

JOHN A. LOVE
Governor



C. J. KUIPER
State Engineer

DIVISION OF WATER RESOURCES

DEPARTMENT OF NATURAL RESOURCES
W. G. WILKINSON P.E.
IRRIGATION DIVISION ENGINEER
ROOM 208 8th AND 8th OFFICE BLDG.
GREELEY, COLORADO 80631
OFFICE: 352-8712 HOME: 484-3917

December 11, 1969

ANNUAL REPORT

Irrigation Division No. 1

Mr. C. J. Kuiper
State Engineer of Colorado
1845 Sherman Street
Denver, Colorado 80203

Dear Sir:


The Annual Report of the Division Engineer of Irrigation Division No. 1 of the State of Colorado for the 1969 water year is herewith presented.

Included in this report are tabulations showing a summary of the water used in the several districts, transmountain importations into the division, water storage in reservoirs on the first of each month of the year, distribution of water to the various ranches on the Laramie River in District 48 under their allotments, interdistrict river calls during the water year from Nov. 1, 1968 to Nov. 1, 1969, and a list of the personnel within the division.

Also included are some comments in various areas of interest inherent to the administration of water in Division No. 1.

The writer would also like, at this time, to express his sincere appreciation to the State Engineer, his entire staff in the state office and the personnel of Division No. 1 for their courtesy, help and encouragement over the past year.

Respectfully submitted,


W. G. Wilkinson
Irrigation Division Engineer
Irrigation Division No. 1

SEASON

The 1969 water year started with a nearly average carryover in the reservoirs and snowfall conditions that produced normal snowpack through January. However, February and March were deficient in moisture and the forecasts on the first of April indicated an 80% of normal supply of water from spring runoff. Conditions continued dry through April, necessitating irrigation to germinate and start crops in many areas. On May 4th the rains came. Severe flooding occurred on all the tributary streams south of the Big Thompson River, resulting in damage in excess of \$1,000,000 to irrigation facilities in the Division. It has been estimated that in excess of 200,00 acre feet of water escaped into Nebraska due to lack of storage facilities and irrigation demand at the time of availability. Total precipitation for the year over the entire area was nearly double that of normal.

Hail damage, considering the division as a whole, was less than average. There were only about three areas involving major agricultural hail damage. The first was a strip from approximately Johnstown to Kersey, the next was an area near Hillrose, in which, fortunately, most of the hail fell on nonirrigated range land and lastly, a small storm near Masters late in the season.

The harvest was complicated by a major snow storm starting October 3 and followed almost weekly by additional moisture and poor drying conditions with subnormal temperatures. As a result a considerable loss was sustained by farmers with crops unharvested at that time. The beet harvest suffered the worst. Muddy fields and frozen ground have made for a slow, costly operation and reduced the crop value with considerable damage to harvested beets and many beets still unharvested in the fields.

Some loss was sustained also by farmers raising onions, potatoes, hay and beans. Most corn suffered minimal damage as a result of the weather.

Generally speaking, crop yields were very good over the area.

LEGISLATION

The greatest single item of interest to those people working with water the past year was no doubt the passage of Senate Bill 81. The new law was viewed both with optimism and concern. It covered a wide range of water related subjects in an attempt to recodify and update the water laws of the State of Colorado.

The main impetus for passage of this legislation was provided by the necessity of integrating the use and administration of surface and underground water supplies.

Among other things, the new law provided for the establishment of water courts in each division served by a water judge, water clerk and referee. The District Court of Weld County, with Judge Donald A. Carpenter of Greeley presiding, has been designated for Division No. 1. Judge Carpenter has appointed Mrs. Joy Ahlborn as water clerk, but at the time of this writing has not yet appointed a water referee.

Senate Bill 81 also changed the location of the office for Division No. 1 from Denver to Greeley. The new office was opened the middle of July in Room 208, 8th and 8th Office Building in Greeley.

