

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

CHEMICAL ANALYSES OF SURFACE WATERS
IN COLORADO
OCTOBER 1959 TO SEPTEMBER 1962

Prepared by the Geological Survey
as part of a national program for collection
of basic water records

October 1963

(200)
C535
1963

Chemical Analyses of Surface Waters
in Colorado

Data presented herein are records of water quality for the period October 1959 to September 1962 for the sampling sites shown below and on the enclosed map. The data are preliminary and subject to revision. Final records are published in the annual series of Geological Survey Water-Supply Papers entitled "Quality of Surface Waters of the United States," which can be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20242.

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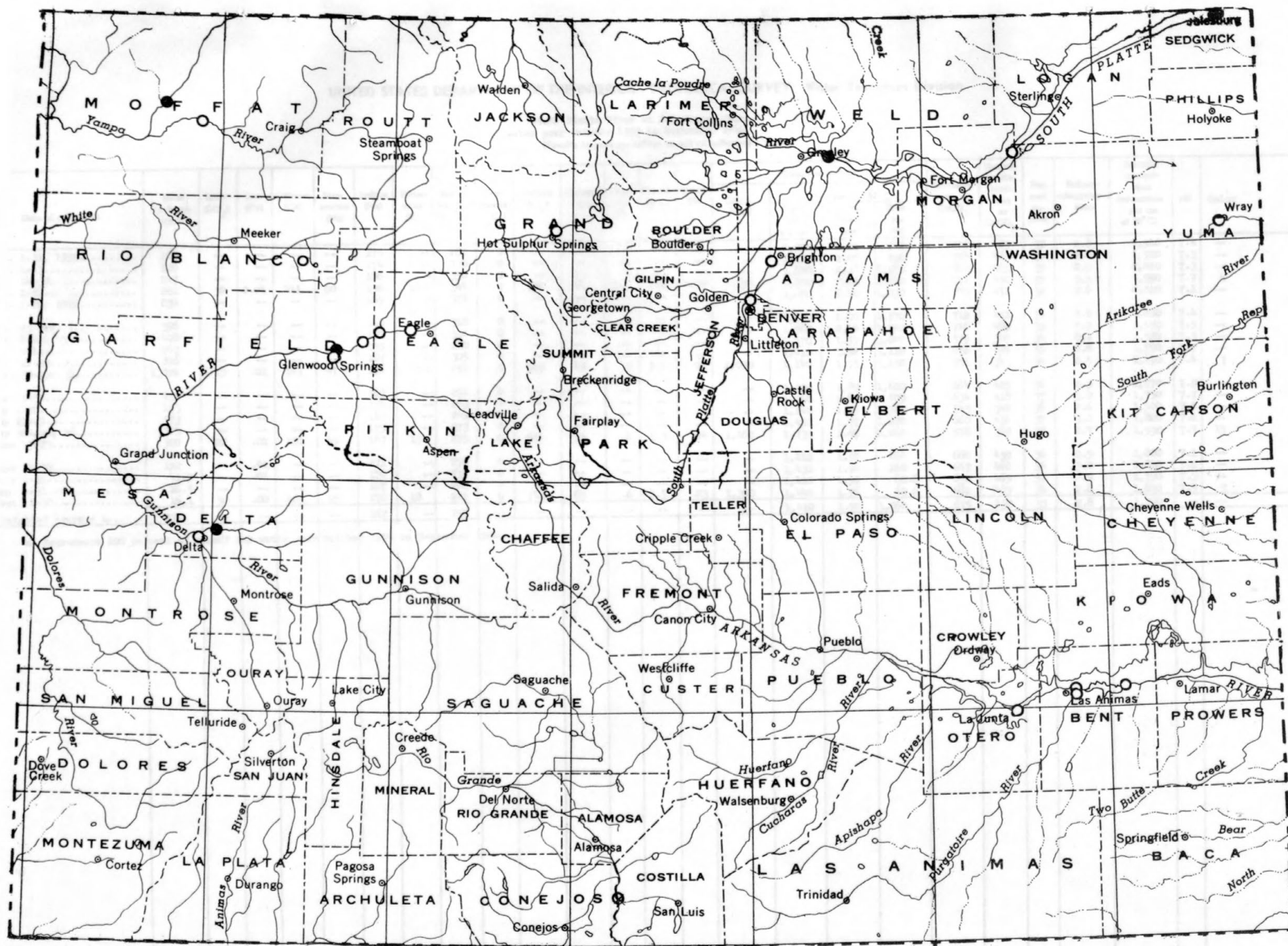


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Most of the data were obtained as part of the Geological Survey's continuing program for collection of basic-water records; some were obtained as part of the Department of Interior's program for development of the Missouri River basin, and some as part of a cooperative program with the U. S. Bureau of Reclamation. Data for sites on the Arkansas River and its tributaries upstream from John Martin Reservoir were collected as part of a comprehensive hydrologic study of the La Junta-Las Animas reach of the valley in cooperation with the State of Colorado. Records for South Platte River at Julesburg were obtained by the Survey's district office at Lincoln, Nebr., and those for Rio Grande above Culebra Creek near Lobatos by the district office at Albuquerque, N. Mex., in cooperation with the New Mexico Interstate Stream Commission.

Records of fluvial sediment, water temperature, and daily specific conductance also are available for many of the sites from the Quality of Water District Office, 231 East 4th South, Salt Lake City, Utah.



UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - Water Resources Division

South Platte River at Julesburg, Colo.
water year October 1959 to September 1960
(Results in parts per million except as indicated)

