sunnyside creek . . .	Sep. 27, 1890	July 8, 1890	3	Simon Tanner
The Pass Creek Ditch	Pass creek	Sep. 27, 1890	Not given	1	Simon Tanner
The Simon Ditch	Sunnyside creek . . .	Sep. 27, 1890	June, 1887	1	Simon Tanner
The Campbell Ditch	Elk river	Oct. 7, 1890	Oct. 20, 1886	10	Henry Campbell & Samuel B. Curry
The Metcalf-Lyon Ditch, enlargement and extension of	Oak creek	Oct. 24, 1890	June 20, 1890	15	Fred. A. Metcalf <i>et al</i>
The Miner Boy's Ditch, extension of .	Waste and other waters .	Oct. 27, 1890	Oct. 18, 1890	7	Willard O. Cook
The Brush Enlargement of the Elk Valley Ditch and Brush Lateral . . .	Elk river	Nov. 3, 1890	Oct. 11, 1890	{ 11.10 2.60 }	George A. Brush
The Northwestern Colorado Irrigating Canal or Canal	Elk river	Nov. 22, 1890	Nov. 7, 1890	1,200	Robert McIntosh <i>et al</i>
The Brown & Trullinger Ditch	Willow creek	Nov. 28, 1890	Aug. 28, 1890	5.55	Joseph H. Brown & Edward H. Trullinger

STATEMENT CONCERNING RESERVOIRS

IN WATER DISTRICT No. 58, RELATIVE TO WHICH STATEMENTS HAVE BEEN FILED IN THE STATE ENGINEER'S OFFICE,
FROM DECEMBER 1, 1888, TO DECEMBER 1, 1890.

NAME OF RESERVOIR	Name of stream supplying water thereto	Name of ditch leading water thereto	Date of filing in State Engineer's office	Time of commencement of work thereon	Capacity claimed in cubic feet	NAME OF CLAIMANT
The Deer Creek Reservoir No. 1.	Deer creek	Deer Creek Ditch .	April 5, 1890	Oct. 31, 1889	1,269,020	John Hart
The Deer Creek Reservoir No. 2.	Deer creek	Deer Creek Ditch .	April 5, 1890	Oct. 31, 1889	196,100	John Hart

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SUMMATION OF CROPS RAISED
SO FAR AS REPORTED BY WATER COMMISSIONERS.

SUMMATION OF CROPS RAISED—Concluded.

DIVISION NO. 2.

NAME OF DISTRICT	DIVISION No. 3.				
	Number of acres of alfalfa triggered from other than alfalfa	Number of acres of secede grasses triggered from three- grasses	Number of acres of secede grasses triggered from natural grasses	Number of acres of triggered grasses from three-grasses	Total number of acres triggered in district
Summation for Division No. 2	24,674	3,753	19,344	37,495	86,696
Summation for Division No. 3	1,430	1,430	1,430	1,430	1,430
20	890	1,350	72,150	26,235	26,235
21	717	510	27,408	6,448	6,448
22	230	380	18,480	12,855	12,855
23	72	52	38,544	38,544	38,544
24	1,909	2,292	156,582	45,538	45,538
25	1,909	2,292	156,582	45,538	45,538
Summation for Division No. 3	1,998	1,998	1,998	1,998	1,998
					208,319

DIVISION No. 5.

38	.....	1,486	1,446	1,825	3,085	.....	.....
39	.....	197	40	120	514	.....	.....
40	.....	2,465	680	1,609	4,369.50	.....	.....
41	.....	9,766	369	1,728	16,872	1,116	.....
42	.....	2,278	17	467	12,267	.....	.....
45	.....	810	67	1,802	2,106.50	.....	.....
	Summation for Division No. 5	17,002	2,619	7,551	39,214	1,116	67,502

DIVISION No. 6.

43	.....	255	309	4,195	2,606	50	7,445
	Grand summation for State	161,854	42,592	389,430	437,147	18,436	1,063,304

FIFTH BIENNIAL REPORT,

WATER DISTRICT No. 2.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW, AT DENVER, FROM 1872 TO 1890,
INCLUSIVE, ALTITUDE OF STATION, 5,294 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1872 . . . . .	.55	.22	1.71	2.09	3.74	2.97	2.69	1.65	1.57	.68	.69	.29	17.95
1873 . . . . .	.13	.24	.22	2.43	.75	2.24	2	1.41	.89	.73	.16	.53	11.73
1874 . . . . .	.84	.52	.49	1.70	2.43	1.21	3.35	.68	1.34	.64	.08	.17	13.45
1875 . . . . .	.38	.60	.39	2.24	1.94	.43	4.32	1.97	2.89	.22	1.28	.59	17.25
1876 . . . . .	.21	.11	1.80	1.22	8.57	1.10	1.16	2.03	.60	.12	1.50	1.70	20.12
1877	1.90	.40	1.40	2.77	2.30	1.93	.33	1.30	.38	2.15	.73	.79	16.38
1878 . . . . .	.10	.48	1.82	.05	2.90	2.78	1.38	2.25	1.23	.80	.67	1.05	15.51
1879 . . . . .	.40	.39	1	2.62	3.36	.32	.64	1.38	.02	.19	.21	.33	10.86
1880 . . . . .	.38	.32	.21	.31	1.11	1.22	1.38	1.46	.89	1.37	.83	.10	9.53
1881 . . . . .	.49	1.22	.87	.50	2.21	.09	2.50	2.33	.57	.32	1.68	...	12.78
1882 . . . . .	.57	.20	1.47	2.98	4.96	.66	1.20	.66	.75	.71	.73	14.49	
1883	2.35	.45	.21	3.10	4.30	.85	2.27	.75	1.08	1.49	.32	2.32	19.49
1884 . . . . .	.22	.86	*.93	3.33	4.61	1.47	.65	1.71	.13	.21	.19	.76	15.07
1885 . . . . .	.41	.75	.97	4.94	2.13	.66	1.33	1.18	1.22	.73	.55	1.08	15.95
1886 . . . . .	.62	.72	2.36	2.79	.09	2.26	.50	1.62	.98	.33	1.93	.87	15.07
1887 . . . . .	.67	.30	.23	2.16	1.13	.53	2.49	2.68	.97	.97	.22	.14	12.49
1888 . . . . .	.11	.37	1.15	1.71	2.66	.29	.41	1.51	.11	.77	.33	.09	9.51
1889 . . . . .	.50	.70	.40	1.34	3.44	1.88	2.94	.33	.28	2.11	.53	.30	14.75
1890 . . . . .	.18	.46	.35	2.50	2.01	...	.79	1.89	.17	.64	.30	.04	9.33
Average . . . . .	.58	.49	.88	2.07	2.77	1.38	1.67	1.54	.81	.68	.63	.63	14.30

STATE ENGINEER.

WATER DISTRICT No. 3.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT FORT COLLINS, FROM 1873 TO 1890,
INCLUSIVE. ALTITUDE 5,018 FEET.

YEAR	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1873 . . . . .	.25	.16	. . . . .	1.20	2.30	1.50	1.30	.85	.75	.42	.20	.17	9.10
1874 . . . . .	.06	.43	1.20	.77	2.95	.65	3.15	.25	. . . . .	1	.02	. . . . .	10.48
1879 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
1880 . . . . .	.72	1.09	.38	.94	.60	.86	1.80	.37	1.47	2.07	. . . . .	.10	. . . . .
1881	1.10	.55	1.45	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
1882 . . . . .	. . . . .	. . . . .	. . . . .	.17	. . . . .	4.67	3.07	1.76	.89	2.51	.82	.29	. . . . .
1883	1	1.50	.68	. . . . .	2.51	3.18	. . . . .	.78	1	1.29	trace	1.33	. . . . .
1884	1.10	.70	1.15	3.94	4.84	. . . . .	. . . . .	. . . . .	. . . . .	.10	1.80	.35	. . . . .
1885	1.77	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
1886 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.69	.18	.33	. . . . .
1887 . . . . .	.86	.23	.45	1.10	1.23	1.96	3.05	2.12	.54	.43	.15	. . . . .	12.12
1888 . . . . .	.29	.36	.73	1.23	3.39	.47	.60	1.01	.29	.88	.38	.16	9.79
1889 . . . . .	.21	.34	.65	2.07	3.39	2.06	.79	.95	.42	3.16	.43	.02	14.48
1890 . . . . .	.13	.21	.22	3.92	1.19	.13	1.27	3.14	.07	.69	.32	.12	11.41
Average . . . . .	.68	.56	.65	1.90	2.71	1.54	1.71	1.26	.78	1.11	.30	.29	11.23

WATER DISTRICT No. 3.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT GREENLEY, FOR PARTS OF THE
YEARS 1887 TO 1890, INCLUSIVE. ALTITUDE, 4,750 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1887 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.07
1888. . . . .	.05	.30	.57	. . . . .	. . . . .	. . . . .	.29	.77	. . . . .	. . . . .	.17	.07 . . . . .	.07
1889. . . . .	.30	.30	.57	1.95	1.06	3.12	1.91	1.14	.25	1.96	.21	.22	12.99
1890. . . . .	.10	.25	.36	2.92	1.21	.14	. . . . .	1.67	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Average . . .	.15	.28	.50	2.43	1.14	1.63	1.60	1.14	.25	2.16	1.73	.12	13.07

WATER DISTRICT No. 5.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT LONGMONT, FOR PARTS OF THE
YEARS 1887 TO 1890, INCLUSIVE. ALTITUDE, 5,000 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1887
1888	1.26	4.11	.04	1.21	.54	.03	1.81	.28	.08	. . . . .
188941	1.71	3.53	1.68	.21	.37	.63	3.24	.40	12.56
189035	. . . . .	. . . . .	5.72	. . . . .	.19	.42	2.75	.16	.74	.32	.15
Average . . . .	.28	.73	.41	2.90	3.82	.63	.61	1.22	.27	1.77	.33	.09	. . . . .

WATER DISTRICT No. 7.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT GEORGETOWN,
FOR THE YEARS 1886 TO 1890, INCLUSIVE. ALTITUDE, 8,500 FEET.

YEAR	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total
1886 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	1.40	1.91	.68	.85	1.01
1887	1.67	.11	.60	2.11	1.17	.35	2.60	2.21	.84	.47	.32	.86	12.71
1888 . . . . .	.36	.39	.48	.98	2.83	.96	2.82	1.96	.07	.98	.70	.11	12.64
1889 . . . . .	.19	.45	.45	.91	3.45	1.59	1.71	1.31	.90	1.34	1.23	.70	14.93
1890 . . . . .	.35	.82	.86	1.84	1.12	.32	1.75	2.50	.79	.92	.37	.04	11.68
Average . . .	.49	.44	.60	1.46	2.14	.78	2.22	1.87	.72	.88	.69	.54	12.99

WATER DISTRICT No. 7.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT IDAHO SPRINGS,
FOR THE YEARS 1886 TO 1890, INCLUSIVE. ALTITUDE, 7,539 FEET.

YEAR	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total
1886 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.23	.64	. . . . .	. . . . .	. . . . .
1887 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.52	4.26	3.29	1.27	.64	.31	.43
1888 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	4.13	.67	2.69	2.22	.23	1.15	.63	.05
1889 . . . . .	.22	.33	.84	1.14	4.36	1.28	2.63	1.26	.59	. . . . .	.48	.46	. . . . .
1890 . . . . .	.30	.54	... .	... .	1.53	.38	... .	... .	... .	... .	.09	.15	. . . . .
Average . . .	.26	.43	.84	1.14	2.58	.71	3.19	2.29	.58	.81	.38	.27	. . . . .

WATER DISTRICT No. 8.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT CASTLE ROCK, DOUGLAS COUNTY,
FOR PART OF THE YEARS 1888 TO 1890, INCLUSIVE. ALTITUDE, 6,200 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1888	2.40
18894215
189070	1.41	1.51	.10	2.26	2.69	.05	.40	.30

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WATER DISTRICT No. 10.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AND COLORADO SPRINGS, FOR PARTS OF
THE YEARS 1886 TO 1890, INCLUSIVE. ALTITUDE, 6,080 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1886 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	4.82	.12	. . . .	2.91	1.39	.33	.25	.19	.16
1887 . . . . .	.06	.22	.19	1.54	2.24	1.88	4.75	4.42	.80	.35	.40	.08	16.38
1888 . . . . .	.10	.45	.28	1.51	2.42	.01	1.91	1.18	.13	.84	.22	.07	9.12
1889 . . . . .	.16	.60	.12	1.17	2.34	1.77	2.88	1.49	.86	2.08	.16	.14	13.77
1890 . . . . .	.41	.13	.30	3.90	1.43	.44	1.64	4.99	.17	.40	.28	. . .	. . . . .
Average . . . .	.18	.35	.24	2.59	1.71	1.02	2.82	2.69	.46	.79	.25	. . .	. . . . .