LITIGATION

The administration officials of Division No. 1, as well as the State Engineer and his staff, were enjoined by water users from enforcing the rules and regulations promulgated to integrate surface and ground water use during the latter part of the irrigation season. The court in granting the injunction held that no injury to surface users as a result of pumping operations had been proven. The case will be appealed to the Supreme Court.

CONSTRUCTION

Several projects varying from stock water ponds to major reservoirs have been approved and construction has been completed or is under way.

Buttonrock Reservoir, with a capacity of 16,500 acre feet, was completed just days before the May flood and was filled to capacity in a very short time, no doubt reducing the flood damage that might otherwise have occurred on the St. Vrain in District 5 and subsequently further down on the South Platte.

Park Creek Reservoir in District No. 3 with a capacity of approximately 7,000 acre feet is virtually complete at this time. With the present outlook of next season's water supply it appears that Park Creek will be able to fill. In any event it will be a real advantage to the North Poudre Irrigating Company as an exchange and regulating reservoir.

Numerous stock water ponds have been approved. Outlet gates and conduits have been required on those which appear to affect existing downstream surface rights.

Modification and repair work has been approved for some existing structures. The embankment on Boyd Lake, in District No. 4, is being repaired and enlarged to allow the exercise of that priority to the full extent.

The outlet from Larimer and Weld Reservoir, locally known as Terry Lake, in District No. 3 is being replaced this fall. Freezing weather will probably delay completion until spring. Last winter about one-third of the concrete apron on the face of the dam was broken up and covered with a good grade of rock riprap. This was necessitated by development of small holes in the concrete face which allowed wave action to pump out fill material beneath the apron.

CONSTRUCTION

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In spite of continual patching and maintenance large cavities tended to develop without being readily discernable. As a matter of safety the reservoir company started a program of replacement of the concrete with broken rubble and rock which has helped to alleviate the condition.

Also, in District 3, the Hourglass Reservoir Dam developed some signs of distress with some sloughing around the downstream end of the outlet and the dam abutments. The situation was relieved with the immediate release of water. The level of water storage in the reservoir will be restricted until proper repairs are made.

Standley Reservoir, in District 2, has required some regulation on the stage of fill. Due to the steep upstream slope some of the riprap has slumped down requiring additional rock to be placed. This is now being done. Some settling and movement in the dam embankment has become apparent and is being closely observed for further signs of distress.

Since the Standley spillway channel to Dry Creek has never been completed, storage in the reservoir has been restricted to a gauge height 3.8 feet below spillway level. Plans are now being completed for the final spillway construction.

The diversion dam for the Lower Platte and Beaver Canal in District 1 was lost in the May flood. It is now being rebuilt.

Many other structures were lost or damaged as a result of the flood and are being repaired prior to the next irrigation season. Federal funds have been made available to the extent of the actual damage caused by the flood.

PERSONNEL

With the adoption of Senate Bill 81 the Division office was moved from Denver to Greeley. Concurrently, Mr. M. W. Mattern, who had been serving as Division Engineer, was promoted to the office of Supervising Water Resources Engineer and the writer, W. G. Wilkinson, was appointed to the position of Division Engineer.

The decision was made to move Dean Thompson, the State Engineer's representative working with the Colorado-Big Thompson Project operation, into the Division office and close his Loveland office. Office space in the 8th and 8th Office Building, Greeley, Colorado, was leased and the office opened in Room 208 of that address in mid-July. Mr. Thompson, as could well be expected, continued to perform his duties very competently as well as providing valuable assistance in establishing and maintaining the operation of the new office.

Mr. Robert Jessee, Mr. Mattern's assistant, also spent some time in Greeley, rendering some excellent advice and direction in the office operation, records and procedures. Mr. Jessee left the first of September to accept the post of Assistant Division Engineer at Pueblo in Division No. 2. The comparable position in Division 1 has not been filled as yet, although Civil Service is now processing applications.