Date of collection	Mean discharge (cfs)	Silicon (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids			Hardness as CaCO ₃	Non-carbonate hardness as CaCO ₃	Percent sodium	Sodium-adsorption ratio	Specific conductance (microhmhos per cm at 25°C)	pH	Color	
															Calculated	Residue at 180° C									
																Parts per million	Tons per acre-foot								Tons per day
Oct. 1-31, 1959.....	149	--	--	--	--	175	--	282	0	--	--	--	--	--	--	1,520	2.07	611	716	485	35	2.8	1,910	7.4	--
Nov. 1-13.....	120	--	--	--	--	174	--	298	0	--	--	--	--	--	--	1,520	2.07	492	725	481	34	2.8	1,920	7.3	--
Nov. 14-30.....	247	--	--	--	--	186	--	330	0	--	--	--	--	--	--	1,600	2.18	1,070	764	493	35	2.9	2,010	7.3	--
Dec. 1-31.....	281	30	0.01	211	60	196	18	344	0	794	68	0.7	2.0	0.28	1,550	1,590	2.16	1,210	772	490	35	3.1	1,990	7.7	4
Jan. 1-22, 1960.....	236	--	--	--	--	169	--	374	0	--	--	--	--	--	--	1,620	2.20	1,030	778	471	32	2.6	2,010	7.1	--
Jan. 23-Feb. 5.....	396	--	--	--	--	169	--	318	0	--	--	--	--	--	--	1,470	2.00	1,570	712	451	34	2.8	1,850	7.4	--
Feb. 6-Mar. 5.....	408	--	--	--	--	182	--	314	0	--	--	--	--	--	--	1,560	2.12	1,720	746	489	35	2.9	1,950	7.5	--
Mar. 6-11.....	963	--	--	--	--	135	--	280	0	--	--	--	--	--	--	1,170	1.59	3,040	579	349	34	2.4	1,530	7.5	--
Mar. 12-29.....	316	--	--	--	--	167	--	305	0	--	--	--	--	--	--	1,410	1.92	3,110	676	426	35	2.8	1,790	7.7	--
Mar. 30-Apr. 8.....	1,024	19	.01	143	47	136	9.6	254	0	549	49	.9	7.7	.21	1,090	1,140	1.55	3,150	551	343	34	2.5	1,490	7.4	7
Apr. 9-30.....	432	--	--	--	--	169	--	291	0	--	--	--	--	--	--	1,390	1.89	1,620	664	425	36	2.9	1,770	7.9	--
May 1-20.....	193	--	--	--	--	174	--	263	0	--	--	--	--	--	--	1,360	1.85	709	634	418	37	3.0	1,750	7.7	--
May 21-29.....	573	--	--	--	--	140	--	245	0	--	--	--	--	--	--	1,140	1.55	1,760	543	342	36	2.6	1,500	7.5	--
May 30-June 16.....	385	--	--	--	--	179	--	273	0	--	--	--	--	--	--	1,450	1.97	1,270	660	436	37	3.0	1,820	7.6	--
June 17-23.....	320	22	.01	151	49	147	13	255	0	601	52	.8	3.3	.24	1,160	1,230	1.67	1,060	578	369	35	2.7	1,590	7.7	15
June 24-30.....	122	--	.01	--	--	171	--	270	0	--	--	--	--	--	--	1,410	1.92	464	660	439	36	2.9	1,800	7.1	--
July 1-31.....	41.9	--	.01	--	--	176	--	252	0	--	--	--	--	--	--	1,430	1.94	162	667	460	36	3.0	1,810	7.2	--
Aug. 1-31.....	16.5	--	--	--	--	167	--	201	0	--	--	--	--	--	--	1,410	1.92	62.8	630	465	37	2.9	1,790	7.3	--
Sept. 1-30.....	16.1	30	.00	183	55	170	18	241	0	741	69	.6	1.5	.23	1,390	1,440	1.96	62.6	681	483	34	2.8	1,820	7.5	3
Weighted average a.....	279	--	--	--	--	167	--	296	--	--	--	--	--	--	--	1,410	1.92	1,060	675	432	35	2.8	1,790	--	--

a Represents 100 percent of runoff for water year October 1959 to September 1960.

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - Water Resources Division

South Platte River at Julesburg Colo., water year October 1960 to September 1961

(Results in parts per million except as indicated)

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids			Hardness as CaCO ₃	Noncarbonate hardness as CaCO ₃	Percent sodium	Sodium-adsorption ratio	Specific conductance (microhm/cm at 25°C)	pH	Color	
															Calculated	Residue at 180° C									
																Parts per million	Tons per acre-foot								Tons per day
Oct. 1-31, 1960.....	70.6	--	--	--	--	164	--	315	0	--	--	--	--	--	--	1,540	2.09	294	735	477	33	2.6	1,950	7.4	--
Nov. 1-30.....	94.4	--	--	--	--	161	--	317	0	--	--	--	--	--	--	1,520	2.07	367	738	478	32	2.6	1,930	7.4	--
Dec. 1.....	72	35	0.02	249	58	196	20	432	0	794	73	0.6	4.1	0.28	1,640	1,720	2.34	334	860	506	33	2.9	2,160	7.4	9
Dec. 2-31.....	210	30	.00	220	62	200	18	360	0	805	71	.7	2.3	.31	1,590	1,660	2.26	941	803	508	34	3.1	2,070	7.5	7
Jan. 1-31, 1961.....	237	--	--	--	--	200	--	366	0	--	--	--	--	--	--	1,670	2.27	1,070	808	508	35	3.1	2,080	7.5	--
Feb. 1-28.....	235	--	--	--	--	195	--	318	0	--	--	--	--	--	--	1,600	2.18	1,020	762	501	36	3.1	2,000	7.8	--
Mar. 1.....	141	31	.00	195	60	183	15	299	0	688	72	.7	3.3	.25	1,400	1,510	2.05	575	732	487	35	2.9	1,830	8.0	5
Mar. 2-31.....	229	27	.00	198	59	188	15	296	0	748	69	.7	3.1	.27	1,450	1,560	2.12	965	736	493	35	3.0	1,980	7.7	2
Apr. 1-30.....	267	--	--	--	--	183	--	286	0	--	--	--	--	--	--	1,580	2.15	1,140	740	505	35	2.9	1,970	7.7	--
May 1-7.....	97.3	--	.00	--	--	184	--	286	0	--	--	--	--	--	--	1,550	2.11	407	727	492	35	3.0	1,920	8.0	--
May 8-21.....	130	--	.00	--	--	179	--	256	0	--	--	--	--	--	--	1,470	2.00	516	679	469	36	3.0	1,860	7.8	--
May 22-31.....	1,913	--	.01	--	--	118	--	225	0	--	--	--	--	--	--	1,010	1.37	5,220	481	296	35	2.3	1,350	7.8	--
June 1-16.....	4,076	17	.02	114	30	91	8.5	207	0	377	32	.7	1.4	.20	--	818	1.11	9,010	408	238	32	2.0	1,120	7.3	16
June 17-30.....	1,790	--	--	--	--	121	--	235	0	--	--	--	--	--	--	1,010	1.37	4,880	490	297	35	2.4	1,340	7.5	--
July 1-26.....	128	--	--	--	--	160	--	242	0	--	--	--	--	--	--	1,280	1.74	442	596	398	37	2.9	1,660	7.5	--
July 27-31.....	152	--	--	--	--	130	--	203	0	--	--	--	--	--	--	1,020	1.39	419	466	300	38	2.6	1,360	7.4	--
Aug. 1-31.....	83.0	--	--	--	--	183	--	246	0	--	--	--	--	--	--	1,420	1.93	318	653	451	38	3.1	1,790	7.3	--
Sept. 1-30.....	199	29	.01	185	56	169	16	262	0	713	64	.8	2.3	.24	1,360	1,510	2.05	811	690	475	34	2.8	1,900	7.4	3
Weighted average a.....	452	--	--	--	--	130	--	246	--	--	--	--	--	--	--	1,120	1.52	1,370	539	337	34	2.4	1,460	--	--

a Represents 100 percent of runoff for water year October 1960 to September 1961.