WATER DISTRICT No. 10.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT HUSTED, EL PASO COUNTY, FOR PARTS
OF THE YEARS 1886 TO 1890, INCLUSIVE. ALTITUDE, 6,540 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1886 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.35	3.18	1.82	4.37	.16	.33	.25	. . . . .
1887 . . . . .	.13	. . . . .	. . . . .	. . . . .	. . . . .	2.86	1.60	3.56	2.67	1.23	.53	.30	.15
1888 . . . . .	.50	.15	.30	1.66	5.33	.02	1.78	1.35	.19	.84	.22	.02	12.44
1889 . . . . .	.54	.25	.27	2.17	3.23	1.63	2.59	.78	.55	2.03	.33	.28	14.65
1890 . . . . .	.09	.13	.27	2.61	1.06	.61	2.22	4.49	.19	.73	.05	. . . . .	. . . . .
Average . . . . .	.38	.16	.28	2.15	2.56	1.41	2.39	2.73	.46	.89	.23	.15	. . . . .

WATER DISTRICT No. 10.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT PALMER LAKE, EL PASO COUNTY,
FOR PARTS OF THE YEARS 1886 TO 1890, INCLUSIVE, ALTITUDE, 7,200 FEET.

WATER DISTRICT No. 11.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT LEADVILLE, FOR PARTS OF THE YEARS 1888 TO 1890, INCLUSIVE. ALTITUDE, 10,200 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Total
1888 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.35	1.77	1.66	.27	1.39	.68	.31
1889 . . . . .	.52	.48	.68	1.31	2.20	.66	.84	1.58	.53	.69	1.64	1.67	12.80
1890 . . . . .	.42	.68	1.24	.24	. . . . .	. . . . .	.81	.68	1.20	.77	.11	.38	. . . .
Average . . . .	.47	.58	.96	.77	.20	.45	1.14	1.10	.67	.92	.81	.79	. . . .

WATER DISTRICT No. 12.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT CAÑON CITY, FOR THE YEARS
1888 TO 1890, INCLUSIVE. ALTITUDE, 5,287 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1888	1.87	.30	.67	1.61	1.16	1.36	2.38	2.38	.62	.74	.74	. . . . .	10.71
1889 . . . . .	.29	1.74	.20	1.92	1.33	.67	1.07	2	1.01	1.18	.78	.25	12.53
1890 . . . . .	.46	.20	.45	4.16	.80	.73	1.20	.94	. . . . .	. . . . .	.70	.03	. . . . .
Average . . . . .	.87	.75	.44	2.56	1.10	.47	1.21	1.77	. . . . .	. . . . .	.74	.09	. . . . .

WATER DISTRICT No. 14.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT PUPIBLO, FOR THE YEARS 1885 TO 1890, INCLUSIVE. ALTITUDE 4,466 FEET.

YEAR	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1885 . . . . .	.60	.40	1.76	1.86	1.27	2.83	4.62	.82	.57	.....	.....	.73	.....
1886 . . . . .	.55	.42	.46	1.71	.26	1.98	.39	3.03	.....	.....	.....	.....	.....
1887 . . . . .	.....	.....	.....	.16	1.42	3.23	1.30	.....	3.33	.70	.10	.....	.....
1888 . . . . .	.....	.....	.....	.....	.20	2.38	.69	.....	1.33	.64	.04	.48	.59
1889 . . . . .	.34	.24	.51	1.57	1.40	1.40	.84	1.60	.69	1.62	.72	.16	10.50
189012	.25	.48	2.08	1.71	.58	1.99	.02	.02	.20	.32	trace	8.31
Average34	.35	.41	1.82	1.52	1.09	1.47	2.21	.45	.59	.54	.09

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WATER DISTRICT No. 17.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT LAS ANIMAS, FOR PARTS OF
THE YEARS 1885 TO 1890, INCLUSIVE. ALTITUDE, 3,809 FEET.

YEAR	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1885 . . . . .	.21	.34	.45	.85	2.88	2.51	1.70	2.12	.60	.64	.31	.85	13.46
1886 . . . . .	.68	.13	.33	2.64	.25	1.19	4.66	1.17	1.23	.20	.23	.07	12.78
1887 . . . . .	.13	.11	.09	2.55	2.92	1.89	1.09	2.35	.63	1.10	.28	.32	13.46
1888 . . . . .	.06	.59	.64	2.59	.58	... .	... .	... .	... .	... .	... .	... .	... .
1889 . . . . .	... .	... .	... .	... .	... .	... .	... .	... .	.06	.06	1.08	.11	... .
1890 . . . . .	... .	.20	.40	... .	2.30	1.12	.05	.22	.90	... .	.03	... .	5.22
Average . . . .	.31	.25	.30	2.38	2.14	1.45	1.41	1.32	1.63	.50	.19	.25	... .

WATER DISTRICT No. 17.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT ROCKY FORD, OTERO COUNTY, FOR PARTS OF THE YEARS 1888 TO 1890, INCLUSIVE. ALTITUDE, FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1888 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
1889 . . . . .	.36	.12	.67	2.12	1.56	.75	4.50	1.48	.26	1.68	.77	.04	14.31
1890 . . . . .	.34	.15	.15	2.97	.29	.77	1.16	.74	.08	. . . . .	.30	. . . . .	6.95
Average . . . . .	.35	.14	.41	2.54	.94	.74	2.83	1.08	.17	.74	.46	.02	. . . . .

WATER DISTRICT No. 20.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT MONTE VISTA, FOR PARTS OF THE
YEARS 1888 TO 1890. ALTITUDE, 7,065 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1888, . . . . .	.50	.88	.16	1.46	. . . . .	.71	.37	.71	.23	1.15	.35	. . . . .	6.51
1889, . . . . .	.33	. . . . .	.05	.99	.16	.62	1.26	.41	.29	.64	.94	.08	5.72
1890, . . . . .	. . . . .	.12	.56	2.13	.18	. . . . .	1.27	.92	1.30	. . . . .	. . . . .	.11	6.59
Average, . .	.28	.30	.26	1.56	.11	.44	.93	.68	.61	.60	.43	.06	6.28

WATER DISTRICT No. 28.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT GUNNISON, FOR PARTS OF THE
YEARS 1888 TO 1890 INCLUSIVE. ALTITUDE, 7650 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1888 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	3.28	1.17	.13	.73	.26	. . . . .
1889 . . . . .	.29	.02	.05	3.10	.12	.16	.10	.82	.48	. . . . .	/ 3.60	1.28	10.02
1890 . . . . .	. . . . .	. . . . .	. . . . .	.26	1.70	. . . . .	. . . . .	. . . . .	.24	. . . . .	. . . . .	. . . . .	. . . . .
Average . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.28	. . . . .	. . . . .	. . . . .

WATER DISTRICT No. 33.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT FORT LEWIS, FOR THE YEARS 1885 TO 1890, INCLUSIVE. ALTITUDE, 8,500 FEET.

YEAR	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1885 . . . . .	.44	1.04	2.62	.70	1.28	1.52	1.78	.79	.48	1.76	1.26	13.67
1886	1.45	.88	2.74	.72	.32	. . . . .	3.99	1.62	2.02	1.74	.26	19.65
1887 . . . . .	.15	.52	.40	1.20	.30	1.82	7.54	2.60	2.62	.72	1.74	1.12
1888 . . . . .	.38	.20	1.40	1.42	.24	.02	1.54	1.14	.42	1.27	1.74	1.19
1889	1.62	.80	.95	.20	.40	.60	3.26	1.07	.90	2.28	2.05	7.68	
1890	5.20	2.30	1.75	3.13	.10	.45	.96	2.35	1.03	1.49	1.39	1.14	
Average . . .	1.88	.95	1.07	1.89	.41	.75	2.47	2.15	1.23	1.38	1.74	13.77	

WATER DISTRICT No. 38.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT GLENWOOD SPRINGS, FOR PARTS OF THE YEARS 1888 TO 1890, INCLUSIVE. ALTITUDE, 5,760.

WATER DISTRICT No. 40.

STATEMENT SHOWING THE TOTAL PRECIPITATION IN RAIN AND MELTED SNOW, AT DELTA, FOR PARTS OF THE
YEARS 1888 TO 1890. ALTITUDE, . . . FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1888 . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
1889 . . . . .	.41	.48	.20	.40	.03	. . .	.75	.61	.30	.57	.95	3.15	.85
1890 . . . . .	.80	.85	.83	.98	.45	.07	.79	.59	.43	1.42	. . .	. . .	. . .
Average . . . . .	.60	.66	.51	.69	.24	.03	.77	.10	.58	1.26	. . .	. . .	. . .

WATER DISTRICT No. 41.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW, AT MONROVIA, FOR THE YEARS 1886 TO 1890, INCLUSIVE. ALTITUDE, 5,780 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1886 . . . . .	.79	.13	.49	.14	.57	.01	.33	.38	1.06	.95	.54	.50	9.89
1887 . . . . .	.16	.24	.28	.21	.07	1.34	2.12	1.56	1.19	1.08	.35	.35	11.16
1888 . . . . .	.45	.38	.60	.42	.84	.05	.51	1.48	.16	1.66	1.74	.21	5.69
1889 . . . . .	.59	.44	.05	.86	.60	.28	.84	.35	.80	.47	.58	1.34	7.20
1890 . . . . .	.80	.78	.56	1.36	.16	.03	.71	1.38	.68	1.41	.58	.65	9.10
Average . . . .	.56	.39	.40	1.40	.45	.34	.90	1.23	.85	1.14	.90	.61	9.61

WATER DISTRICT No. 49.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT CHEYENNE, WELLS, FOR PARTS OF THE YEARS 1889 AND 1890. ALTITUDE . . . FEET.

WATER DISTRICT No. 64.

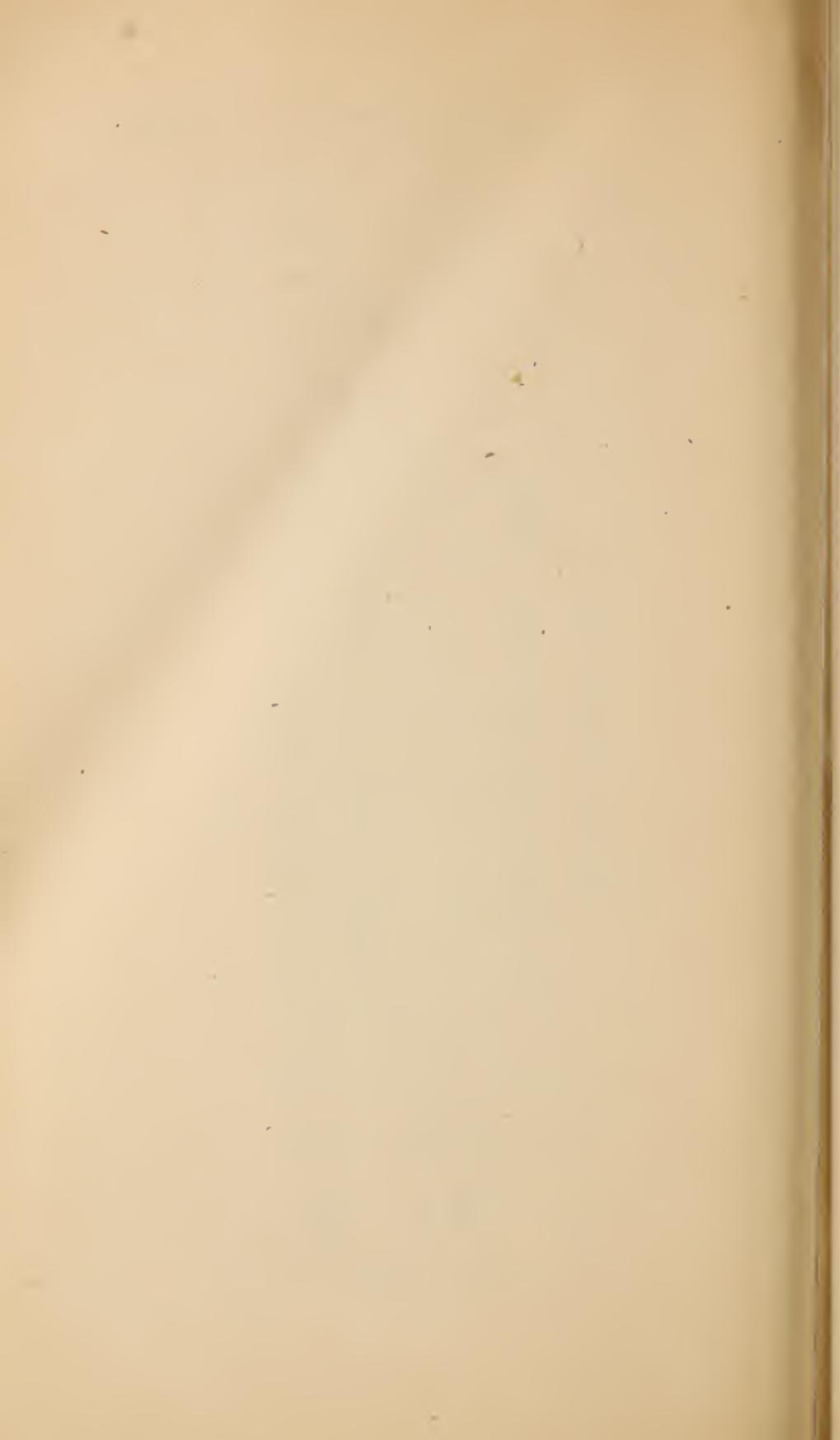
STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT JULIUSBURG, FOR PARTS OF THE
YEARS 1888 TO 1890, INCLUSIVE. ALTITUDE, 3,475 FEET.

YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1888 . . . . .	.4	...	...	...	5.81	1.33	1.66	1.64	.10	.56	...	.02	...
1889 . . . . .	.08	...	.72	3.05	2.16	3.90	3.52	1.12	.35	.74	.31	...	...
1890 . . . . .	...	...	...	3.07	2.54	1.72	.68	.50	.49	...	...	...	...
Average . . . . .	...	...	...	3.06	3.50	2.32	1.75	1.09	.31	...	...	...	...

WATER DISTRICT NO. 67.

STATEMENT SHOWING THE TOTAL PRECIPITATION OF RAIN AND MELTED SNOW AT LAMAR,
FOR THE YEARS 1889 AND 1890. ALTITUDE, . . . FEET.

YEAR	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1889 . . . . .	.09	.64	.64	3.34	1.77	2.56	2.14	.83	.60	2.39	.40	.05	. . . . .
1890 . . . . .	.20	.16	.05	2.14	1.02	1.57	1.62	1.63	.33	.37	.05	. . . . .	9.14
Average . . .	.14	.40	.34	2.74	2.06	1.88	1.23	.46	.46	1.38	.22	. . . . .	. . . . .



SEEPAGE WATER.

In October of 1889, and practically at the close of the irrigating season, this department, with the co-operation of E. C. Hawkins, of the U. S. Geological Survey, made a series of measurements along the line of the South Platte and Cache la Poudre rivers, for the purpose of determining, so far as practicable, the quantity of seepage water received and carried by those streams.

In the corresponding month of 1890, similar measurements were made by this department alone, Mr. Hawkins being employed for that purpose, in conjunction with assistant L. R. Hope, of this office.

Careful measurements were made of the discharge at the respective cañons of the rivers, and at stated intervals along their channels; also, of the in-take from the various sources, and the quantities diverted by ditches. Tabulated statements of the results are herein reported, and will be found an interesting study. The points of the greatest accessions from seepage can be located, and the places where losses occur from percolations in the beds of the channels. From the Cache la Poudre statement it will be observed that, while the gauging at the cañon for 1889 gave 68.72 cubic feet per second, as against 80.77 for 1890, the increase from seepage for the entire length of the river, for the two years, was practically the same, being 98.96 and 100.79 cubic feet per second, respectively, although the same sections for the two years do not show such uniformity. This would make the seepage water returned to the river, for 1889, 13 4-10 per cent. of the mean discharge of the river during the irrigating season of four months, and 13 per cent. for 1890.

The measurements on the Platte extend from the cañon to Iliff, and include 71 gaugings of the river, its

tributaries and ditches. From this statement it will be seen that there was an increase from seepage, for 1889, of 422.78 cubic feet per second, and for 1890, of 449.22 cubic feet per second, the two comparing nearly as favorably in uniformity as the Cache la Poudre.

In the year 1889 no loss was shown from the river-bed percolations, until a point was reached some 20 miles below the mouth of the Cache la Poudre, and then, very slight.

In 1890 a loss of 11.95 cubic feet per second, is shown in the river bed near the head of the City Ditch, and about four miles below the cañon. This is probably accounted for by the under-drainage into the galleries and feeders to the pipe line of the Citizens' Water Company, as said pipe line follows the south bank of the river from the cañon to this point, and there crosses under the river bed to the north side, underground laterals branching out in this vicinity, as I am informed, for the collection of seepage waters. The next loss, consisting of 16.54 cubic feet per second, occurs about 37 miles below Denver and above the mouth of the St. Vrain creek, but on the other hand, in the next 17 miles below this point, a remarkable gain is shown of 94 cubic feet per second, from which it would appear that considerable underflow was brought to the surface, possibly by a rise in the bed-rock; and further, that lands irrigated by Big Thomson and Cache la Poudre ditches were draining directly into the Platte. This increase continues for about 25 miles, when a third loss occurs, of 18 cubic feet per second, which is more than made up in the following twelve miles.

From the statement for 1890, on the South Platte, the following results are shown:

Amount of water in river at cañon 209.19 sec. ft.
Amount of water from natural tributaries . 104.43 sec. ft.

Total 313.62 sec. ft.

Total amount diverted by ditches . 762.84 sec. ft.

Amount due to seepage 449.22 sec. ft.
Mean discharge of river for 4 irrigating
months 443 sec. ft.

That seepage water is an important factor in the Platte River system, there can be little doubt from the above figures, and that the loss of water from sinking in the river bed, is not so serious as generally supposed, is also clearly shown.

That the seepage water carried by the river and diverted by the ditches during the month of October, was greater than the mean discharge at the cañon during the four irrigating months, will probably tax the credulity of all who have not been conversant with the facts.

FIFTH BIENNIAL REPORT,

TABLE OF MEASUREMENTS OF SEEPAGE WATER

IN THE CACHE LA Poudre RIVER, LARIMER AND WELD COUNTIES, COLORADO, OCTOBER 11 TO 17, 1889.

PLACES WHERE MEASUREMENTS WERE TAKEN	Amount of water in river		Amount of water in rivers from which diverted, plus that measured at the points between those diverted by canals		Amount of water in rivers diverted by canals		Amount of water in rivers diverted by canals, plus that measured at the points between those diverted by canals, but not measured by diversions		Amount of increase in volume of river from the gauging sta- tion at Cañon to point where meas- ured		Percentage of in- crease in volume, from the gauging sta- tion at Cañon to point where meas- ured	
	Cubic feet per second	Cubic feet per second	Cubic feet per second	Cubic feet per second	Cubic feet per second	Cubic feet per second	Cubic feet per second	Cubic feet per second	Cubic feet per second	Per cent.		
Gauging Station at Cañon	68,723	.	.	.	.	.	.	.	.	.	.
Larimer County Ditch818	.	.	.	.	.	.	.	.
Pleasant Valley and Lake Canal	14,781	.	.	.	.	.	.	.	.
Jackson or Dry Creek Ditch	5,288	.	.	.	.	.	.	.	.
Cache la Poudre Ditch	6,968	.	.	.	.	.	.	.	.
Taylor & Gill Ditch	2,577	.	.	.	.	.	.	.	.
Larimer County Canal No. 2	12,425	.	.	.	.	.	.	.	.
Fort Collins Waterworks875	.	.	.	.	.	.	.	.
Fort Collins Canal650	.	.	.	.	.	.	.	.
Larimer & Weld Canal	3,040	.	.	.	.	.	.	.	.
Second River Measurement below Dam of Larimer & Weld	32,571	.	.	.	.	.	.	.	79,993	11,270	16.4

Howe or Pioneer Ditch	1.746						
Josh Ames' Ditch	1.378						
Lake Canal	1.500						
Fort Collins Irrigation Ditch	1.497						
Box Elder Ditch	6.555						
Cache la Poudre Canal	55.184						
Third River Measurement below Dam of Cache la Poudre Canal	1,500	116.782	36.799	48.059			
Whitney Ditch	2.285						
B. H. Eaton Ditch . . . . .	.300						
Union Colony Canal No. 3	9.835						
Ogilvy Ditch	30.098						
Fourth River Measurement below Dam of Ogilvy Ditch	3.480	161.280	44.498	92.557	134.7		
Fifth River Measurement near junction with Platte River	9.887	167.687	6.407	98.994	143.8		

TABLE OF MEASUREMENTS OF SEEPAGE WATER

IN THE CACHE LA POUDRE RIVER, COLORADO, OCTOBER 16 TO 18, 1890.

NAMES OF STREAMS AND DITCHES WHERE MEASUREMENTS WERE TAKEN	AMOUNT OF WATER IN RIVER	AMOUNT OF WATER FROM RIVER BY CANALS	AMOUNT OF WATER FROM RIVER DIVERTED BY ENTRAILS AND TRIBUTARIES	AMOUNT OF INCREASE BETWEEN POINTS OF DIVERTURE	IN VOLUME OF RIVER MEASURED	AMOUNT OF INCREASE FROM THE GAUGING STATION AT CAFION TO THE GAUGING STATION AT THE POINT WHERE LAST MEASURED	PER CENT. OF INCREASE FROM THE GAUGING STATION AT CAFION TO THE GAUGING STATION AT THE POINT WHERE LAST MEASURED	GAUGING STATION AT CAFION TO POINT LAST MEASURED	REMARKS
Cache la Poudre river	80,776	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Gauging Station at Cafion
Cafion Canal . . . . .	. . . . .	.975	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Dry Creek Ditch . . . . .	. . . . .	4,125	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Cache la Poudre Irrigat'g Ditch . . . . .	. . . . .	4,016	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Taylor & Gill Ditch . . . . .	. . . . .	.700	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Larimer County Canal . . . . .	. . . . .	2,849	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Ft. Collins Water Works . . . . .	. . . . .	.383	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Larimer and Weld Canal . . . . .	. . . . .	16,401	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Cache la Poudre river	77,117	. . . . .	106,566	25,790	25,790	31.9	. . . . .	. . . . .	Below head of Larimer and Weld Canal.
Riddle Ditch . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Josh Ames' Ditch . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

Lake Canal	1.040					
John G. Coy Ditch . . . . .	.973					
Box Elder Ditch	5.730					
Cache la Poudre Canal	79.867					
Cache la Poudre river	2.060	120.225	13.059	39.458	48.8	{ Below head of Cache la Poudre Canal.
Cache la Poudre river	13.308	137.473	17.248	56.697	70.2	..... Above Greeley
Cache la Poudre river	40.180	158.345	20.872	77.569	96.3	..... One-half mile below Greeley
Ogilvy Ditch	30.675	.....	.....	.....	.....
Cache la Poudre river	32.729	181.569	23.224	100.793	124.8	{ Near confluence with South Platte river.

TABLE OF MEASUREMENTS OF SEEPAGE WATER

IN THE SOUTH PLATTE RIVER, COLORADO, OCTOBER 18 TO 25, 1889.

PLACES WHERE MEASUREMENTS WERE TAKEN	Amount of water in river diverted from river by canals	Cubic feet per second	Amount of water in river natural tributaries	Cubic feet per second	Amount of increase in river at points measured between points of river diverted, + that measured, + that diverted, by canals, and — the inflow from natural tribu- taries	Cubic feet per second	Decrease in volume of river between points measured	Amount of increase in volume of the river, from gauging station at Canyon, to point where measured	Per cent. of increase in volume, from gauging station at Canyon, to point where measured	Gauge, from Canyon, to point where measured	In volume of the river, from gauging station at Canyon, to point where measured	
First measurement, gauging station at {												
Canyon	130.825	.	.	.	.	.	.	.	.	.	.	.
Little Granger ditch	4,804	.	.	.	.	.	.	.	.	.	.
High Line canal (N. Colo. Irr. canal)	111,962	.	.	.	.	.	.	.	.	.	.
Platte Cañon ditch181	.	.	.	.	.	.	.	.	.
Last Chance ditch267	.	.	.	.	.	.	.	.	.	.
Deer creek	2,612	.	.	.	.	.	.
Nevada ditch	10,466	.	.	.	.	.	.	.	.	.
City ditch (Platte Water Co.'s canal)	9,809	.	.	.	.	.	.	.	.	.	.
Plum creek	3,331	.	.	.	.	.	.
Marcy gulch	1,341	.	.	.	.	.	.
Lee gulch	9,311

TABLE OF MEASUREMENTS OF SEEPAGE WATER—Concluded.

STATE ENGINEER.

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TABLE OF MEASUREMENTS OF SEEPAGE WATER

IN THE SOUTH PLATTE RIVER, COLORADO, OCTOBER 11 TO 24, 1890.

STATE ENGINEER.

FIFTH BIENNIAL REPORT

TABLE OF MEASUREMENTS OF SEEPAGE WATER—Concluded.