On August 20 the office staff was increased by the employment of a clerk typist, Mrs. Dorothy Wankelman. Although Mrs. Wankelman had little experience in this type of work, she has displayed a most commendable willingness and aptitude. The division staff feels very fortunate in her selection.

PERSONNEL

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Ted Bell, Deputy Water Commissioner of District No. 4, has been working in the Greeley office since the end of the irrigation season at such times as his efforts are not required on the stream. His able assistance in the office is much appreciated and he will be employed full time.

Two water commissioners have been appointed during the past year.

Jack Neutze was promoted from deputy to a water commissioner of District No. 3 in July and served diligently in that capacity for the balance of the season.

Richard Drexel was appointed commissioner in District 7 upon the retirement of Milton Copeland, near the first of the year, and has also displayed conscientious ability in his work.

Both Mr. Neutze and Mr. Drexel had previous experience as deputy water commissioners which proved to be valuable in the discharge of their new duties.

Four vacancies in the ranks of the deputy water commissioners were filled. Quinto Brunelli in District No. 1, Ronald Thaemert in District No. 3, Lawrence Young in District No. 5 and Landon Schweer in District No. 23.

No further vacancies in the water commissioners and deputies are anticipated at this time.

With all the division activity and local as well as outstate hydrographic assignments, the lack of work in the foreseeable future does not seem to be a problem. The assignment of an assistant division engineer and at least one hydrographer to this office would be very desirable.

A division personnel list is included elsewhere in this report.



DIVISION OF WATER RESOURCES

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Division 1 Personnel

W. G. Wilkinson, Division Engineer
D. E. Thompson, Ass't Water Resources Engineer
Dorothy Wankelman, Secretary

Water District	Name	Location	Position
1	Samples, Robert D. Brunelli, Quinto	Snyder Weldona	Comm. Deputy
2	Meehl, Paul E. Heit, Antone C.	Brighton "	Comm Deputy
3	Neutze, Jr., John W. Thaemert, Ronald L.	Ft. Collins "	Comm. Deputy
4	Blewitt, Lloyd G. Bell, Theodore S.	Loveland "	Comm. Ceputy
5	Palmer, Donald Q. Young, Lawrence A.	Lyons Longmont	Comm. Deputy
6	Platt, Thomas L. Ward, Ernest L.	Boulder "	Comm. Deputy
7	Drexel, Richard L.	Arvada	Comm.
8	Van Gorden, Ralph L.	Littleton	Comm.
23	Wenz, Arthur Schweer, Landon	Bailey Fairplay	Comm. Deputy
48	Gleason, William S. Wangnild, William E.	Jelm, Wyo. "	Comm. Deputy
49-65	Fisher, Theodore	Wray	Comm.
64	Littler, Robert D.	Sterling	Comm.

PROBLEMS AND PROJECTIONS

The greatest problem facing the water administration officials in this area is that of implementing the provisions of Senate Bill 81 and more especially that of integrating well and surface water supplies.

The Court's direction, should it be upheld by the Supreme Court, to charge pumping against surface decrees may work very effectively in the lower part of the division in overcoming the problem of river calls from that area. However, it will at the same time complicate the administration in some of the tributary areas. Local practice, location of wells, return flow patterns and other variables add to the problem. In anticipation of the necessity of a closer surveillance of well operations the water officials will be checking on well locations, ownership and registration as time permits.

Within administrative operation some greater uniformity of reporting is desirable. However, here again complete uniformity is impossible due to the variance of conditions. A redesign of field books and some report forms is anticipated.

TRANSMOUNTAIN DIVERSIONS

A total of 288,491 acre feet of water was imported into the Division through transmountain diversions. This total includes 170,724 acre feet through the Colorado-Big Thompson system, the disposition of which is accounted for in the report of Dean Thompson.

In addition to the above importations 20,157 acre feet of Laramie River Basin water in District 48 were diverted into District No. 3 for use in the Cache la Poudre Basin.