UNITED STATES DEPARTMENT OF THE INTERIOR--GEOLOGICAL SURVEY--WATER RESOURCES DIVISION

6-7640. South Platte River at Julesburg, Colo., water year October 1961 to September 1962

(Results in parts per million except as indicated)

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color	Manganese (Mn)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate					
Oct. 1-10, 1961.	918	--	--	--	--	154	--	273	0	--	--	--	--	--	1,280	1.74	3,170	613	389	2.7	1,650	7.7	--	--
Oct. 11-31.....	1,384	--	--	--	--	144	--	282	0	--	--	--	--	--	1,230	1.67	4,600	598	365	2.6	1,600	7.7	--	--
Oct. 19.....	1,470	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nov. 1-30.....	1,416	--	--	--	--	150	--	293	0	--	--	--	--	--	1,180	1.60	4,510	606	366	2.7	1,620	7.7	--	--
Dec. 1-15.....	1,113	19	.01	159	38	150	11	307	0	588	55	0.8	4.7	0.16	1,290	1.75	3,880	633	381	2.6	1,650	7.4	4	--
Dec. 16-19.....	1,458	--	--	--	--	168	--	335	0	--	--	--	--	--	1,430	1.94	5,630	702	427	2.8	1,830	7.7	--	--
Dec. 20-31.....	1,433	--	--	--	--	141	--	301	0	--	--	--	--	--	1,220	1.66	4,720	606	359	2.5	1,600	7.6	--	--
Jan. 1-11, 1962.	1,217	--	--	--	--	162	--	331	0	--	--	--	--	--	1,370	1.86	4,500	670	399	2.7	1,750	7.8	--	--
Jan. 12-31.....	1,254	--	--	--	--	168	--	336	0	--	--	--	--	--	1,420	1.93	4,810	695	419	2.8	1,770	7.7	--	--
Jan. 17.....	1,210	--	.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00
Feb. 1-13.....	1,839	--	--	--	--	137	--	278	0	--	--	--	--	--	1,140	1.55	5,660	564	336	2.5	1,510	7.6	--	--
Feb. 14-28.....	1,209	--	--	--	--	150	--	288	0	--	--	--	--	--	1,250	1.70	4,080	617	381	2.6	1,630	7.7	--	--
Mar. 1-31.....	1,260	19	.07	162	53	154	9.1	291	0	598	55	.8	8.4	.23	1,290	1.75	4,390	622	383	2.7	1,670	7.4	2	--
Apr. 1-30.....	583	--	--	--	--	160	--	274	0	--	--	--	--	--	1,290	1.75	2,030	630	405	2.8	1,660	7.4	--	--
May 1-15.....	32.1	--	--	--	--	169	--	254	0	--	--	--	--	--	1,370	1.86	119	655	447	2.9	1,760	7.4	--	--
May 16-17.....	84.5	--	--	--	--	142	--	208	0	--	--	--	--	--	1,130	1.54	258	530	359	2.7	1,490	7.5	--	--
May 18-26.....	201	--	--	--	--	200	--	271	0	--	--	--	--	--	1,550	2.11	841	698	476	3.3	1,950	7.4	--	--
May 27-29.....	864	--	--	--	--	150	--	204	0	--	--	--	--	--	1,070	1.46	2,500	468	301	3.0	1,450	7.6	--	--
May 30-June 30..	797	22	.02	168	54	173	15	265	0	683	61	.7	1.8	.25	1,390	1.89	2,990	641	424	3.0	1,770	7.6	7	--
July 1-30.....	268	--	--	--	--	169	--	253	0	--	--	--	--	--	1,370	1.86	991	635	428	2.9	1,760	7.5	--	--
July 31-Aug. 7..	1,050	--	--	--	--	152	--	258	0	--	--	--	--	--	1,250	1.70	3,540	590	378	2.7	1,610	7.5	--	--
Aug. 8-31.....	108	--	--	--	--	170	--	255	0	--	--	--	--	--	1,390	1.89	405	653	444	2.9	1,770	7.6	--	--
Sept. 1-30.....	92.5	27	.00	179	56	183	16	252	0	730	69	.8	1.9	.27	1,470	2.00	367	678	471	3.0	1,860	7.6	--	--
Weighted average....	--	--	--	--	--	155	--	290	0	--	--	--	--	--	1,280	1.74	--	623	385	2.7	1,660	7.6	--	--
Time-weighted average....	849	--	--	--	--	161	--	278	0	--	--	--	--	--	1,320	--	--	634	405	2.8	1,700	7.6	--	--
Tons per day..	--	--	--	--	--	355	--	664	0	--	--	--	--	--	2,930	--	--	1,430	883	--	--	--	--	--

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - Water Resources Division

Chemical analyses of water from miscellaneous streams in the South Platte River basin, Colo.

(Results in parts per million except as indicated)

Date of collection	discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- nesium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids			Hardness as CaCO ₃	Noncar- bonate hard- ness as CaCO ₃	Per- cent sod- ium	Sodium- adsorption- ratio	Specific conductiv- ity (microhm per cm at 25° C)	pH	Total soli- ds (Mg)	
															Calcu- lated	Residue at 180° C									
																Parts per million	Tons per acre- foot								Tons per day
South Platte River basin																									
Bear Creek at Evergreen May 23, 1960.....		13	0.55	6.7	1.8	4.0		28	0	8.3	0.6	0.3	0.3			60	0.03		24	1	26	0.4	73.2	6.6	0.02
Beaver Creek near Fairplay July 28, 1960.....		7.5	0.00	39	9.4	2.3		151	0	13	0.0	0.1	0.0			147	0.20		136	12	4	0.1	265	7.6	0.00
Big Thompson River at city water intake, Estes Park Apr. 20, 1960.....		3.8	0.20	6.5	1.4	2.3		24	0	3.3	1.6	0.1	0.5			38	0.05		22	2	19	0.2	58.7	6.9	0.00
Big Thompson River at Loveland Apr. 22, 1960.....		5.1	0.30	6.7	1.0	2.5		26	0	3.0	0.0	0.2	0.0			38	0.05		21	0	21	0.2	56.7	6.9	0.00
Sept. 13.....		2.1	.01	5.5	1.0	2.0		23	0	4.0	.0	.2	.0			28	.04		18	0	18	.2	48.9	6.7	.00
Big Thompson River via Home Supply Ditch, Johnston Apr. 23, 1960.....		3.7	0.39	24	6.6	7.1		66	0	46	0.2	0.2	0.2			132	0.18		87	33	15	0.3	215	6.8	0.00
Brush Creek, 9 miles upstream from Eagle June 28, 1960.....		6.4	0.13	34	5.9	2.0		84	0	43	0.0	0.1	0.2			138	0.19		109	40	4	0.1	224	7.3	0.02
Cache la Poudre River near Greeley May 27, 1960.....	23	11	0.03	172	72	117	4.8	308	0	659	28	0.6	14	0.28	1,230	1,340	1.82	727	474	26	1.9	1,660	7.3	0.10	
Aug. 23.....	15	17	.04	196	91	165	6.9	379	0	814	35	.9	7.9	.36	1,520	1,650	2.24	863	552	29	2.4	1,980	7.3	.18	
Cache la Poudre River near LaPorte May 23, 1960.....		9.5	0.37	8.0	1.0	3.1	0.2	31	0	3.6	0.7	0.3	0.3	0.03		57	0.08		24	0	22	0.3	71.1	6.7	0.02
Aug. 27 a.....		7.5	.23	4.2	1.1	1.5	.6	18	0	4.4	.1	.1	.0	.01		36	.05		15	0	17	.2	41.5	6.6	.00
Aug. 27 b.....		7.3	.24	4.3	1.5	1.8	.6	21	0	5.5	.3	.1	.1	.00		42	.06		17	0	18	.2	49.8	6.4	.00
Chicago Creek at Idaho Springs Sept. 6, 1960.....		12	0.00	7.4	1.8	2.6		32	0	4.3	0.0	0.3	0.0			51	0.07		26	0	18	0.2	67.7	6.8	0.00
Clear Creek at Silver Plume Sept. 7, 1960.....		5.6	0.19	12	2.7	1.9		45	0	7.3	0.0	0.3	0.0			58	0.08		41	4	9	0.1	94.2	6.9	0.01
College Lake near Fort Collins May 28, 1960.....		1.3	0.04	50	33	38	2.0	112	0	241	6.3	0.3	0.1	0.05		465	0.63		259	167	24	1.0	669	7.3	0.09
Baton Ditch, NW 1/4 sec. 36, T. 8 N., R. 69 W. May 28, 1960.....						17		82	0										180	113	17	0.6	433	7.5	
Baton Ditch, SW 1/4 sec. 24, T. 7 N., R. 66 W. May 28, 1960.....						50		140	0										411	296	21	1.1	935	7.7	
Baton Lake Canal, NW 1/4 sec. 1, T. 7 N., R. 69 W. May 23, 1960.....						2.9		34	0										30	2	17	0.2	77.1	7.1	
Baton Lake Canal near Ft. Collins, NE 1/4 sec. 16, T. 7 N., R. 68 W. May 21, 1960.....																							123		
Firestone Lake near Frederick Apr. 22, 1960.....		6.1	0.13	36	17	31		150	0	93	7.2	0.6	1.1			285	0.39		160	37	29	1.1	456	6.9	0.02
Great Western Reservoir at Bloomfield, SW 1/4 sec. 8, T. 2 S., R. 69 W. Sept. 19, 1960.....		1.6	0.33	25	5.2	15		102	0	29	9.9	0.6	0.0			149	0.20		84	0	30	0.9	260	6.8	0.02
Greeley No. 2 Canal at Lucerne, SW 1/4 sec. 17, T. 6 N., R. 65 W. May 28, 1960.....						44		124	0										257	155	27	1.2	672	7.4	