NAMES OF STREAMS AND DITCHES WHERE MEASUREMENTS WERE TAKEN	Amount of water in river	Amount of water di- verted from river by canals	Amount of water di- verted from natural trib- utaries	Amount of water in natural trib-	Amount of water in rivers and —the tributaries measured	Decrease in volume of river between points measured	Amount of increase in volume of river from point where last station, at Cache, to point in Cache, to gauge station at last station, to point last measured	Per cent. of increase in volume of river where last station, at Cache, to gauge station at last station, to point last measured	Amount of increase points measured between points measured	Remarks	
Union Ditch	33.792	•	•	•	•	•	•	•	•	•	•
Godfrey or Sec. No. 3 Ditch	16.467	•	•	•	•	•	•	•	•	•	•
Big Thompson Creek	23.788	•	•	•	•	•	•	•	•	•	•
Latham Ditch	64.741	•	•	•	•	•	•	•	•	•	•
South Platte River	26,504	•	•	386,102	21,104	•	176,912	84.5	11.5 M = 1.835	• Below Latham Ditch	•
Plum Ditch	1,352	•	•	•	•	•	•	•	•	•	•
South Platte River	98,438	•	•	459,388	73,286	•	250,198	119.6	6 M = 12.214	{ Above mouth of Cache La Poudre	•
Box Elder Creek	23.524	•	•	•	•	•	•	•	•	•	•
Hardin Ditch	10,279	•	•	•	•	•	•	•	•	•	•
South Platte River	213,174	•	•	560,861	101,471	•	351,669	168.1	9 M = 11.274	• Below Hardin Ditch	•
Bijou Canal	21,424	•	•	•	•	•	•	•	•	•	•
Winkle Ditch	2,220	•	•	•	•	•	•	•	•	•	•
Putnam Ditch	6,581	•	•	•	•	•	•	•	•	•	•
South Platte River	164,881	•	•	542,793	•	•	18,068	333,601	159.4	{ M loss of 1.642	Below Putnam Ditch

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Weldon Valley Ditch	31.674	• • • • •	565,989	23,196	• • • • •	356,797	170.5	12 M = 1.933	• • • • •
South Platte River	156,403	• • • • •	114,262	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	.4 miles below Orchard
Fort Morgan Canal	45.931	• • • • •	• • • • •	569,779	3,790	• • • • •	360,587	172.3	2 M = 1.875
South Platte River	• • • • •	7,421	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Below Ft. Morgan Canal
Small gulch (no name)	• • • • •	2,028	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ Waste water from Ft. Morgan Canal.
Bijou Creek	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ Below head of Platte and Beaver Canal.
Platte and Beaver Canal	25,215	• • • • •	36,674	• • • • •	576,288	6,509	367,096	175.5	9 M = 0.723
South Platte River	• • • • •	24,155	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ Below head of Smith Ditch at Snyder.
Lower Beaver Ditch	• • • • •	5,199	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ Below head of Smith Ditch at Snyder.
Smith Ditch	12,950	• • • • •	• • • • •	593,377	12,089	• • • • •	384,185	183.6	14½ M = 1.178
South Platte River	• • • • •	4,250	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ Below head of Smith Ditch at Snyder.
Tesel Ditch	• • • • •	17,661	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ Below head of Smith Ditch at Snyder.
South Platte Ditch	• • • • •	3,881	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ Below head of Smith Ditch at Snyder.
Pawnee Ditch	• • • • •	8,444	• • • • •	• • • • •	614,663	21,286	405,471	193.8	17½ M = 1.216
South Platte River	• • • • •	5,063	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	.¾ mile above Merino
Snider Ditch	• • • • •	18,500	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ At Sterling Wagon Bridge.
Springdale Ditch	• • • • •	2,640	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ At Sterling Wagon Bridge.
Smith & Henderson Ditch	11,933	• • • • •	• • • • •	644,353	29,692	• • • • •	435,163	208	13 M = 2.282
South Platte River	• • • • •	3,837	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ At Sterling Wagon Bridge.
Sterling Ditch No. 2	• • • • •	11,448	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ At Sterling Wagon Bridge.
Arnett Ditch	• • • • •	7,054	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	{ At Sterling Wagon Bridge.
Midline Ditch	3,647	• • • • •	• • • • •	658,408	14,053	• • • • •	449,218	214.7	9 M = 1.571
South Platte River	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	Below Midline Ditch

IRRIGATION STATISTICS.

In response to a very general inquiry relative to the aggregate of lands irrigated, lands under ditch and length of ditches in the State, this department has, at considerable expense of time and labor, compiled such data from official and other sources as will, as nearly as practicable, give the information desired. In determining the quantities in each of the above cases the data have been acquired—first, from the reports of Water Commissioners, where such data are therein furnished; second, from the filings of plats and statements in this office, deducting in all cases those ditches wherein it was known that construction had not taken place; and, third, from personal interviews with responsible parties familiar with remote localities, where Water Commissioners have not been appointed or have not reported the information desired.

In all cases, where exact figures were not obtainable, it has been the practice to adopt conservative estimates, and it is believed the general aggregates will fall below rather than above the true figures.

The results are given by divisions, as showing the totals, in connection with each general drainage basin represented by the six divisions.

STATEMENT SHOWING BY DIVISIONS

THE NUMBER OF INDIVIDUAL DITCHES FOR WHICH DECREES HAVE BEEN ISSUED, FOR WHICH FILINGS HAVE BEEN MADE IN THE STATE ENGINEER'S OFFICE; THE NUMBER EMBRACED IN THIS STATEMENT OF MILEAGE, THE AGGREGATE LENGTH OF SAID DITCHES; TOGETHER WITH THE AREA IN ACRES CAPABLE OF BEING IRRIGATED AND ACTUALLY IRRIGATED THEREFROM; COMPILED FROM THE DECREES, THE FILINGS AND THE REPORTS OF THE WATER COMMIS-
SIONERS OF THE SEVERAL DISTRICTS.

NAME	No.	NUMBER OF DITCHES			TOTAL LENGTH OF SUCH DITCHES	AREA UNDER DITCH IN ACRES	AREA IRRIGATED IN ACRES	REMARKS
		Decreed in Division	Filed 1887-1890	Embraced in this Statement				
South Platte, including the North Park	1	716	469	1,241	3,851.92	1,127,000	743,372	.....
Arkansas	2	524	287	1,129	2,748.84	1,278,627	220,128	.....
Rio Grande	3	.....	424	522	1,783.81	1,184,744	293,943	.....
San Juan	4	.....	.....	21	21	67.69	158,021	43,845
Grande River	5	433	566	1,081	2,182.24	245,398	158,294	.....
Green River	6	.....	233	317	518.40	88,948	85,000	.....
Total in State		1,673	2,040	4,311	11,052.90	4,082,738	1,544,585	

TABLE

SHOWING THE CAPACITIES OF CHAMBERS' LAKE FOR EACH FOOT IN DEPTH FROM SURVEYS AND MEASUREMENTS MADE BY L. R. HOPE, OF THIS DEPARTMENT, AND PROF. L. G. CARPENTER, OF THE AGRICULTURAL COLLEGE:

Depth	Acre Feet	Cubic Feet	Depth	Acre Feet	Cubic Feet
1	113,591	4,948,023.96	9	165,282	7,199,683.92
2	119,485	5,204,766.60	10	172,376	7,508,698.56
3	125,850	5,482,026.00	11	179,618	7,824,160.08
4	132,050	5,752,098.00	12	187,010	8,146,155.60
5	138,398	6,028,616.88	13	194,551	8,474,641.56
6	144,895	6,311,626.20	14	202,241	8,809,617.96
7	151,541	6,601,125.96	15	210,084	9,151,259.04
8	158,337	6,897,159.72	16	218,068	9,499,042.08
Total capacity					113,840,812.10

EXPENDITURES

FROM THE STATE ENGINEER'S ASSISTANTS' AND MATERIAL FUND,
FROM JANUARY 1, 1889, TO JANUARY 1, 1891.

Appropriation for salaries for assistants and material for the years 1889-1890		\$9,000 00
J. S. Titcomb, Deputy State Engineer, salary	\$2,778 00	
J. S. Titcomb, Deputy State Engineer, traveling expenses	78 10	
L. R. Hope, Assistant, for gauging streams and ditches	1,952 30	
L. R. Hope, Assistant, traveling expenses	486 62	
E. C. Hawkins, Assistant to J. S. Greene and to present incumbent	301 30	
G. B. Hooker, Assistant to J. S. Greene	187 50	
C. L. Persons, Assistant to J. S. Greene	25 00	
J. Opperman, Assistant to J. S. Greene	29 50	
C. M. Woodman, Assistant to J. S. Greene	36 80	
F. N. Dove, Draftsman (three months)	112 00	
I. H. Batchellor, Clerk	125 00	
C. W. Comstock, Draftsman	186 00	
F. S. Watkins, Draftsman	42 00	
John Titcomb, Second Computer	10 00	
Denver Phonograph Exchange, <i>et al.</i> , typewriting	161 85	
Observer at Cache la Poudre Gauging Station No. 1	58 50	
Observer at South Platte Gauging Station No. 3	74 60	
Observer at Clear Creek Gauging Station No. 4	39 80	
Observer at St. Vrain Gauging Station No. 5	114 20	
Observer at Bear Creek Gauging Station No. 6	43 45	
Observer at Boulder Gauging Station No. 7	125 00	
Observer at Big Thompson Gauging Station No. 8	47 05	
Observer at South Boulder Gauging Station No. 9	56 58	
Observer at Uncompahgre Gauging Station No. 1	15 00	
Expense of new station on Boulder Creek	69 40	
Expense of new station on Uncompahgre	105 50	
Expense of new station on Cache la Poudre, by J. S. Greene	164 15	
Rubber boots, filing boxes, etc	57 40	
New current meter	98 00	
Balance on hand January 1, 1891	1,425 60	
Totals	\$9,000 00	\$9,000 00

Of the above amount, \$678.85 was expended by the former incumbent of this office for assistants from January 1, 1889, to April 10, and for the construction of the gauging station on the Cache la Poudre river. The only available current meter for determining velocities in ditches and streams, owned by this department, became so worn from constant service, as to be entirely valueless and beyond repair, whereupon application was made to the Secretary of State for a new meter, but there being no funds available for that purpose, and the demand for one being imperative, the instrument was purchased at a cost of \$98.00, and paid for from the State Engineer's Assistants fund.

At least two new additional improved meters should be furnished the office, as during the irrigating season there are simultaneous demands for ditch ratings in different parts of the State, and such ratings are essential to the proper distribution of water. But a small proportion of the applications during the past season could receive attention for the want of instruments.

RECOMMENDATIONS.

An intelligent execution of the laws relating to irrigation, depends upon a clear definition of the purpose for which the water of the State may be used, the rights of diversion for those purposes, and the relative rights of appropriators as between the main stream of a Division and its several tributaries, also upon reliable information as to the water supply, and proper facilities for distribution.

Legislation should tend toward these ends, also toward a more equitable distribution among consumers, and a more economical use and conservation of water.

First—What constitutes "domestic purposes" should be clearly defined, and the extent, if any, to which water

may be diverted from the natural streams for that purpose.

Second—Is water for general stock purposes a beneficial use within the meaning and intent of the Constitution, and if so, does it come under the head of “domestic use,” “irrigation,” “manufacturing” or “any other purpose?”

Third—It is held by the District Court, in the case of “The Farmers’ High Line *versus* State Engineer *et al.*,” referred to under the head of injunctions, that the distribution of the waters in accordance with the priorities in the Division, under the adjudications had, is unconstitutional. An immediate confirmation or reversal of this decision should be obtained from the Supreme Court, and such legislation had as will remedy the defect, if any, in the law. The officers of this Department are enjoined from closing the head-gates of certain ditches on Clear creek and Big Thompson creek for the benefit of older priorities on the Platte river, and unless relief is afforded by the Supreme Court or the Legislature before another irrigating season, similar restraining orders will be obtained for the other tributaries of the Platte, and priorities can be enforced only as between the ditches in the same district.

This will lead to serious litigation among ditch owners, and demoralizing complications in this department, which it is very important to avoid in the interest of irrigation generally.

Fourth—Provision should be made whereby the consumer of water, who has a reservoir on his land can store, at stated periods the water to which he is entitled, during the irrigating season, when its more economical and efficient use can be thereby secured.

It is frequently the case that the quantity of water to which a consumer is entitled is too small for rapid and effective spreading over the land, and again, night irrigation is attended with great loss on the average uneven

lands, because it is necessarily permitted to run without regulation throughout the night.

If the water could be stored during the night, or for a period of 24 or 48 hours, a double flow could be thereby obtained and much more effective service secured without injury to others.

The present law provides for the storage of "any unappropriated water, not needed for immediate use, for domestic or irrigation purposes."

An exercise of discretionary power on the part of the State Engineer, in cases referred to above, results in complaints by owners of subsequent priorities that water is being stored while they are deprived of it for immediate use.