DISTRICT	IRRIGATION				DOMESTIC		COMMERCIAL		Reservoir Capacity Ac. Ft.	In Storage May 1 Ac. Ft.	In Storage Nov. 1 Ac. Ft.	
	Acres Irrigated	Ditches Reported	First Day	Last Day	Nat. Str. Direct Ac. Ft.	Reservoir Ac. Ft.	Foreign Ac. Ft.	Ac. Ft.				No. of Reservoirs
1	164675	15	4-11	10-10	207078	87824	2192	13	185618	152176	93360	
2	207686	30	4-1	10-28	301023	63422	2774	36 (H)	173133	99807	76669	
3	287000	30	4-22	10-7	194662	121920	120688	40	350168	237742	167424	
4	108813	38	4-9	10-14	106299	61962	61098	19	239265	166681	125937	
5	95438	35	4-1	10-28	74698	23554	27335	61	64611	18294	53914	
6	165700	62	4-1	10-31	76129	21518	8478	30	114754	66253	84625	
7	33139	22	2-25	10-31	114871	673	384	52	92586	52886	57850	
8	27451	75	3-1	10-31	54077	302	139562 (G)	30	132408	35758	37424	
9	11922	13	4-1	10-31	10313	4292	1988	20	10687	7120	6566	
23	24792	116	4-20	10-9	221224			6	254983	164603	196316	
48	4585	62	5-7	10-13	25955							
49	1781	8	4-21	10-14	4871							
64	117161	19	4-1	10-18	137108	114281			108571	91565	42437	
65	2915	8	4-24	10-11	13156							
TOTALS	1253058	533			1541464	499748	222949	307	1726784	1092885	942522	

A - Includes Colorado-Big Thompson
B - Includes 1988 Reservoir

C - Includes 26 Reservoir
Includes 956 Foreign
Includes 3278 Exchange

D - Includes 1005 Foreign
E - Includes 318 Foreign
Includes 1457 Reservoir

F - Includes 1182 Foreign
G - Includes 46548 Foreign
Includes 10,896 Reservoir
H - Includes Standley

The following is a statement of water in storage in Irrigation Division No. 1, from November 1, 1969 through November 1, 1969, tabulated by districts. It does not include the Laramie River Basin District No. 48, No. 49, No. 65, as there is very little storage in each of these districts.

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 - Values in Acre Feet -

District	1969												
	November 1st	December 1st	January 1st	February 1st	March 1st	April 1st	May 1st	June 1st	July 1st	August 1st	September 1st	October 1st	November 1st
1	37369	68037	85968	109256	126291	124166	152176	166393	164084	112460	60639	44929	93360
2	34403	52079	61096	74069	82627	94553	99807	106537	107860	84887	47802	41875	76669
3	161524	166527	178394	194331	207797	225625	237742	283591	327387	252664	169127	143746	167424
4	113119	128607	139760	149757	161547	164520	166681	197066	207502	174389	131913	111810	125937
5	18426	16505	16575	16855	17291	17532	18294	48335	53041	42934	38293	34812	53914
6	68318	71934	71874	72673	72680	71018	66253	102323	103758	96678	81065	77252	84625
7	11048	10681	10681	9567	9251	7832	52886	16128	17312	16077	13528	13645	57850
8	33240	33089	34097	33221	32338	34090	35758	38369	39098	37998	38255	36109	37424
9	4748	5320	5853	6489	6464	6448	7359	9794	9918	6680	5984	5555	6565
3 & Cheeseman													
Total	153076	152726	153118	153886	154419	156139	164603	188036	196905	196194	191193	183642	196316
64	43610	57274	66044	80434	91664	112418	91565	126173	123947	88502	43565	27080	42437
Monthly Totals	678881	762779	823460	900538	775369	1014341	1092885	1282745	1350812	1109463	821364	720455	942522