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - Water Resources Division

Chemical analyses of water from miscellaneous streams in the South Platte River basin, Colo.--Continued

(Results in parts per million except as indicated)

Date of collection	discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids			Hardness as CaCO ₃	Noncar- bonate hard- ness as CaCO ₃	Per- cent so- dium	Sodium- adsorption ratio	Specific conductance (micro-mhos per cm at 25°C)	pH	Magne- sium as (Mg)	Calcium as (Ca)		
															Calcu- lated	Residue at 180° C											
																Parts per million	Tons per acre- foot									Tons per day	
South Platte River basin--Continued																											
Horseshoe Reservoir, Larimer County (at outlet below dam)																											
May 23, 1960.....	154	2.6	0.17	9.3	1.9	2.6	0.3	39	0	2.6	1.1	0.1	0.1	0.01		53	0.07		31	0	15	0.2	77.1	6.7	0.04		
Kiowa Creek at Elbert																											
Mar. 26, 1960.....	37		0.47	10	1.5	3.3	5.1									94	0.13		31		16	0.3	91.0	6.4			
Apr. 15.....	3																					217					
Kiowa Creek at K-79 Reservoir, near Eastonville																											
Apr. 14, 1960:																											
a.....			0.35	15	3.1	4.9	3.9												50		16	0.3	135	7.6			
d.....	0.7		.42	12	3.4	3.5	5.4												44		13	.2	110	7.4			
July 3, 1960:																											
a.....				7.6	1.5	1.3	4.9									72	0.10		25		8	0.1	90.1	6.7			
f.....				8.2	1.1	3.2	7.2									86	.12		25		17	.3	131	6.6			
d.....				5.5	1.0	2.8	7.9									72	.10		18		18	.3	88.9	6.7			
Kiowa Creek near Kiowa																											
Mar. 26, 1960.....	253	15	0.40	14	1.7	3.8	4.7	51	0	7.5	0.3	0.2	0.5	0.04		102	0.14		42	0	15	0.3	112	6.6		50	
Apr. 15.....	6.6																					295					
Lake No. 8 near Wellington																											
May 22, 1960.....		0.2	0.10	140	101	138	3.7	204	0	853	16	0.9	0.1	0.24	1,350	1,500	2.04		766	599	28	2.2	1,790	7.5	0.06		
Larimer County Canal, NE 1/4 NW 1/4 sec. 24, T. 8 N., R. 69 W.																											
May 28, 1960.....						24		81	0										200	134	21	0.7	503	7.5			
Middle Boulder Creek at Nederland																											
May 31, 1960.....	220	5.6	0.10	3.8	1.1	1.0	0.5	16	0	4.5	0.0	0.1	0.1			33	0.04		14	1	13	0.1	34.0	6.7	0.00		
North Monument Creek at Palmer Lake																											
June 1, 1960.....	17		0.05	9.6	1.0	3.4	1.7	31	0	8.8	0.0	1.5	0.2			65	0.09		28	3	20	0.3	80.7	7.1	0.00		
North Poudre Canal, SW 1/4 NW 1/4 sec. 13, T. 9 N., R. 69 W.																											
May 28, 1960.....	50					6.6		96	0										106	27	12	0.3	236	7.7			
Poudre Valley Ditch, NE 1/4 NW 1/4 sec. 1, T. 8 N., R. 69 W.																											
May 28, 1960.....						15		124	0										169	67	16	0.5	390	7.7			
Sawmill Gulch at Lilledale																											
May 24, 1960.....		18	0.03	24	9.0	7.9		111	0	18	1.7	0.3	6.2			142	0.19		97	6	19	0.3	224	6.9	0.00		
Soda Creek at Idaho Springs																											
Sept. 6, 1960.....		13	0.01	5.2	1.5	3.2		21	0	6.8	0.0	0.2	0.0			43	0.06		19	2	27	0.3	57.2	6.8	0.00		
South Clear Creek at Georgetown																											
Sept. 7, 1960.....		8.5	0.08	13	5.2	2.5		55	0	13	0.0	0.2	0.3			69	0.09		54	9	9	0.1	118	6.9	0.02		
St. Vrain Creek at Mead																											
Sept. 18, 1960.....		2.3	0.26	27	4.8	5.6		88	0	26	1.5	0.3	0.0			123	0.17		87	15	12	0.3	201	7.1	0.09		

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - Water Resources Division

Chemical analyses of water from miscellaneous streams in the South Platte River basin, Colo.--Continued

(Results in parts per million except as indicated)

Date of collection	discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- nesium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids			Hardness as CaCO ₃	Noncar- bonate hard- ness as CaCO ₃	Per- cent so- dium	Sodium- adsorption- ratio	Specific conduct- ance ^a (microhms per cm at 25°C)	pH	Non- ga- neue (Mn)
															Calcu- lated	Residue at 180° C								
																Parts per million	Tons per acre- foot	Tons per day						
South Platte River basin--Continued																								
Tinnath Reservoir, SE 1/4 sec. 25, T. 7 N., R. 68 W. May 26, 1960.....	0.6	0.05	87	85	118	6.5	221	0	579	37	0.9	0.8	0.28	1,020	1,100	1.50		565	384	31	2.2	1,460	7.2	0.01
Warren Lake, NE 1/4 sec. 35, T. 7 N., R. 69 W. May 26, 1960.....					15			115	0	54	3.3				189	0.26		123	29	21	0.6	314	7.4	
a At dam upstream from Fort Collins Water Treatment Plant. b Inlet to Greeley pipeline at mouth of canyon. c About 800 feet upstream from gate. d Outlet tube of K-79 Reservoir. e Unnamed tributary to Kiowa Creek upstream from K-79 Reservoir. f Kiowa Creek upstream from K-79 Reservoir. g Estimated.																								