With proper police supervision of the lines of ditches, such permission could be granted with safety, but without it, the department would have no knowledge of the extent to which water was being stored.

Fifth—Provision should be made for the establishment and maintenance of permanent and accurate gauging stations at the cañons of all the principal streams on the eastern slope and elsewhere, as necessity requires, with improved registers for each station; also, such telephone communication as will give the Water Commissioner and Superintendent of Division daily information of the stage of water. The gaugings of the streams have little value unless reasonably accurate, and this is impossible when the cross-section is modified by each variation in the flow of water. The daily discharge should be furnished the Water Commissioner in time to regulate the distribution in accordance therewith. This is impracticable in a majority of cases, without some more rapid method of transmission.

Sixth—The penalty for failure to construct and maintain suitable headgates and rating flumes in ditches, after due notice, should be cutting off the supply until

compliance is made. The head-gate is necessary to regulate and control the intake, and the rating flume to determine the quantity, and both are essential to an equitable distribution of water. The present law imposes the unjust burden on the Water Commissioner of paying for a head-gate and the costs of a suit to collect, which few are able or willing to assume.

Seventh—The responsibility should rest with the owners of the ditches to see that head-gates are not tampered with when shut down or regulated by the Water Commissioner.

The present law provides that locks shall be placed on head-gates by the owners, but in case of failure so to do, after notice, the Water Commissioner shall then provide the lock and collect by suit, as in case of head-gates. Locks are frequently broken and gates raised during the night, and water thus surreptitiously diverted for a day or two before the Commissioner has notice. This results in little or no benefit to the consumers under the line of the ditch so taken, and seriously damages those who are using the water by suddenly cutting off the supply in the midst of irrigation, besides occupying a large proportion of the time of the Commissioner in traversing his District to re-regulate. For this the owner should be held accountable.

Eighth—There should be some police regulation of the distribution of water among consumers along the lines of ditches, either by legal district organization or through this department.

After the waters of the streams are diverted into the ditches, the Water Commissioner has no further control over them. Complaints come from all parts of the State of unfair distribution, excessive waste, and unlawful uses, for the regulation of which there should be an authorized State or District supervision.

Ninth—Authorized official measurements should be

made of the maximum carrying capacity of all decreed ditches in the State, and an adjustment of decrees to such measurements.

It is notorious that, in a majority of cases, the decrees are in excess of such capacities, and, in some instances, enlargements have been made to secure the full benefit of the decrees. Had such measurements been made the basis of all adjudications, many of the serious complications of to-day would have been avoided. It would seem that the experience of older districts should have suggested this precautionary measure in recent adjudications, but such does not seem to have been the case, as ratings made of some of the ditches indicate a gross disparity between the decrees and capacities, notably in South Park Ditches, in the tabulated statement of the decrees of which a comparison can be made, in the cases of ditches rated by this department.

Tenth—The present law provides that “the State Engineer shall approve the designs and plans for the construction and repair of all dams or reservoir embankments, which are built within the State, which equal or exceed ten feet in vertical height.”

This imposes a grave responsibility upon the State Engineer, and affords little or no protection to life or property.

General plans or designs are very meagre data with which to figure a factor of safety.

The character and quality of the material and nature of the foundation and abutting ends, the drainage area tributary to the reservoir site, the location and extent of the spillways, and many other details which can only be ascertained by a careful inspection of the ground, are necessary to determine the question of security. The approval of plans should be coupled with authority to inspect the manner of construction, for in the latter will generally be found the defects that bring disaster.

Where competent engineers have charge of the construction of dams, there is little occasion for approval of plans or examination of the works on the part of the State, but in many cases rough designs were presented that are wanting in every element necessary for intelligent consideration. In others, general descriptions, without plans, are forwarded, and suggestions solicited from the State Engineer as to "what he thought about it."

While every encouragement should be given to enterprises looking to the conservation of the waters of the State, and that, too, without excessive burdens to the promoters, in the shape of extra costs, a feeling of security to those whose lives and property may be jeopardized thereby should be afforded by some uniform and thorough system of inspection by an authorized and competent Commission.

Report on State Bridges, Roads
AND OTHER IMPROVEMENTS,
FROM THE INTERNAL IMPROVEMENT AND INCOME FUNDS.

To His Excellency,
JOB A. COOPER,
Governor of Colorado.

SIR:—As Secretary and member of the various Commissions provided by the Seventh General Assembly for the construction of certain State bridges, wagon roads and other improvements, I have the honor to report the following as the result of compliance by the respective Commissions, with the provisions of the several acts:—

BENNETT CREEK AND CONEJOS WAGON ROAD.

House bill No. 283 appropriated \$7,500 for the construction of a wagon road from the head of Bennett creek, in Rio Grande county, to the Conejos mining camp, in Conejos county, and constituted as the Building Board the State Engineer and the chairman of County Commissioners of Rio Grande county (Henry M. Dyer) and chairman of County Commissioners of Conejos county (B. Romero).

Section 2 of said act provides the road shall be "built upon a grade not to exceed 13 feet in 100, and with no curvatures less than 20 feet in a hundred," whatever that may mean.

Upon a personal inspection of the ground I found that from the head of Bennett creek the line would pass over a high divide, at an elevation of 10,000 feet; thence down a steep mountain side into the cañon of the Rio Alamoso; thence up said stream some 8 miles and over another high divide, to Conejos camp, making the

entire distance some 30 miles; and that to bring the grade within the limits prescribed by the act would require a careful survey of the line. J. M. Gardner, of Del Norte, was employed for this purpose, and upon completion of work submitted his field-notes of same.

Calls were then made for bids with the following results:

Daniel W. Hoover	\$ 6,300 00
P. P. Ford	6,500 00

The award was made to Daniel W. Hoover, as being the lowest responsible bidder, and upon notice of the completion the Board met at Del Norte, December 12, 1889, for final action.

Satisfactory evidence being adduced that the terms of the contract had been complied with, the road was accepted and voucher ordered drawn for the contract price.

STATEMENT OF ACCOUNT.

Appropriation	7,500 00
Engineer and men for survey	\$ 589 20
Supplies for same	112 11
Superintendence and team hire	91 50
State Engineer expense, two trips	61 15
D. W. Hoover account, contract	6,300 00
	7,163 76
Balance on hand	\$ 336 04

Detailed statements and vouchers for the above were duly filed with the Auditor of State.

TRINIDAD AND STONEWALL WAGON-ROAD.

Senate bill No. 311 appropriated \$15,000 to aid the county of Las Animas in constructing a wagon-road from Trinidad to Stonewall, in said county, and constituted as the Building Board, the Governor of the State, the State Engineer, and the Chairman of the Board of

County Commissioners of Las Animas county (Vivian Abeyta).

At a meeting of the Board held June 1, 1889, the State Engineer was instructed to cause a survey to be made of the most favorable line between the two points, preparatory to an inspection by the Board.

Pursuant to this order, I employed J. L. Frankeberger, of Trinidad, as engineer in charge, and with him, made a general examination of the ground. This was followed by a careful locating survey, the maps and profiles of which are now on file in this office.

The Board subsequently examined and approved the line located, and calls were made for bids, in accordance with plans and specifications, the notice being inserted in three different newspapers of the State for thirty consecutive days, as required by the act.

H. E. Mulnix, of Trinidad, being the lowest and only bidder, was awarded the contract at \$13,987, the amount bid.

Notice of completion having been served, inspection of the road was made April 10, 1890, by the Chairman of the Board of County Commissioners of Las Animas county and the State Engineer.

The road was found to be constructed in accordance with the contract and specifications, having ten feet in width of solid road-bed, with proper turnouts and drainage trenches.

The bridges, some forty in number, were exceptionally strong and durable, having pile foundations, well driven, and ample water-ways. Three across the Purgatoire river were each one hundred feet long, being fifty feet truss-spans; two were fifty feet each, also trusses; six were thirty-six feet each, and thirty were eighteen feet each, all provided with substantial guard rails.

The road, by measurement, is 29 28-33 miles in length. The right-of-way was procured by the county

of Las Animas, and the State appropriation was supplemented by that county, by special arrangement with the contractor, as the cost of construction exceeded the State limit.

Complete maps and profiles of the line are on file in this office, copies of which have been furnished the county of Las Animas.

STATEMENT OF ACCOUNT.

Appropriation . . . . .	.....	\$ 15,000 00
For surveys	\$ 592 45	
Superintendence	200 00	
Advertising	63 40	
Expense—four trips by State Engineer	111 45	
F. N. Dove, office work	12 00	
H. E. Mulnix, account contract	13,987 00	\$ 14,966 30
Balance fund on hand . . . . .	.....	\$ 33 70

TEN MILE RIVER BRIDGE.

House bill No. 199 provided for the construction of a State bridge across Ten Mile river, near the town of Dillon, in Summit county, and appropriates \$2,000 therefor.

The State Engineer and the Chairman of Board of County Commissioners of Summit county (Robert W. Foote) are made a Board for the purpose of locating and constructing such bridge.

November 21, 1889, the Board made personal inspection of the ground, and selected a site about one-quarter mile up the river from Dillon, on the line of a county road.

Under the law, the Board was required to advertise for and secure plans and specifications for the construction, and then advertise for bids, in accordance therewith.

The plan adopted called for a 1-84 foot span combination truss, wood and iron, with a 14-foot clear roadway.

The wood to be of the best, native Red Spruce. All iron and all wood work, above the floor, to have two coats of mineral paint, and the abutments to be of stone.

The contract was awarded to Ernest Campbell, of Breckenridge, for \$1,490, he being the lowest bidder.

April 23, 1890, the Board made an inspection of the bridge as completed, and found the same in accordance with the specifications, the work having been done in a satisfactory manner, whereupon the bridge was received and certificates issued to that effect.

Plans and specifications of the bridge are on file in this office.

STATEMENT OF ACCOUNT.

Appropriation		\$ 2,000 00
S. C. Whipple, for survey	\$ 26 40	
H. C. Jennings, for plans	50 00	
H. L. Aulls, for blue prints	4 50	
Ada Dwelle, copying specifications and bond	2 65	
Advertising	66 50	
Robert W. Foote, for superintendence	83 40	
Expense State Engineer, two trips to Dillon	35 40	
Ernest Campbell, account contract	1,490 00	
		\$ 1,758 85
Balance fund on hand		\$ 241 15

GRAND RIVER BRIDGE.

House Bill No. 49 provides for the construction of a State bridge across Grand river, at or near the mouth of Cottonwood creek, in Eagle county, and appropriates \$6,000 therefor.

The State Engineer, with the Chairman of the Board of County Commissioners of Eagle county (H. W.

Goodrich, R. F. Stratton), and the Chairman of the Board of County Commissioners of Routt county (S. H. Tharp, J. B. Insley), were made a Board for the purpose of locating and constructing such bridge.

Pursuant to notice, the Board met, on Grand river, at the mouth of Cottonwood creek, for the purpose of selecting a proper site, and after an examination of the river, above and below, determined upon the place known as McCoy's Ferry, where the wagon road leading from Eagle river to Egeria Park, crosses said river.

J. C. Kennedy, civil engineer, was employed to make a survey, and careful soundings of the river, at this point.

A subsequent examination of the wagon road, leading from Eagle river to McCoy's Ferry, satisfied the Board that it was impracticable for heavily loaded teams, on account of excessive grades, and that consequently it would be injudicious to construct the bridge on its line, if a more practicable route could be obtained.

The two counties therefor, by joint action, caused surveys to be made, and selected a route crossing the river some seven miles above the McCoy Ferry, near the mouth of Goodson creek, thereby securing very favorable grades without materially increasing the distance.

After satisfactory assurances from the Commissioners of the respective counties that the road would be built without unnecessary delay, the Board relocated the bridge at this point, and Preston King, civil engineer, was employed to make the necessary surveys and soundings.

Plans were then called for and adopted, as provided by the act, but all bids for construction under the plans, being in excess of the appropriation, were rejected, and a new call was made for bids to be accompanied by plans, in each case. Under this call seven bids were received and the award was made to the Missouri Valley

Bridge & Iron Works, of Leavenworth, Kansas, at \$5,190. The plans submitted provide for a combination truss (wood and iron) bridge consisting of two spans 100 feet each, with a 14-foot roadway; the structural parts of the truss to be of Oregon pine, and all other wood to be of best native lumber. The abutments and pier to be of stone, laid up in cement mortar.

Notice having been received that the bridge was completed, on October 9, 1890, I made an inspection of the same, being assisted therein by R. F. Stratton, Chairman of Eagle County Commissioners, and Theo. Rosenberg, engineer in charge. The structure was found to be substantially in compliance with the contract, and was accepted by the Board.

STATEMENT OF ACCOUNT.