LARAMIE RIVER OPERATION CHART

WEEKLY DIVERSIONS - DAY SEC. FT. - DATES AS INDICATED 1969 PRIOR TO JULY 31

RANCH	5-10	5-17	5-24	5-31	6- 7	6-14	6-21	6-28	7- 5	7-12	7-19	7-26	7-31	To		
														Reserve	Total	Balance
Boswell																
Hohnholz, Robert	38.53			64.06	258.51	274.40	299.38	232.66	204.78	235.48	212.98	176.10	92.14		2089.02	0.0
Butler, L. M.			19.87	83.66	93.78	95.91	77.70	77.05	73.85	81.70	79.70	67.14	25.68	400.00	1156.17	68.83
Tatham, R. Howerý				32.69	54.50	45.31	19.00	18.37	22.38	19.06	13.02	0.36			244.56	188.44
Leake, Richard				54.31	98.74	86.89	32.59	71.06	59.93	55.86	87.77	48.41			595.56	384.44
Leake & Wangnild					37.65	55.37	52.71	49.92	44.79	43.71	47.74	5.70			337.59	95.41
Dixon, Howard	7.30			117.72	170.93	171.78	165.17	154.66	107.13	95.75	111.08	71.80	38.23	112.17	1323.72	435.28
Owen & White				178.95	341.01	304.35	296.35	286.70	250.73	255.94	247.18	254.16	69.60		2484.97	0.0
Sholine Ranch Inc.				51.82	111.40	121.32	124.02	119.77	110.83	100.02	90.01	30.23	4.97		864.39	28.61
Wangnild, C. E.				51.55	94.94	118.45	132.14	117.20	112.54	115.55	124.76	71.06			938.19	12.81
Jordan, Ralph				0.66	0.38	0.36	0.28	0.31	2.50	2.18	0.34	0.28	0.20		7.49	122.51
Dixon, Howard				61.95	136.64	133.56	125.09	115.95	113.15	65.56	46.85	30.74	2.68		832.17	0
Lamb, Josephine								9.08						200.00	209.08	150.92
Elliott, O. H.				5.52	42.64	44.92	42.22	35.36	35.87	31.14	36.12	30.88	11.43		316.10	0.0
Christensen, M.																72.00
Owen & White	16.50	28.09	27.68	23.30	17.70	17.52	28.21	19.32	10.96	6.50	4.23	0.54		455.37	655.92	7.08
Holcomb	12.13	11.54	45.94	104.86	115.65	117.02	110.39	107.76	101.34	86.46	70.73	57.03	29.24		970.09	268.91
Reserve									+200.00	-7.67	-36.12	-110.76	+226.83			272.28
Total	28.63	39.63	139.32	831.05	1574.47	1587.16	1505.25	1415.17	1250.78	1194.91	1172.51	844.43	274.17	1167.54	13025.02	2107.52
Acre Ft.	56.79	78.60	276.34	1648.36	3122.91	3148.08	2985.62	2806.95	2480.88	2370.07	2325.64	1674.90	543.81	2315.78	25834.73	4180.20