PLATTE RIVER BASIN
MISCELLANEOUS ANALYSES OF WATER IN PLATTE RIVER BASIN, COLO.

Chemical analyses, in parts per million, water year October 1961 to September 1962

Date of collection	discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Po- tas- sium (K)	Bi- car- bon- ate (HCO ₃)	Car- bon- ate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		So- dium ad- sor- ption ratio	Specific con- duct- ance (micro- mhos at 25°C)	pH	
															Parts per million	Tons per acre- foot	Tons per day	Cal- cium, Mag- ne- sium	Non- car- bon- ate				
						6B-7142 BURLINGTON DITCH BELOW HEADGATE AT DENVER (SEC. 11, T.3S., R.68W.)																	
June 16, 1962 -- Sept. 14 -----	227 20	11 16	0.20 .10	49 89	11 14	62 153	4.1 10	233 414	0 0	58 114	48 135	1.4 1.7	0.9 .7	0.17 .38	368 710	0.50 .97	226 38	168 280	0 0	2.1 4.0	645 1,340	7.2 7.3	
						6B-7205 SOUTH PLATTE RIVER AT HENDERSON (SEC. 34, T.1S., R.67W.)																	
June 16, 1962 -- Sept. 14 -----	398 56	9.5 17	0.40 .76	30 107	6.8 21	32 141	2.6 8.9	110 280	0 0	57 221	22 138	0.8 1.3	0.1 15	0.10 .37	213 816	0.29 1.11	229 123	103 356	13 126	1.4 3.3	382 1,280	7.1 7.3	
						6B-7540 SOUTH PLATTE RIVER NEAR KERSEY (SEC. 9, T.5N., R.64W.)																	
June 15, 1962 -- Aug. 3 ----- Sept. 13 ----- Sept. 29 -----	1,460 1,520 420 378	12 13 12 11	1.5 -- .36 --	79 136 180 180	33 50 72 83	55 108 136 140	3.9 5.0 5.0 5.3	177 262 304 336	0 0 0 0	276 502 708 724	18 37 32 45	0.8 .9 .6 .0	0.7 6.3 8.7 9.0	0.17 .21 .23 .28	594 1,010 1,350 1,410	0.81 1.37 1.84 1.92	2,340 4,150 1,530 1,440	333 544 745 790	188 329 496 514	1.3 2.0 2.2 2.2	853 1,370 1,700 1,790	7.2 7.5 7.6 7.7	
						6B-7600 SOUTH PLATTE RIVER AT BALZAC (SEC. 13, T.5N., R.55W.)																	
June 15, 1962 -- Sept. 13 -----	655 320	14 16	0.12 .31	128 220	52 62	105 161	6.1 8.2	244 328	0 0	491 765	35 54	0.9 .8	5.6 4.5	0.22 .22	1,020 1,500	1.39 2.04	1,800 1,300	532 805	332 536	2.0 2.5	1,360 1,890	7.9 7.8	

ARKANSAS RIVER BASIN

7-1240 ARKANSAS RIVER AT LAS ANIMAS, COLO.

LOCATION.--At gaging station 0.4 mile downstream from bridge on U. S. Highway 50, 1.5 miles north of Courthouse in Las Animas, and 3.5 miles upstream from Purgatoire River.

DRAINAGE AREA.--14,417 square miles of which 441 square miles are probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: January 31, 1960 to May 28, 1962 (miscellaneous samples).

Chemical analyses, in parts per million, January 1960 to May 1962.

Date of collection	dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Po- tas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (Calculated)			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate				
Nov. 5, 1954 ---	a6.5	17	0.03	376	117	362	3.8	281	0	1,740	82	1.1	7.3	--	2,840	3.86	49.8	1,420	1,190	36	4.2	3,330	8.1
Jan. 31, 1960 ---	a39	18	.06	320	107	374	5.2	296	0	1,590	107	.8	8.0	--	2,680	3.64	282	1,240	996	40	4.6	3,300	7.7
Oct. 20, 1961 ---	252	13	--	164	46	129	--	224	0	621	36	--	.7	0.15	1,120	1.52	762	600	416	32	2.3	1,490	7.3
Dec. 8 -----	64	--	--	--	--	--	--	294	0	1,310	80	--	--	--	b2,370	3.22	410	1,090	849	--	--	2,710	7.5
Jan. 3, 1962 ---	55	15	.00	383	84	360	--	314	0	1,620	95	--	6.5	.24	2,720	3.70	404	1,300	1,040	38	4.3	3,130	7.5
May 28 -----	20	14	.05	359	111	344	5.1	300	0	1,700	96	1.0	4.7	.54	2,780	3.78	150	1,350	1,100	36	4.1	3,390	7.5

a Mean daily discharge.

b Residue on evaporation at 180°C.

ARKANSAS RIVER BASIN

7-1285 PURGATOIRE RIVER NEAR LAS ANIMAS, COLO.

LOCATION.--At gaging station on downstream side of pier of bridge on State Highway 101, 2.3 miles southwest of courthouse in Las Animas, Bent County, and 4.5 miles upstream from mouth.

DRAINAGE AREA.--3,503 square miles.

RECORDS AVAILABLE.--Chemical analyses, December 20, 1961 to May 28, 1962 (miscellaneous samples).

Chemical analyses, in parts per million, December 1961 to June 1962.

Date of collection	dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Po- tas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (Calculated)			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate				
Dec. 20, 1961 --	a8	--	--	--	--	549		376	0	2,740	90	--	--	--	b4,650	6.32	100	2,100	1,790	36	5.2	4,640	7.6
Jan. 3, 1962 ---	17	10	--	455	191	415		298	0	2,390	62	0.4	1.4	0.19	3,670	4.99	168	1,920	1,680	32	4.1	4,010	7.6
Jan. 8 -----	20	10	--	435	215	435		294	0	2,480	65	.3	1.8	.19	3,790	5.15	205	1,970	1,730	32	4.3	4,110	7.7
Jan. 24 -----	4.8	14	--	531	308	483		434	0	3,050	75	.6	3.7	.24	4,680	6.36	60.7	2,590	2,230	29	4.1	4,940	7.6
Jan. 30 -----	27	11	--	413	241	447		328	0	2,520	68	.3	2.4	.19	3,860	5.25	281	2,020	1,750	32	4.3	4,190	7.8
May 28 -----	67	13	0.83	230	81	212	4.7	236	0	1,050	63	.9	5.7	.28	1,780	2.42	322	910	716	33	3.1	2,220	7.4

a Mean daily discharge.

b Dissolved solids - residue at 180°C.

ARKANSAS RIVER BASIN
ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.