Appropriation		\$ 6,000 00
H. W. Goodrich, for service on commission	\$ 79 20	
S. H. Thorp, for service on commission	117 00	
J. C. Kennedy, for surveys at McCoy's crossing	36 20	
C. H. McCoy, for ferry service, taking soundings, etc.	59 25	
Preston King, for surveys at new site	69 50	
Advertising	92 75	
Theo. Rosenberg, for superintendence	180 30	
J. P. Maxwell, for expense, three trips, location and inspection	93 60	
Missouri Valley Bridge & Iron Works, account contract	5,190 00	5,917 90
Balance on hand		\$ 82 10

CLEAR CREEK COUNTY ROAD, TRAIL RUN AND UTE CREEK WAGON ROAD.

House Bill No. 310 provides for the construction of a wagon road in Clear Creek county, from a point near the mouth of Trail Run, by way of the smelter and the Ouida mine and Ute creek, to or near the Argo mine and to intersection with the County Road.

The Governor, the State Engineer, and the Chairman of the Board of County Commissioners, of Clear

Creek county, are made a Board for the purpose of constructing said road.

By the terms of the act, the grade of said road is not to exceed thirteen feet to the one hundred, and with no curvatures of *less than twenty feet to the hundred*; the width to be not less than twelve feet solid road-bed.

I made an inspection of the route, and, from the mountainous nature of the country, became satisfied that a careful survey would be necessary to meet the requirements of the act, as to grades, and that the cost of construction would probably exceed the appropriation.

George Marsh, a civil engineer of Georgetown, was employed for that purpose, and made the survey, whereupon a call was made for bids until the fifteenth day of October, 1889, publication having been made in Denver, Georgetown and Idaho Springs papers.

No bids having been received under the call, no further action has been taken.

STATEMENT OF EXPENDITURES.

Appropriation		\$ 5,000 00
To George Marsh, expense of survey	\$ 445 75	
To advertising (three papers)	23 55	
To State Engineer, expense, inspection of route	6 60	
		475 90
Balance on hand		\$ 4,524 10

GRAND RIVER BRIDGE AND ROAD.

House Bill No. 57 provides for the construction of a State road through the cañon of the Grand river, below and from the town of Hot Sulphur Springs to the mouth of said cañon, and further provides for the construction of a bridge across Grand river at the mouth of said cañon, and appropriates \$10,000 therefor.

The Governor, the State Engineer, and the chairman

of the Board of County Commissioners of Grand county constitute the Board of Construction.

I made an examination of this cañon in July of 1889, and found some serious obstacles in the shape of high precipitous ledges, with their bases at the waters' edge, contracting the water way to narrow limits, for a considerable distance, in the lower part of the cañon. In other places the mountain sides were steep and broken by sharp cliffs alternating up and down the mountain side, and rendering it difficult to obtain an economical high or low line; also, making the work of a careful survey slow and somewhat expensive.

George S. Oliver, civil engineer, was employed to run the line and locate the site of bridge, after which work was performed, estimates were made of the cost of construction, from which it appeared that a practicable road could not be obtained within the limits of the appropriation, and it was not deemed advisable to prosecute the business further, and thereby incur additional expense.

Subsequently, however, assurances were given by interested parties, that a bid would be made within the limit, if certain modifications in the line were permitted. This was acceded to, and plans were called for two bridges, one at the lower end of the cañon, and the other in the cañon, for the purpose of using both sides of the river, if necessary, in the building of the road.

Upon the adoption of the proper plans, bids were called for to construct the road and bridge or bridges, giving the contractor a choice of routes.

One conditional bid was received, but subsequently, on further examination of the cañon, the bidder asked to withdraw the same, and his request was granted.

That such a road is much needed, there can be little question, both for local and through travel, as the pres-

ent road over the mountain is impracticable for heavily loaded teams.

STATEMENT OF EXPENDITURES.

Appropriation		\$ 10,000 00
George S. Oliver, account survey	\$ 360 83	
Advertising	77 70	
H. C. Jennings, two sets plans for bridges	100 00	
State Engineer, expense of two trips for examination	48 65	
		587 18
Balance unexpended		\$ 9,412 82

DEL NORTE LEVEE.

House bill No. 189 provides for the construction of levees and rip-rapping to protect State bridge at Del Norte, Rio Grande county, Colorado, and appropriates \$2,000 therefor.

The Governor, State Engineer and the Chairman of Board of County Commissioners of Rio Grande county, are constituted a Board for the purpose of building the same.

From an examination and survey of the ground, it was determined that 792 feet of embankment and rip-rapping would be required to protect the State bridge as located by the Commission, and 623 feet additional for the protection of the low lands to the south of bridge, the latter to be constructed by the town of Del Norte. The plans called for an embankment, with crest $5\frac{1}{2}$ feet above low water line, and 5 feet in width, on top-outer slope, $1\frac{1}{2}$ to 1, and inner slope, 1 to 1 well rip-rapped.

Pursuant to notice, proposals were received, and the award made to Carey, Adams & Company of Del Norte, for \$975, they being the lowest bidders, the highest bid being \$1,450.

Inspection of work was made May 5, 1890, and having been found in accordance with the contract, it was accepted and certificate ordered issued.

FIFTH BIENNIAL REPORT,

STATEMENT OF EXPENDITURES.

Appropriation		\$ 2,000 00
George S. Oliver, for survey, maps and profile	\$ 58 87	
Advertising	29 20	
W. H. Cochran, superintendence	50 00	
State Engineer, expense for inspection	15 15	
Carey, Adams & Co., contractors	975 00	
		1,128 22
Balance unexpended		\$ 871 78

DEL NORTE BRIDGE.

House Bill No. 189 also provides for the construction of a State bridge across the Rio Grande at Del Norte, Colorado, said bridge to be built at or near the point where the line of Columbia avenue would cross said river, and \$7,000 was appropriated therefor.

The Governor, the State Engineer and the Chairman of the Board of County Commissioners of Rio Grande county are constituted a Board for the purpose of constructing said bridge.

George Nickel, civil engineer, was employed to make meanders of the river banks and slough and furnish a map of said survey, showing also the street crossings. From said map and from personal examination of the ground, it became apparent to the Board that it would be impracticable to build the bridge on Columbia avenue within the limits of the appropriation, and the crossing of Oak street, two blocks east, was finally selected as the most economical location, as well as the most desirable for the traveling public.

Plans were submitted pursuant to call, and a combination truss selected, consisting of two spans 100 feet and 117 feet, respectively, with roadway 16 feet in the clear; the abutments and pier to be of the best stone to be found in the neighborhood.

Under the call for bids, eight were received, and the award was made to the Bullen Bridge Co., of Trinidad, for the sum of \$3,687, this being the lowest bid.

After the material for the sub-structure was delivered on the ground, I made an examination of the stone, and found it unsuitable for the purpose on account of its great absorptive qualities when brought in contact with water, and its consequent liability to crumble under pressure. It being the best stone to be found in that section of country, the Board was under the necessity of arranging with the contractor for more suitable material. The most available stone, satisfactory in quality, was from the Amargo quarries, in New Mexico.

An arrangement was made with the contractor by which 20 car-loads of this stone was to be furnished, to be used in the pier and below high-water line in abutments, in consideration of which an additional payment of \$1,500 was to be made.

There have been many vexatious delays in connection with the work; first, in securing proper stone, and, second, as is claimed by the contractor, on account of high-water, but the structure, as completed, is a very creditable piece of work, and gives full value for the money expended.

STATEMENT OF EXPENSE.

Appropriation . . . . .	.....	\$ 7,000 00
George D. Nickel, account survey and maps of river . .	\$ 79 51	
Stallard & Oliver, levels and lines for bridge	57 18	
Advertising for plans and bids	45 70	
Typewriting specifications, etc	2 55	
State Engineer, expense two trips for inspection and two telegrams	14 00	
W. H. Cochran, superintendence and levels	157 50	
State Engineer, expenses final inspection	15 50	
Bullen Bridge Company, account contract	5,187 00	
		5,558 94
Balance unexpended . . . . .	.....	\$ 1,441 06

**SOUTH BOULDER CREEK CANAL FOR DIVERSION
OF WATERS.**

House bill No. 161 provides for a survey and for the construction of a canal along the western slope of the range for a distance of twenty miles, more or less, and to cut across the range and connect with South Boulder creek, for the purpose of increasing the supply of water in said South Boulder creek, and appropriates \$25,000 therefor.

The Board of County Commissioners of Boulder county and the State Engineer are constituted a board for the purpose of making said survey and locating and constructing said canal.

Pursuant to notice, a meeting of the Board was held at Boulder, July 18, 1889, at which time George S. Oliver, civil engineer, was employed to procure the necessary assistants and equipments, and make the required survey, under the direction of the State Engineer.

A reconnoissance of the country on the western slope, between the head waters of South Boulder creek and the south fork of the Grand, together with barometrical observations, made it apparent that the running of a contour or grade line from the crest of the Hogback, at the head of South Boulder creek, or from any practicable point below the crest, would be attended with great difficulty, and an expense out of all proportion to that contemplated by the act.

Ridges and cañons, faced with precipitous ledges, alternate in rapid succession over much of the line north, and all attempts to avoid them, by dropping to lower contours, resulted in meeting new obstacles equally as formidable.

The engineer in charge was therefore instructed to make careful examinations of the highest sources of water supply, in the various branches of the Grand, from Grand lake south to the South Boulder Pass, tak-

ing gaugings of all streams having a reasonable supply; and to connect the same by transit and level lines, making such topographical observations as would be desirable for future estimates; also, to make connection with all low passes of the range, that might possibly be utilized for diversion.

About two months' time were occupied with this work, with two corps of engineers, embracing some twelve men, and while the cold and stormy weather on the range in the late fall, rendered it impracticable to continue the work and reach determinate results on all points desired, sufficient data was obtained to warrant the following conclusions:

First—That a satisfactory water supply cannot be obtained within the area traversed, above an elevation of about 9,500 to 10,000 feet, Ranch creek and the south fork of the Grand, with its tributaries, being the principal sources of supply.

Second—That the lowest available depressions in the crest of the range, through which water could be diverted, are not less than 11,500 feet in elevation.

Third—That an extended line of canal along the range, at the highest elevation of water supply, would be impracticable in construction on account of the broken and rocky nature of the ground, and the consequent great expense involving miles of fluming along precipitous ledges and over rock-slides, and would further be impracticable in maintenance, on account of snow, earth and rock-slides, and the wash from heavy storms; and,

Fourth—That should such a canal be constructed, not less than three miles of tunnel would be required through the range for the purpose of diversion.

It is, perhaps, well here to observe that the conditions for a range water supply, which prevail on the

eastern slope, do not exist on the western, in this, that the prevailing winds on the range are from the west, carrying the snow of the summit, from the western drainage into banks on the eastern slope, and from these banks much of our June and July water supply is derived.

Inasmuch as such banks are not formed to any extent on the western slope, and the Pacific winds evaporate and carry away much of the snow-fall, where not protected by heavy bodies of timber, it can readily be seen that but a very limited quantity of water can be obtained above timber line, at a season of the year when it would be practicable to conduct it in ditches and divert it over the range. These remarks apply, more particularly, to that portion of the range under consideration, over the entire extent of which the crest is uniformly high and above timber line.

In the dense bodies of timber well down on the Park slope, considerable depths of snow are held by the protecting shades of the forests until May and June, but at too low an elevation to render diversion practicable.

For the reasons above given, I have not deemed it advisable to incur further expense in surveys, nor to begin the construction of works, the cost of whose ultimate completion—if made available for the purposes desired—would far exceed the appropriation provided therefor.

STATEMENT OF EXPENSE.

Appropriation		\$ 25,000 00
Pay-roll of engineers and assistants	\$ 931 50	
Supply teams and pack animals	299 45	
Supplies	200 73	
Work on maps and profiles	125 00	
		1,556 68
Balance unexpended		\$ 23,443 32

**DIVERSION OF WATERS AND DIVERSION OF
WATERS EXPENSE.**

Senate Bill No. 248 provides for a survey of the sources of the Grand, Laramie and North Platte river systems, at or near The Continental Divide, to determine whether the unappropriated waters thereof can be made to flow eastward into and through the South Platte and Arkansas river systems, and appropriates \$3,000 for said survey.

If from the surveys made such diversion is determined to be feasible and practicable, the further sum of \$10,000 is appropriated for the construction of the necessary ditches or dams.

The Governor, Attorney-General and State Engineer are constituted a Commission for the purpose of carrying out the provisions of this act.