LARAMIE RIVER OPERATION CHART

WEEKLY DIVERSIONS - DAY SEC. FT. - DATES AS INDICATED 1969 AFTER JULY 31

RANCH	8-2	8-9	8-16	8-23	8-30	9-6	9-13	9-20	9-27	10-4	10-11	10-13	To Reserve Total	Balance
	24.30	24.76	0.48	0.71	0.56	0.56	0.80	1.05	1.05	1.32	1.58	0.23		
Boswell														
Hohnholz, Robert	24.30	24.76	0.48	0.71	0.56	0.56	0.80	1.05	1.05	1.32	1.58	0.23	57.40	67.60
Butler, L. M.														80.00
Tatham, R. Howerly														28.00
Leake, Richard						2.54	15.73						18.27	45.73
Leake & Wangnild														28.00
Dixon, Howard	6.55	13.90	12.06	8.08						1.51	3.92	0.55	46.57	67.43
Owen & White													128.00	0.00
Sholine Ranch Inc.	1.47	2.23	1.34	1.25	0.10				0.89	0.48	0.73	0.10	8.59	49.41
Wangnild, C. E.				10.19									10.19	51.81
Jordan, Ralph	0.08	0.17	0.11	0.07	0.07	0.07	0.07	0.07	0.12	0.17	0.30	0.04	1.34	7.66
Dixon, Howard														47.00
Lamb, Josephine														23.00
Elliott, O. H.							1.24	9.80	15.70	22.42	25.54	3.62	78.32	0.00
Christensen, M.														5.00
Owen & White				5.00	4.59									43.00
Holcomb				5.09	4.59	3.43	3.20	2.71	2.91	3.24	3.14	0.43	28.74	52.26
Reserve														
Total	32.40	41.06	13.99	25.39	5.32	6.60	21.04	13.63	20.67	29.14	35.21	4.97	128.00	595.90
Ac. Ft.	64.26	81.44	27.75	50.36	10.55	13.09	41.73	27.03	41.00	57.80	69.84	9.85	253.88	1181.95

TRANSMOUNTAIN DIVERSIONS IN DIVISION # 1

Nov. 1, 1968 to Nov. 1, 1969

Acre Feet

Name of Diversion	From	To	Source of Supply	First	Last	Acre Feet
	District	District		Day	Day	
Deadman Ditch	48	3	Deadman Creek	4-30	7-7	1273
*Wilson Supply Ditch	*48	3	Deadman & Sand Creeks	5-1	7-6	1588
Bob Creek Ditch	48	3	Bob Creek	No Diversions		
Columbine Ditch	48	3	Columbine Creek	No Diversions		
Laramie-Poudre Tunnel	48	3	Laramie River	5-16	9-11	14991
Skyline Ditch	48	3	Laramie River	5-27	7-13	3578
Michigan Ditch	47	3	Michigan River	-	-	-
Cameron Pass Ditch	47	3	Michigan River	7-10	7-11	1.4
Grand River Ditch	51	3	Colorado River	4-28	9-3	18350
Adams Tunnel	51	3	Colorado River	11-1-68	10-31	170724.
Eureka Ditch	51	4	Colorado River	7-1	9-20	115.
Moffatt Tunnel	51	6	Colorado River	11-1-68	10-31	37420
Berthoud Pass Ditch	51	7	Colorado River	6-2	10-7	354
Roberts Tunnel	36	23	Blue River	11-1-68	10-31	46060
Homestake	36	23	Blue River	4-22	10-11	6878
Hoosier Pass Tunnel	36	23	Blue River	4-24	10-20	7336

TOTAL

307,395

* Includes Deadman Diversion

DIVISION NO. 1

NORTHERN COLORADO WATER CONSERVANCY DISTRICT

COLORADO-BIG THOMPSON PROJECT

ANNUAL REPORT FOR WATER YEAR 1969

DIV #1 1969

ANNUAL REPORT FOR WATER YEAR 1969
 COLORADO-BIG THOMPSON PROJECT
 NORTHERN COLORADO WATER CONSERVANCY DISTRICT
 DIVISION NO. 1

Water Districts in Division 1, within the Northern Colorado Water Conservancy District, started the irrigation season with below to near normal reservoir storage and a sufficient supply to start irrigating. Forecasts of stream flow were below normal in March for most areas and lowered from 5% to 10% in April. Heavy rains started on May 4th and continued until May 8th over an area along and near the eastern slopes. The resulting run-off caused severe flooding along most of the tributaries of the South Plate area. Heavy amounts of snow fell in the higher elevations. Flood damage was extensive to diversion dams, ditches, related structures and gaging stations in most areas, except District 3. The following break-down on cost of damage exceeds one million dollars:

Upper South Plate	Middle South Plate	Lower South Plate
\$225,500.	\$388,700.	\$386,200.