Chemical analyses, in parts per million, water year October 1959 to September 1960

Date of Collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved Solids			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio (SAR)	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-Carbonate				
Oct. 1-2, 5-13, 1959...	142	--	--	204	78	231	--	168	--	--	--	--	--	1,870	2.54	717	850	692	38	3.5	2,240	7.9
Oct. 3-4.....	85.5	--	--	275	130	391	--	172	--	--	--	--	--	2,980	4.05	688	1,270	1,130	40	4.8	3,380	7.6
Oct. 14-31.....	70.6	10	0.00	255	108	345	7.0	124	1,540	96	0.8	1.9	0.40	2,590	3.52	494	1,080	978	41	4.6	2,980	7.5
Nov. 1-2.....	4.75	--	--	295	140	434	--	176	--	--	--	--	--	3,130	4.26	40.1	1,310	1,170	42	5.2	3,550	7.8
Nov. 3-30.....	3.46	--	--	418	165	532	--	306	--	--	--	--	--	3,970	5.40	37.1	1,720	1,470	40	5.6	4,260	7.5
Dec. 1-31.....	2.93	--	--	405	165	495	--	353	--	--	--	--	--	3,880	5.28	30.7	1,690	1,400	39	5.2	4,160	7.5
Jan. 1-18, 1960.....	2.83	22	.01	375	164	480	8.0	405	2,060	134	.8	2.7	.46	3,660	4.98	28.0	1,610	1,280	39	5.2	3,980	7.7
Jan. 19-25.....	2.80	--	--	438	179	548	--	424	--	--	--	--	--	4,140	5.63	31.3	1,830	1,480	39	5.6	4,450	7.4
Jan. 26-31.....	2.80	--	--	348	168	450	--	431	--	--	--	--	--	3,470	4.72	26.2	1,560	1,210	39	5.0	3,810	7.7
Feb. 1-27.....	3.34	--	--	425	156	534	--	341	--	--	--	--	--	3,960	5.39	35.7	1,700	1,420	41	5.6	4,260	7.6
Feb. 28-Mar. 31.....	3.47	--	--	310	157	380	--	511	--	--	--	--	--	3,050	4.15	28.6	1,420	1,000	37	4.4	3,430	7.5
Apr. 1-4, 7-30.....	146	16	.02	280	124	310	7.3	355	1,420	83	.7	3.0	.24	2,570	3.50	1,010	1,210	919	36	3.9	2,920	7.6
Apr. 5-6.....	4.15	--	--	420	154	516	--	324	--	--	--	--	--	3,830	5.21	42.9	1,680	1,410	40	5.5	4,170	7.6
May 1-28.....	920	--	--	270	101	277	--	208	--	--	--	--	--	2,330	3.17	5,790	1,090	920	36	3.6	2,700	7.8
May 29-June 1.....	128	--	--	356	139	402	--	216	--	--	--	--	--	3,180	4.32	1,100	1,460	1,280	37	4.6	3,660	7.5
June 2-5.....	282	--	--	293	76	223	--	228	--	--	--	--	--	1,970	2.68	1,500	910	723	35	3.2	2,310	7.6
June 6-8.....	431	--	--	186	65	187	--	187	--	--	--	--	--	1,510	2.05	1,760	730	577	36	3.0	1,920	7.6
June 9-14.....	401	--	--	141	47	114	--	187	--	--	--	--	--	1,060	1.44	1,150	545	392	31	2.1	1,410	7.7
June 15.....	363	--	--	276	76	274	--	222	--	--	--	--	--	2,320	3.16	2,270	1,000	818	37	3.8	2,610	7.5
June 16-21.....	342	--	--	183	59	168	--	192	--	--	--	--	--	1,510	2.05	1,390	700	542	34	2.8	1,820	7.5
June 22-30.....	378	--	--	150	51	133	--	182	--	--	--	--	--	1,140	1.55	1,160	585	436	33	2.4	1,530	7.6
July 1-2.....	455	--	--	161	54	146	--	175	--	--	--	--	--	1,340	1.82	1,650	625	482	34	2.5	1,650	7.5
July 3-5.....	560	--	--	134	43	108	--	177	--	--	--	--	--	1,020	1.39	1,540	510	365	32	2.1	1,350	7.6
July 6.....	1,230	--	--	65	15	49	--	136	--	--	--	--	--	470	.64	1,560	224	112	32	1.4	643	7.8
July 7.....	520	--	--	92	28	82	--	114	--	--	--	--	--	742	1.01	1,040	344	250	34	1.9	983	7.5
July 8-11.....	570	--	--	162	58	147	--	144	--	--	--	--	--	1,380	1.88	2,120	644	526	33	2.5	1,670	7.6
July 12-13.....	301	--	--	234	84	228	--	190	--	--	--	--	--	2,030	2.76	1,650	930	774	35	3.3	2,360	7.4
July 14-16.....	730	--	--	199	52	124	--	170	--	--	--	--	--	1,390	1.89	2,740	710	570	28	2.0	1,680	7.5
July 17.....	415	--	--	264	78	202	--	234	--	--	--	--	--	2,010	2.73	2,250	980	798	31	2.8	2,310	7.5
July 18-22.....	461	--	--	160	44	106	--	193	--	--	--	--	--	1,120	1.52	1,390	580	422	28	1.9	1,430	7.6
July 23-24.....	206	--	--	216	67	195	--	199	--	--	--	--	--	1,730	2.35	962	816	653	34	3.0	2,070	7.9
July 25-29.....	96.4	--	--	268	100	288	--	190	--	--	--	--	--	2,410	3.28	627	1,080	924	37	3.8	2,760	7.5
July 30-31.....	34	--	--	300	124	360	--	178	--	--	--	--	--	2,860	3.89	262	1,260	1,110	38	4.4	3,210	7.4
Aug. 1-9.....	18.3	--	--	368	117	440	--	172	--	--	--	--	--	3,400	4.62	168	1,400	1,260	41	5.1	3,800	7.4
Aug. 10-11.....	105	--	--	218	53	220	--	133	--	--	--	--	--	1,770	2.41	502	760	651	39	3.5	2,160	7.4
Aug. 12-15.....	40.5	--	--	316	98	328	--	165	--	--	--	--	--	2,780	3.78	304	1,190	1,060	37	4.1	3,120	7.6
Aug. 16-31.....	10.3	12	.00	376	144	460	8.8	195	2,090	131	.9	2.1	.49	3,550	4.83	98.7	1,530	1,370	39	5.1	3,900	7.4
Sept. 1-10.....	11.1	--	--	388	139	485	--	200	--	--	--	--	--	3,690	5.02	111	1,540	1,380	41	5.4	4,020	7.6
Sept. 11-13.....	159	--	--	304	88	225	--	204	--	--	--	--	--	2,260	3.07	970	1,120	953	30	2.9	2,560	7.5
Sept. 14-23.....	29.5	--	--	332	112	328	--	208	--	--	--	--	--	2,830	3.85	225	1,290	1,120	36	4.0	3,170	7.7
Sept. 24-30.....	18.9	--	--	352	132	417	--	203	--	--	--	--	--	3,260	4.43	166	1,420	1,250	39	4.8	3,660	7.6
Weighted average.....	162	--	--	231	84	230	--	205	--	--	--	--	--	1,970	2.68	862	922	754	35	3.3	2,320	--

ARKANSAS RIVER BASIN

7-1305. ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.