Pending the prosecution of the surveys provided for in House Bill No. 161, heretofore referred to, no action was taken in the matter of sending out an engineering force under the provisions of this act. Investigation and inquiry, however, as to the most available points for diversion developed the fact that individual enterprise had already appropriated the most eligible sites, viz: The Berthoud Pass, and the low passes, at the head waters of the Laramie and Grand. It further became apparent that the appropriation of \$10,000 was entirely inadequate for the construction of such works as would be of any material benefit to irrigation on the eastern slope, for the reason that at such an elevation, as would make diversion practicable, the streams are all small, requiring an extended line of canal and the tapping of many of these streams to secure the desired flow; also requiring tunnels through the range, that would cost, in a single case, several times the amount appropriated.

As an illustration of this, we will take the Berthoud

Pass, which has been selected by G. H. Church, as the point for diversion, in a project of a similar kind. This is probably the most favorable site for the purpose, within the scope of the act.

The pass is below timber line, being at an elevation of 11,350 feet, and, at this point, the Continental Divide makes a sharp deflection to the west. The Vasquez range puts out from the main range, just west of the Pass, extending in a northerly direction, to Hot Sulphur Springs. The contemplated canal bearing westerly from the Pass, will get its supply from the eastern slope of the latter range, thus receiving the benefit of the snow drifts on that slope, and acquiring a fair supply of water, at a higher elevation than practicable at any other point on the western slope. Still, under the circumstances, as I am advised by Mr. E. L. Rogers, the Engineer in charge, it will require some ten miles of ditch and flume line, intercepting many small streams, to secure a flow of from 6,000 to 10,000 inches at high water time, in June and July. The canal will be at an elevation of about 11,000 feet, and a tunnel under the Berthoud Pass, about 3,000 feet in length will be required for the purpose of the diversion. The entire project will cost from \$200,000 to \$250,000.

The appropriation for survey and construction, \$13,-000, therefore remains intact.

MONTROSE COUNTY BRIDGE.

House bill No. 273 provides for the construction of a State bridge, of iron, across the Gunnison river, in Montrose county, at a point known as the Red Cañon, and appropriates \$15,000 therefor.

Upon inquiry at Montrose, and on consultation with the chairman of the Board of County Commissioners of Montrose county, it was ascertained that the site designated by the act was in a precipitous part of the cañon,

without any means of access, that a passable road to the site would cost many thousands of dollars—estimated as high as fifty thousand—and that no provision had been made for its construction, nor was there likely to be any action taken in the matter, the project being regarded as impracticable.

Under the circumstances, it was not deemed advisable, by the Commission, to order a survey, or incur any expense in the matter.

The appropriation of \$15,000, therefore, remains intact.

COAL CREEK RESERVOIR.

Senate Bill No. 313 provides for the construction of a reservoir at the head of Coal creek, in Arapahoe county, and appropriates \$20,000 therefor.

The Governor, Attorney-General and the State Engineer are constituted a board for the purpose of construction, and it is made the duty of the State Engineer to "make the necessary arrangements for measuring the flow of water in said Coal creek, with a view of constructing a reservoir of sufficient capacity to hold the waters that may result from storms in that portion of the State drained by said Coal creek, and thereafter to calculate and determine the required capacity of a reservoir to store the waters flowing in said creek."

Pursuant to the provisions of the Act, a gauging station was established, and the result of the measurements and examination is herein below given in my report to the Board of Construction.

REPORT.

DENVER, COLO., Nov. 15, 1890.

To the BOARD OF CONSTRUCTION

OF THE COAL CREEK RESERVOIR:

GENTLEMEN:—In compliance with section 2 of an Act of the Seventh General Assembly, "To provide

for the construction of a reservoir at the head of Coal creek, upon or adjacent to sections 20, 28 and 34, township 4 south, range 65 west, in the county of Arapahoe, to store the water of floods, and appropriating \$20,000 therefor."

I have to report that during the month of August, 1889, a gauging station was established on said creek, near the south line of said section 34, for the purpose of measuring the flow of the stream during the pendency of floods, and that a limited amount of information has been obtained in the matters required by the Act; and further, that I have made an examination of said sections 20, 28 and 34, with reference to the most available site for a reservoir, and as to the feasibility of such construction.

As a result of such examination, and from information obtained through residents on the line of the stream, the following points have been determined and conclusions arrived at:

First—That the most available site for the location of a dam within the limits prescribed, would be on section 34, in the north-west quarter of the north-west quarter of said section.

That the extreme length of said dam would be about 1,400 feet and the greatest depth 41 feet, that the same would require for embankment 120,625 cubic yards of dirt and would cost approximately \$30,000, the cost depending upon depth for foundation. The reservoir would have an estimated capacity for 44,000,000 cubic feet of water.

Second—That owing to the vast quantities of sand carried down the stream during flood storms, any area which could be provided for the storage of water, would in a limited period of time be filled with sand and the structure thus rendered useless, and

Third—That an area covering about 120 acres of land would be required for the reservoir site and dam, said land extending diagonally through said section 34; that said land together with about 2,500 acres lying adjacent thereto, is owned by Adolph Schirmer, and that said Schirmer refuses to part with the same unless purchase is made of his entire tract.

The construction of a dam across a stream like Coal creek, having a drainage area of over one hundred square miles and, subject to heavy local flood storms is, under favorable conditions, open to serious objection; but when it is considered that the bed of this channel is a light and shifting sand, which extends downward to indefinite depths, rendering a safe foundation to the dam very expensive and difficult to obtain; and further, that the banks on either side of the reservoir site are composed of the same material, admitting of excessive seepage, so much, in fact, that it is reported impracticable to carry water through ditches constructed in it, and when it is further considered that it would be impracticable to prevent the rapid accumulation of sand in the storage basin, and the consequent covering up of the discharge pipes and destruction of the basin, it becomes a reasonable certainty that the enterprise would not be feasible, and that such a construction would be an experiment not justifiable under the peculiar circumstances.

It would certainly be desirable for that section of country if a system of reservoirs could be established and successfully maintained on or in the vicinity of Coal creek, as, from the gaugings made, it has become evident that sufficient water from flood storms flows through the channel to fill a reservoir of the capacity heretofore mentioned, perhaps two or three times during the season, and private enterprise, unrestricted as to locality, may in time accomplish this end.

Mr. Schirmer informed me that some two or three years ago he had in contemplation the construction of such a reservoir on Coal creek, on or above his land, but for the reasons heretofore assigned as to sand deposits, had concluded the scheme impracticable.

In view of the reasons above given, I regard the work contemplated by the act as not practicable or feasible, that the cost of such a reservoir would exceed the limits of the appropriation, and the quantity of water stored would not be compensurate with the expense incurred.

The gauging station was established by my assistants in the office, and the expense attending this, and the examination made by myself being light, has been

taken from my assistant fund, leaving the appropriation intact.

Respectfully submitted,
J. P. MAXWELL,
State Engineer.

At a meeting of the Board, the report was considered and the conclusions therein set forth were endorsed, and it was determined to take no further action in the matter.

Appropriation (intact) \$ 20,000

PURIFICATION OF CLEAR CREEK WATERS.

House Bill No. 193 provides a Commission for the purpose of making experiments and practicable tests in the matter of the purification of the waters of Clear creek, and appropriates therefor out of any money in the treasury, not otherwise appropriated, the sum of \$5,000.

Before any action was taken in this matter by the Commission, the following communication was received from the Auditor of State relative thereto:

HON. J. P. MAXWELL,
State Engineer. DENVER, COLO., Sept. 5. 1889.

DEAR SIR:—There is a question as to whether or not the appropriations made by the Seventh General Assembly are entirely within the constitutional limit as provided in section 16, page 60, General Statutes of Colorado, 1883.

We made a statement of appropriations and an estimate of the probable income for the years 1889 and 1890, and presented them to the Governor, calling his attention to the facts, and requested that he ask the Supreme Court for a decision of the question.

I would suggest to you that it might be advisable to await the decision of the Supreme Court before commencing the work of experimenting on the purification of the waters of Clear creek.

Yours truly,

LOUIS B. SCHWANBECK,
Auditor of State.

By HARRY TARBELL,
Deputy.

Being subsequently advised by the Attorney General that, under the ruling of the Supreme Court, the appropriation would not be available, no steps have been taken toward carrying out the provisions of the act.

Appropriation (intact)	\$ 5,000
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BEAR RIVER ROAD.

House bill No. 134 provides for the construction of a State wagon road through the Bear river cañon, between Steamboat Springs and Hayden, in Routt county, and appropriates \$5,000 therefor.

The Commission consists of the Governor, State Engineer and chairman of the Board of County Commissioners of Routt county (S. H. Tharp).

About the first of July, 1889, I made a personal examination of the cañon, and a general location of the line. Preston King, civil engineer, was then employed to make the survey, maps and profiles.

September 25, a call was made for bids, under the plans and specifications, the latter providing for a ten-foot solid road-bed, with sixteen-foot turnouts not exceeding five hundred feet apart, and a substantial stone retaining wall on the lower side of the road. The road to be five miles and five hundred feet in length.

October 16, the following bids were received:

S. L. Smith, of Leadville	\$ 4,060 00
Howard, Gaddis & Packer	4,075 00

The award was made to S. L. Smith, as being the lowest responsible bidder; and S. H. Tharp, chairman of the Board of County Commissioners, was selected to superintend the construction.

At the lower end of the cañon, and near the terminus of the survey, the line crossed an irrigation canal, and followed the lower bank thereof for about five hundred feet.

In the construction at this point, objection was made by the owners of the canal, to building the road along said lower bank, and hence, by a subsequent agreement with the contractor, the road was to terminate at the crossing of the ditch, and sixty dollars was to be deducted from the contract price.

Notice having been received from the Superintendent that the road would be completed by the last of December, 1889, I then arranged with the Superintendent to meet him on the ground about the first of January, 1890, for the purpose of inspection.

Arriving in Steamboat Springs on Monday, January 7, I was informed that the forces had been drawn off the road on the Saturday previous, and, on that same evening, the contractor started for Denver, carrying with him Mr. Tharp's certificate as to completion.

An inspection of the road, although made with difficulty, on account of the deep snow, developed very serious defects in construction, the road-bed being so narrow as to render travel over it, with teams, unsafe and impracticable, the retaining walls insecure, and the bridges flimsy and without proper foundations.

Proceeding immediately to Denver, I found that the contractor had attempted to effect a settlement and payment, on the strength of Mr. Tharp's certificate. Upon the advice of the Attorney-General, however, the Auditor refused to draw the warrant, because the papers presented by the contractor did not constitute a certificate of *completion of the road*, as required by the act.

The contractor then brought a *mandamus* suit against the Auditor, in the District Court of Arapahoe County, Judge Allen presiding, to compel the issuance of the warrant. The *mandamus* was granted, whereupon the Attorney-General took the case, by writ of error, to the Supreme Court, where Allen's judgment was reversed and the case dismissed.

The contractor then instituted proceedings in the District Court of Lake County, to compel the Board to issue a certificate of completion, the contractor alleging the completion of the road, and the Board denying it, where the case is still pending.

In the meantime, the Board, after due notice to the contractor, declared the contract annulled, and proceeded to advertise for a re-letting of the work. Bids were received under this call, but it was finally concluded by the Board, not to make the award until trial was had in the case now pending.

The complications in this case have been unfortunate for the people of Routt county, as the road is much needed, the cañon being impassable during high water time; but the persistent efforts of the Board to secure completion have thus far been unavailing, on account of these legal proceedings and the uncertainties connected therewith.

STATEMENT OF EXPENDITURES.

Appropriation		\$ 5,000 00
Preston King, for survey and maps	\$ 267 25	
Advertising	54 75	
S. H. Tharp, service and team in survey	117 00	
S. H. Tharp, trip to Denver to Board meeting	84 60	
S. H. Tharp, superintendence of construction	224 00	
State Engineer, expense three trips to Bear river	106 35	
		853 95
Balance unexpended.		\$ 4,146 05

GLENWOOD SPRINGS BRIDGE.

House Bill No. 50 provides for the construction of a State bridge across the Grand river at Glenwood Springs, and appropriates \$45,000 therefor.

The Governor, State Engineer and Chairman of the Board of County Commissioners of Garfield county are constituted a Board of Construction.

On the eleventh day of September, 1889, the Board met at Glenwood Springs, and made a definite location of the site. Theo. Rosenberg, civil engineer, was employed to make a careful survey of the ground, sink test pits, and submit maps and profiles for inspection of Board. A call was then made for plans, as provided by law, under which three plans were submitted, and that of J. W. Hoover, of Kansas City, adopted. Bids being then called for, ten were submitted, the lowest being that of the Bullen Bridge Company, for \$37,489.00, to whom the award was made. Subsequently this amount was increased to \$40,000.00, by agreement with the Board, in consideration for which the bridge company contracted to construct an additional 1,564 feet of iron railing between the roadway and sidewalks on the bridge, for the better security of pedestrians.