STREAM FLOWS

Station and Location	Year	Run-off In 1000 AF	Approximate Long Time Average In 1000 AF	Percent Of Average
St. Vrain @ Lyons	1968	88.1	94.1	86.
	1969	146.6	94.1	156.
Big Thompson @ Canyon	1968	104.1	118.	88.
	1969	142.2	118.	120.
Cache La Poudre @ Canyon	1968	300.	300.	100.
	1969	289.7	300.	96.

PROJECT STORAGE (ACTIVE)

Western Slope Res.	Nov. 1, 1968	Nov. 1, 1969	Diff.
Willow Creek	8,330.	8,131.	- 199.
Granby	211,291.	329,462.	+ 118,171.
Total Acre Feet	219,621.	337,593.	+ 117,972.
Eastern Slope Res.			
Carter Lake	44,759.	41,106.	- 3,653.
Horsetooth	74,409.	67,560.	- 6,849.
Boulder	3,224.	7,558.	+ 4,334.
Total Acre Feet	122,392.	116,224.	- 6,168.

DISTRIBUTION OF PROJECT WATER

Water Dist.	CARRIER	Acres Feet
2	Hansen Feeder Canal via Big Thompson	2,800.
3	Hansen Supply Canal via Cache la Poudre Direct Delivery	82,699.7
4	Hansen Feeder Canal via Big Thompson St. Vrain Supply Canal via Little Thompson Direct Delivery	48,974.5
5	St. Vrain Supply Canal via St. Vrain Direct Delivery	22,987.1
6	Boulder Cr. Supply Canal via Boulder Cr. Direct Delivery	10,049.2
	Total to all districts, including replacement water	14,536.1
	April Quota declared by District was 70% or 217,000 a.f.	202,769.1

Comparative figures on amounts of Project water ordered and delivered.

Stream	Ordered Am't In Acre Feet	Delivered Am't In Acre Feet	Over Or Under Delivery
Boulder	10,049	10,318.	+ 269.
St. Vrain	22,987.	23,406.	+ 419.
Little Thompson	9,333.	9,513.	+ 180.
Cache la Poudre	82,700.	83,682.	+ 982.
Big Thompson	51,774.	51,837. *	+ 63.
Turnouts	25,925.	26,143.	+ 218.
Totals	202,768.	204,899.	2,131.

* Deliveries less Big Thompson "Skim".

OPERATION "SKIM"

Big Thompson River "Skim" operation extended from May 7th to Sept. 3rd.

Computations were based on the sum of river above Lake Estes, Fish Creek and Wind River, minus river below Lake Estes. Actual Skim amounted to 58,820 A.F.

Surplus water computations were based on Skim plus Tunnel #1 minus return to

river at Mouth of Canyon through Big T Power Plant and Wasteway. Surplus storage in May, June and July was during periods of no demand on the river and amounted to

29,554 acre feet.