Chemical analyses, in parts per million, water year October 1960 to September 1961

Date of Collection	Mass discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved Solids			Hardness as CaCO ₃		Percent sodium (Na)	Sodium adsorption ratio (SAR)	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-Carbonate				
Oct. 1-18, 1960.....	19.6	--	--	355	149	448	--	208	--	--	--	--	--	3,380	4.60	179	1,500	1,330	39	5.0	3,800	7.6
Oct. 19-20.....	408	--	--	290	109	268	--	169	--	--	--	--	--	2,400	3.26	2,640	1,170	1,030	33	3.4	2,760	7.9
Oct. 21-31.....	170	19	0.00	239	85	208	8.4	228	1,080	58	0.7	5.7	0.23	1,940	2.64	890	948	761	32	2.9	2,290	7.8
Nov. 1-3.....	95.0	--	--	248	102	258	--	220	--	--	--	--	--	2,210	3.01	567	1,040	860	35	3.5	2,560	7.8
Nov. 4-22.....	58.7	--	--	322	126	364	--	254	--	--	--	--	--	2,910	3.96	461	1,320	1,110	37	4.4	3,260	7.8
Nov. 23-30.....	37.9	--	--	352	142	416	--	263	--	--	--	--	--	3,320	4.52	370	1,460	1,240	38	4.7	3,670	7.7
Dec. 1-31.....	2.79	--	--	410	167	521	--	336	--	--	--	--	--	3,920	5.33	29.5	1,710	1,430	40	5.5	4,260	7.8
Jan. 1-31, 1961.....	2.99	21	.02	440	156	518	8.1	364	2,240	150	.8	7.3	.47	3,960	5.07	32.0	1,740	1,430	39	5.4	4,310	7.9
Feb. 1-28.....	3.62	--	--	415	159	513	--	342	--	--	--	--	--	3,950	5.37	38.6	1,690	1,410	40	5.4	4,220	7.8
Mar. 1-28.....	3.11	--	--	410	165	540	--	307	--	--	--	--	--	4,060	5.52	34.1	1,700	1,450	41	5.7	4,310	7.7
Mar. 29-30.....	3.70	--	--	312	161	421	--	362	--	--	--	--	--	3,330	4.53	33.3	1,440	1,140	39	4.8	3,520	7.8
Mar. 31-Apr. 2.....	3.60	--	--	402	165	536	--	286	--	--	--	--	--	4,090	5.48	39.2	1,680	1,450	41	5.7	4,290	7.9
Apr. 3-28.....	521	12	.00	305	143	351	8.3	241	1,710	92	.8	3.3	.32	3,000	4.08	4,220	1,350	1,150	36	4.2	3,290	7.8
Apr. 29-May 25.....	53.4	--	--	330	160	455	--	192	--	--	--	--	--	3,560	4.84	513	1,500	1,340	40	5.1	3,820	7.7
May 26-28.....	341	--	--	225	80	225	--	197	--	--	--	--	--	1,940	2.64	1,790	890	728	35	3.3	2,280	7.6
May 29-June 3.....	386	--	--	113	41	98	--	166	--	--	--	--	--	909	1.24	947	452	316	32	2.0	1,190	7.8
June 4-11.....	3.69	--	--	302	138	410	--	274	--	--	--	--	--	3,120	4.24	31.1	1,320	1,100	40	4.9	3,470	7.7
June 12-18.....	2.51	--	--	355	154	490	--	310	--	--	--	--	--	3,670	4.99	24.9	1,520	1,270	41	5.5	3,970	7.8
June 19-27.....	515	--	--	178	70	190	--	167	--	--	--	--	--	1,610	2.19	2,240	730	593	36	3.1	1,940	7.8
June 28.....	146	--	--	265	102	304	--	209	--	--	--	--	--	2,460	3.35	970	1,080	908	38	4.0	2,790	7.7
June 29-30.....	296	--	--	170	51	144	--	203	--	--	--	--	--	1,300	1.77	1,040	632	466	33	2.5	1,640	7.8
July 1.....	613	--	--	150	38	109	--	196	--	--	--	--	--	894	1.22	1,480	530	370	31	2.1	1,340	7.8
July 2.....	520	--	--	170	53	165	--	180	--	--	--	--	--	1,320	1.80	1,850	640	492	36	2.8	1,700	7.8
July 3-8.....	415	--	--	160	48	133	--	192	--	--	--	--	--	1,210	1.65	1,360	595	438	33	2.4	1,520	7.7
July 9.....	974	--	--	140	40	118	--	180	--	--	--	--	--	1,040	1.41	2,730	515	368	33	2.3	1,350	7.8
July 10-16.....	571	--	--	182	65	160	--	214	--	--	--	--	--	1,470	2.00	2,270	720	544	33	2.6	1,600	7.6
July 17-20.....	212	--	--	228	83	206	--	224	--	--	--	--	--	1,880	2.56	1,080	910	726	33	3.0	2,210	7.6
July 21.....	125	--	--	275	89	258	--	236	--	--	--	--	--	2,220	3.02	749	1,050	856	35	3.5	2,580	7.7
July 22.....	240	--	--	315	101	286	--	256	--	--	--	--	--	2,460	3.35	1,590	1,200	990	34	3.6	2,830	7.7
July 23-26.....	233	--	--	240	83	188	--	224	--	--	--	--	--	1,870	2.54	1,180	940	756	30	2.7	2,170	7.7
July 27-29.....	69.3	--	--	305	107	325	--	208	--	--	--	--	--	2,610	3.55	488	1,200	1,030	37	4.1	2,560	7.9
July 30-31.....	84.0	--	--	380	125	410	--	260	--	--	--	--	--	3,250	4.42	737	1,460	1,250	38	4.7	3,570	7.9
Aug. 1-2.....	176	--	--	193	61	160	--	183	--	--	--	--	--	1,520	2.07	722	734	534	32	2.6	1,860	8.0
Aug. 3-4.....	270	--	--	213	70	184	--	215	--	--	--	--	--	1,710	2.33	1,250	820	644	33	2.8	2,060	7.7
Aug. 5.....	568	--	--	154	54	119	--	173	--	--	--	--	--	1,180	1.60	1,810	604	462	30	2.1	1,510	7.7
Aug. 6.....	598	--	--	208	78	141	--	187	--	--	--	--	--	1,630	2.22	2,630	840	687	27	2.1	1,910	7.6
Aug. 7-16.....	532	--	--	154	48	115	--	176	--	--	--	--	--	1,140	1.55	1,640	580	436	30	2.1	1,460	7.7
Aug. 17-18.....	612	--	--	214	57	157	--	198	--	--	--	--	--	1,560	2.12	2,580	770	608	31	2.5	1,890	7.8
Aug. 19-23.....	533	--	--	162	50	115	--	195	--	--	--	--	--	1,170	1.99	1,680	608	448	29	2.0	1,490	7.7
Aug. 24-26.....	328	--	--	180	58	138	--	211	--	--	--	--	--	1,360	1.85	1,200	688	515	30	2.3	1,700	7.8
Aug. 27-29.....	230	--	--	204	69	168	--	228	--	--	--	--	--	1,620	2.20	1,010	794	607	32	2.6	1,970	7.9
Aug. 30-Sept. 1.....	342	--	--	126	61	151	--	203	--	--	--	--	--	1,450	1.97	1,340	714	548	32	2.5	1,800	7.9
Sept. 2-5.....	230	--	--	227	79	210	--	220	--	--	--	--	--	1,890	2.57	1,170	892	712	34	3.1	2,260	7.8
Sept. 6-7.....	402	--	--	175	61	152	--	193	--	--	--	--	--	1,400	1.90	1,520	668	530	32	2.5	1,780	7.9
Sept. 8.....	440	--	--	149	51	121	--	196	--	--	--	--	--	1,150	1.56	1,370	580	480	31	2.2	1,470	7.8
Sept. 9-19.....	444	15	.02	126	42	94	4.6	184	475	29	.9	6.9	.15	921	1.25	1,100	488	337	29	1.8	1,230	7.9
Sept. 20-28.....	457	--	--	142	46	115	--	180	--	--	--	--	--	1,080	1.47	1,330	542	394	32	2.2	1,390	7.9
Sept. 29-30.....	312	--	--	159	52	131	--	202	--	--	--	--	--	1,240	1.69	1,040	612	446	32	2.3	1,560	8.0
Weighted average....	180	--	--	210	81	205	--	205	--	--	--	--	--	1,820	2.48	885	857	689	34	3.1	2,140	--