The plans call for a deck bridge, 863 feet long, including 110 feet of masonry approaches; the 753 feet of steel superstructure to consist of one 235-foot span, one 108-foot span, two 85-foot spans, one 60-foot span, and 265 feet of shorter spans having pedestal supports. The sub-structures to be of first-class masonry. The bridge is sufficiently elevated to give 21 feet head room over the Denver & Rio Grande railroad track. After the plans were adopted some complications arose, through a misunderstanding between interested parties in Glenwood and the railroad company, necessitating a modification of the plans and the raising of the floor of the bridge some six feet to satisfy the demands of said road.

The masonry was completed and the main span placed, several months ago, further work having been suspended from the want of the iron for the remaining spans. All the material is now on the ground, and the early completion of the entire structure assured.

NOTE.—Since making report to the Governor, the Glenwood Springs bridge has been completed and inspected, and was, on the nineteenth day of February 1891, accepted by the board of construction. Appended will be found a statement of expenditures connected therewith:

STATEMENT.

Appropriation		\$ 45,000 00
For preliminary work, profiles, surveys and superintendence	\$ 1,656 20	
For advertising	91 70	
For blue prints for bidders	53 10	
For accepted plans by J. W. Hoover	500 00	
For inspection of iron at shops	329 85	
State Engineer, expense, three trips	70 95	
Bullen Bridge Co., account contract	40,000 00	
Bullen Bridge Co., extra masonry and painting	445 50	
		43,147 50
Balance unexpended		\$ 1,852 50

DELTA COUNTY BRIDGE.

Senate bill No. 73 provides for the construction of an iron bridge across the Gunnison river at some suitable point between the mouth of the Black Cañon and the mouth of the Uncompahgre river, in Delta county, and appropriates \$20,000 therefor.

The Governor, State Engineer and Chairman of the Board of County Commissioners, of Delta county (Aaron Clough) are constituted a commission for the purpose of locating and constructing said bridge.

In December of 1889 I made an examination of the ground, and with Mr. Aaron Clough located the site of the bridge at the mouth of Black Cañon, as being the safest in the foundation, the most economical in cross-section, and as the most generally satisfactory to the people to be accommodated.

Plans were called for as provided by law, and \$200 offered for the best and accepted plans.

Under the call for bids, seven were received, the lowest of which being by the Bullen Bridge Co., for \$17,289,

the award was made to said company and contract entered into.

The plans call for a two span bridge, 196 and 180 feet respectively, with a 16-foot clear roadway, the abutments and pier to be first-class masonry. The latter are now completed, and the material for the super-structure reported on the ground or in transit. I am informed by the contractor that work will be resumed at an early date, and the bridge completed for acceptance in the following January.

NOTE—This bridge has been completed and accepted since report thereon was made to the Governor, and appended will be found a statement of expenditures.

STATEMENT OF EXPENDITURES.

Appropriation		\$ 20,000 00
Theo. Rosenberg surveys, maps and profiles	\$ 125 80	
36 blue prints of profiles and plans	40 35	
Ada Dwelle, 12 copies specifications	8 40	
Advertising for plans and bids	115 00	
W. R. Hand, for adopted plans	200 00	
State Engineer and deputy, expense of three trips to site	92 75	
H. C. Jennings, account Superintendent and inspection of iron at shop	864 45	
The Bullin Bridge Co., contract	17,289 00	
Balanre unexpended		\$ 1,264 25

BEAR RIVER BRIDGE.

House bill No. 58 provides for the construction of a State bridge across Bear river, in Routt county, at some point between Juniper and Cross mountains, appropriates \$7,000 therefor, and designates the Governor, State Engineer and Chairman of the Board of County Commissioners of Routt county as the locating and building board.

In January, 1890, I made an examination of the ground, and selected the Thornburg crossing of the Bear as the most available for economical construction and as affording the greatest accommodation to the traveling public.

After the adoption of suitable plans, bids were called for, of which six were received.

The award was made to the Bullen Bridge Co., as being the lowest bidder, for \$6,389. The bridge is to be a combination truss, with two spans, of one hundred and twelve feet each, and fourteen feet roadway—the wooden truss members to be of Oregon pine, and the sub-structure to be of masonry. This bridge is over one hundred miles from any railroad, and the shipments of material have therefore, been attended with considerable expense, as well as delay, but all material is reported now on the ground, and the bridge well under construction.

STATEMENT OF EXPENDITURES.

Appropriation		\$ 7,000 00
State Engineer, expense locating site	\$ 58 70	
Copies, blue prints and specifications	9 86	
Advertising for plans and bids	82 80	
J. C. Kennedy, for surveys and superintendence	142 00	
	293 36	
Balance unexpended		\$ 6,706 64

(Contract not completed.)

APPROPRIATIONS FOR INTERNAL IMPROVEMENTS, AND UNEXPENDED BALANCES.

IMPROVEMENT	Appropriated	Unexpended
Bennett creek and Conejos wagon road	\$ 7,500 00	\$ 336 04
Trinidad and Stonewall wagon road	15,000 00	33 70
Ten Mile river bridge.	2,000 00	241 15
Grand river bridge	6,000 00	82 10
Clear Creek county road	5,000 00	4,524 10
Grand river road and bridge	10,000 00	9,412 82
Del Norte levee	2,000 00	871 78
South Boulder creek diversion	25,000 00	23,443 32
Del Norte bridge	7,000 00	1,441 06
Diversion of waters, Grand and Laramie.	13,000 00	13,000 00
Coal creek reservoir.	20,000 00	20,000 00
Clear creek purification.	5,000 00	5,000 00
Bear river road	5,000 00	.....
Glenwood Springs bridge.	45,000 00	1,852 50
Delta county bridge.	20,000 00	1,264 25
Montrose county bridge	15,000 00	15,000 00
Bear river bridge	7,000 00	.....
Totals	\$209,500 00	\$ 96,502 82

From the above recapitulation it will be seen that \$209,500 were appropriated for internal improvements, and that of this amount the sum of \$96,502.82 is returned unexpended. As the Bear river road and Bear river bridges are not yet completed, the balances in these cases are estimates.

In the construction of the State roads and bridges, it has been the aim of the various Boards, to secure the best possible results within the limits of the appropriations. In the bids for the bridges, competition was sharp, resulting in very favorable figures to the State, for a good class of bridges.

All sub-structures are masonry, and suitable for iron super-structures should they ever be required, where not already provided for. In the combination bridges, all

truss members of wood can be replaced by iron at any time in the future. All iron and steel have been carefully inspected and tested, at the shops, in Chicago, by experts in the line, and a close supervision of construction has been provided in all cases.

There have been vexatious delays, in connection with the construction of the bridges, occasioned by high water, and for other causes, but, in no case has travel been seriously discommodeed; and it has not been deemed advisable, in the interest of the State, to take summary measures for the enforcement of contracts where the limit as to time has been exceeded, believing that the best interests of the State would be subserved in securing, if possible, the completion of all bridges under the present favorable contracts.

The most important of the enterprises undertaken for the State, during the past two years, is the

STATE CANAL NO. I.

The act of the Seventh General Assembly, known as S. B. No. 263, approved April 19, 1889, authorized the construction of one or more irrigating canals from the Arkansas river, under the control of the Board of Penitentiary Commissioners acting as a Board of Construction.

Under the provisions of the act, and at the request of the Commissioners, an examination was made by myself June, 1889, and the head of the canal established on the south bank of the river, in the Grand Cañon, about three miles above the mouth of the latter.

Surveys were then begun under the direction of John S. Titcomb, the Deputy State Engineer. The first, or trial line was run on a grade of 6.34 feet per mile to the east side of the "Prison Hogback," at Cañon City, and thence on a grade of 1.76 feet per mile. This line was run to a point twenty-five miles from the head.

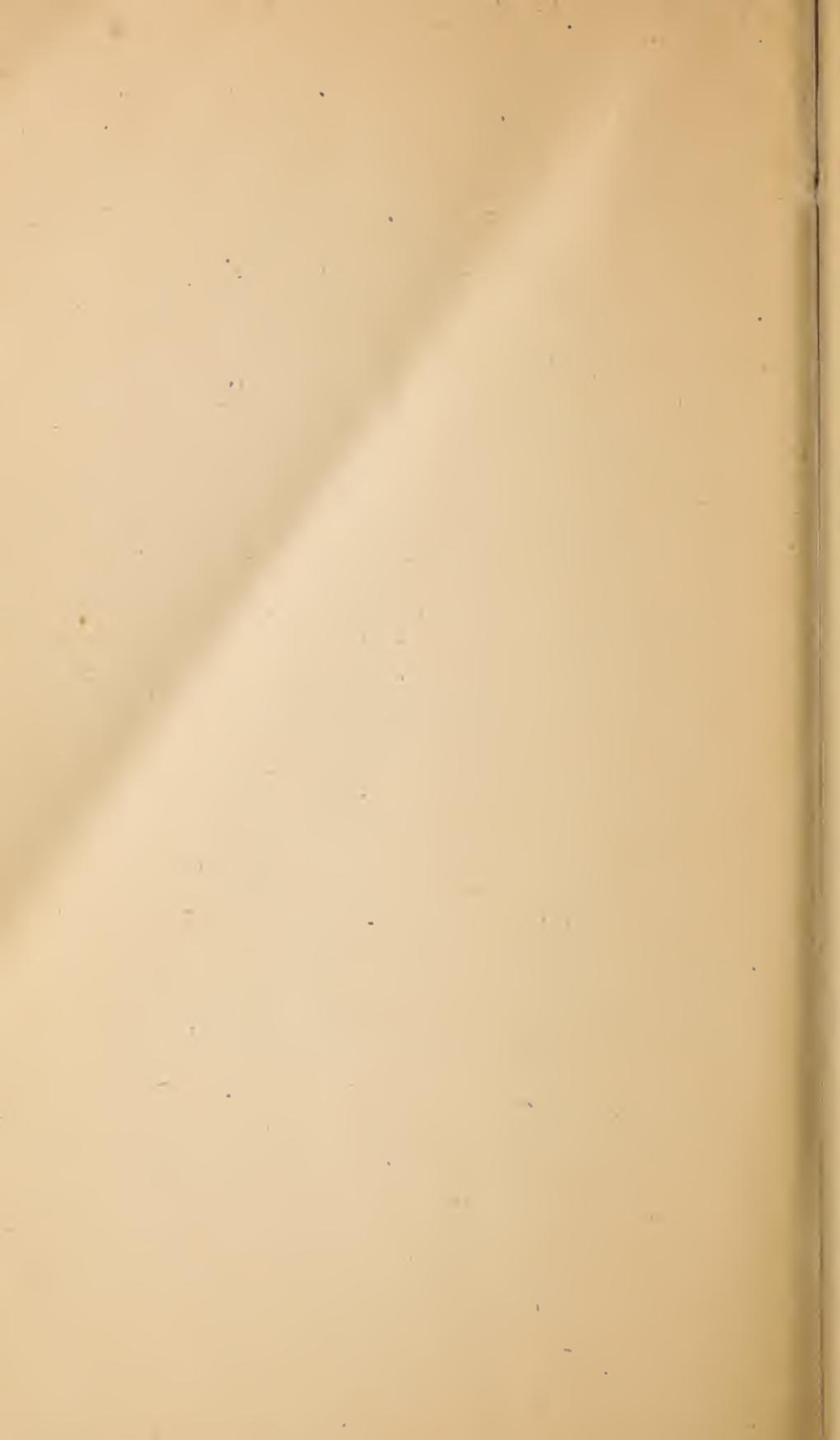
On further consideration the Deputy decided to change the grade, and accordingly, after raising the grade at the head two feet, ran another line on a grade of 5.28 feet per mile from the head to the mouth of the cañon, and thence on a grade of 1.76 feet per mile. This made a difference of fourteen feet in the elevation (higher) of the line from about the mouth of the cañon, putting the line on better ground generally, covering more land and shortening the line considerably, cutting off about one and three-quarter miles at one place over the trial line. This second line was run out about thirty miles and the survey stopped for awhile. Later, in August and September, 1889, the preliminary location was carried on to intersect the Fountain qui Bouille, by Mr. Thomas W. Titcomb. Under the latter, a preliminary line was also run from the head along the south side of the river, about one and one-half miles, to where it crosses to the north side, and this line was continued, being the second within, and the third outside of the cañon, to the open park north-east of Cañon City.

Proper maps and statements of water rights were prepared, duly executed and filed with the recorder of Fremont county and in this office.

Later, and early in 1890, the line of the tunnel through the "Prison Hogback" at Cañon City was definitely fixed, and at the date of this report very satisfactory progress has been made in driving said tunnel, as well as in grading the approaches to the same at each end.

According to the data furnished by the State Land Department, the canal will cover some 27,000 acres of State land.

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Coal creek reservoir		601
Purification of Clear creek waters		604
Bear river road		605
Glenwood Springs bridge		607
Delta county bridge		609
Bear river bridge		610
The State Canal No. I		614