PROJECT GAIN AND LOSS

ESTES PARK AREA		ESTES PARK AREA	
Nov. 1, 68 - Nov. 1, 69		Nov. 1, 68 - Nov. 1, 69	
Total	Acre Feet	Total	Acre Feet
<u>ESTES PARK AREA</u>			
Inflow to Area			
Adams Tunnel	170,724.		
Wind River	1,420.		
Big Thompson at Estes	104,949.		
Fish Creek	3,158.		
	<u>3,158.</u>		
<u>ESTES LAKE AREA</u>			
Inflow to Area			
Estes-Foothills Canal	235,942.		
City of Estes	402.		
Big Thompson Near Estes	51,421.		
Storage in reservoirs	- 88.		
Estes Park Water District	84.		
	<u>84.</u>		
<u>CARTER LAKE AREA</u>			
Inflow to Area			
Estes-Foothills Canal	235,942.		
Storage (Pinewood, Flatiron)	327.		
Storage in Carter Lake Nov. 1, 1968	48,065.		
Tunnel #1	22,300.		
	<u>22,300.</u>		
<u>HORSETOOTH AREA</u>			
Inflow to Area			
Hansen Feeder Canal	91,330.		
Big Thompson River	103,810.		
Little Thompson River	9,513.		
St. Vrain Supply Canal	7,096.		
St. Vrain Supply Canal @ Lyons	40,838.		
Measured Seeps	1,921.		
	<u>1,921.</u>		
Storage in Carter Lake Nov. 1, 1969	44,412.		
<u>HORSETOOTH AREA</u>			
Outflow from Area			
Hansen Supply to Poudre River	81,560.		
Hansen Supply to Poudre Valley	1,430.		
Other Releases	8,529.		
Measured Seeps	861.		
	<u>861.</u>		
Horsetooth Storage Nov. 1, 69	75,826.		
<u>ESTES PARK AREA</u>			
Inflow to Area			
Hansen Feeder Canal	93,197.		
Storage Horsetooth - Nov. 1, 68	82,675.		
	<u>82,675.</u>		
<u>HORSETOOTH AREA</u>			
Outflow from Area			
Hansen Supply to Poudre River	81,560.		
Hansen Supply to Poudre Valley	1,430.		
Other Releases	8,529.		
Measured Seeps	861.		
	<u>861.</u>		
Horsetooth Storage Nov. 1, 69	75,826.		
<u>ESTES PARK AREA</u>			
Apparent Loss			
	92,380.		
<u>ESTES PARK AREA</u>			
Apparent Gain			
	7,500.		
<u>ESTES PARK AREA</u>			
Total			
	280,261.		
<u>ESTES PARK AREA</u>			
Apparent Loss			
	7,714.		
<u>ESTES PARK AREA</u>			
Inflow to Area			
Hansen Feeder Canal	93,197.		
Storage Horsetooth - Nov. 1, 68	82,675.		
	<u>82,675.</u>		
<u>HORSETOOTH AREA</u>			
Outflow from Area			
Hansen Supply to Poudre River	81,560.		
Hansen Supply to Poudre Valley	1,430.		
Other Releases	8,529.		
Measured Seeps	861.		
	<u>861.</u>		
Horsetooth Storage Nov. 1, 69	75,826.		
<u>ESTES PARK AREA</u>			
Apparent Loss			
	7,666.		

BOULDER AREA

Inflow to Area

Boulder Feeder Canal @ Lyons
Boulder Res. Nov. 1, 68

16,505
4,524

21,029.

Outflow from Area

Boulder Cr. Supply to Boulder Cr.

10,318.

Direct diversions Boulder Feeder Canal

3,643.

Direct diversions Boulder Supply Canal

4,487.

18,448.

Boulder Res. storage Nov. 1, 69

8,858.

Apparent Gain

6,277.

SUMMATIONS

Estes Park Area - Gain

7,500.

Carter Lake Area - Loss

7,714.

Horseshoe Area - Loss

7,666.

Boulder Area - Gain

6,277.

15,380

13,777.

Total loss 1,603.

Buttontrock Reservoir in District 5 was fortunately completed in time to fill to 16,500 acre feet capacity and prevent further extensive damage downstream in the Lyons area.

Average precipitation of the numerous reporting stations in the Big Thompson Soil Conservation District amounted to 16.04 inches. Estes Park Station reported 20.74 inches for the same period.

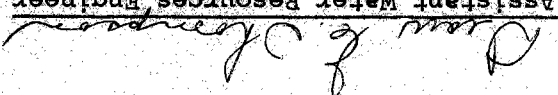
A total of 155 stream and 45 canal measurements were made during the water

year.

The two-way radio furnished by the water District was removed from my vehicle in August at my request.

I wish to express my appreciation for the fine cooperation and assistance to the Bureau of Reclamation and Water District personnel.

Respectfully submitted,


Assistant Water Resources Engineer