ARKANSAS RIVER BASIN

7-1305 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.

LOCATION.--(revised) At gaging station 1.1 miles upstream from Caddoa Creek. 1.7 miles downstream from John Martin Dam, Bent County and 2.9 miles southeast of Hasty.
 DRAINAGE AREA.--18,917 square miles, of which 785 square miles are probably noncontributing.
 RECORDS AVAILABLE.--Chemical analyses: August 1942 to August 1943, October 1945 to July 1949 (intermittent and weekly samples); January 1951 to September 1962 (daily samples)
 Water temperatures: January 1951 to September 1962.
 EXTREMES, 1961-62.--Dissolved solids: Maximum, 4,510 ppm Nov. 3-13; minimum, 492 ppm July 1.
 Hardness: Maximum, 1,860 ppm Nov. 3-13; minimum, 288 ppm July 1.
 Specific conductance: Maximum daily, 4,830 micromhos Nov. 7; minimum daily, 768 micromhos July 1.
 Water temperatures: Maximum, 79° F Aug. 10, 1962; minimum, 33° F on several days during December and January.
 EXTREMES, 1951-62.--Dissolved solids: Maximum, 4,510 ppm Nov. 3-13, 1961; minimum, 470 ppm July 6, 1960.
 Hardness: Maximum, 1,910 ppm Aug. 8, 1955; minimum, 224 ppm July 6, 1960.
 Specific conductance: Maximum daily, 5,180 micromhos Apr. 21, 1955; minimum daily, 643 micromhos July 6, 1960.
 Water temperatures: Maximum, 85° F Aug. 6, 1951; minimum, freezing point on several days during winter months.
 REMARKS.--
 Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.
 Records of specific conductance of daily samples available in district office at Salt

Chemical analyses, in parts per million, water year October 1961 to September 1962.

Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-14, 1961	398	15	0.00	172	54		134	5.8	212	669	41	0.9	7.2	0.18	1,290	1.75	1,390	650	476	2.3	1,610	7.7	-
Oct. 15-24	310	--	--	188	60		159	--	226	--	--	--	--	--	1,400	1.90	1,170	715	530	2.6	1,780	7.8	-
Oct. 25-31, Nov. 1	405	--	--	164	55		134	--	212	--	--	--	--	--	1,270	1.73	1,390	635	462	2.3	1,570	8.1	-
Nov. 2	6.20	--	--	310	109		357	--	256	--	--	--	--	--	2,760	3.75	46.2	1,220	1,010	4.4	3,090	8.2	-
Nov. 3-13	4.08	--	--	488	156		622	--	242	--	--	--	--	--	4,510	6.13	49.7	1,860	1,660	6.3	4,770	7.8	-
Nov. 14-17	4.30	--	--	310	135		395	--	316	--	--	--	--	--	2,940	4.00	34.1	1,330	1,070	4.7	3,330	8.1	-
Nov. 18-28	4.08	--	--	350	145		448	--	317	--	--	--	--	--	3,400	4.62	37.5	1,470	1,210	5.1	3,730	7.9	-
Nov. 29-30	3.60	--	--	398	115		505	--	310	--	--	--	--	--	3,810	5.18	37.0	1,630	1,380	5.4	4,110	8.0	-
Dec. 1-31	4.11	--	--	--	--		370	--	435	1,600	97	--	--	--	2,940	4.00	32.6	1,360	998	4.4	3,270	7.7	-
Jan. 1-7, 1962	3.89	--	--	--	--		406	--	458	1,780	110	--	--	--	3,260	4.43	34.2	1,500	1,120	4.6	3,560	7.8	-
Jan. 8	3.60	--	--	--	--		556	--	386	2,200	158	--	--	--	3,930	5.34	38.2	1,620	1,300	6.0	4,250	7.6	-
Jan. 9-29	3.23	--	--	--	--		369	--	502	1,670	97	--	--	--	3,110	4.23	27.1	1,480	1,070	4.2	3,410	7.7	-
Jan. 30-31	2.90	--	--	--	--		271	--	349	1,280	75	--	--	--	2,360	3.21	18.5	1,140	849	3.5	2,680	7.6	-
Feb. 1-22	3.71	--	--	--	--		433	--	469	1,830	115	--	--	--	3,240	4.41	32.5	1,510	1,120	4.8	3,630	8.0	-
Feb. 23-28, Mar. 1-31	4.10	--	--	--	--		653	--	644	2,350	170	--	--	--	4,010	5.45	44.4	1,800	1,270	6.7	4,380	7.8	-
Apr. 1-9	61.0	--	--	--	--		546	--	263	2,380	180	--	--	--	4,090	5.56	674	1,760	1,540	5.7	4,510	7.7	-
Apr. 10-30-May 1	867	--	--	--	--		345	--	256	1,710	93	--	--	--	3,000	4.08	7,020	1,370	1,160	4.1	3,380	7.6	-
May 2-18	519	--	--	--	--		137	--	219	653	38	--	--	--	1,190	1.62	1,670	616	436	2.4	1,560	7.5	-
May 19	161	--	--	--	--		349	--	252	1,630	117	--	--	--	2,960	4.03	1,290	1,310	1,100	4.2	3,390	7.4	-
May 20-25	323	--	--	--	--		216	--	170	1,040	55	--	--	--	1,810	2.46	1,580	830	691	3.3	2,180	7.4	-
May 26-31	309	--	--	--	--		273	--	182	1,280	75	--	--	--	2,210	3.01	1,840	995	846	3.8	2,590	7.4	-
May 28	a/300	19	.02	236	85		242	6.2	178	1,210	62	.8	1.0	.32	2,030	2.76	1,640	940	794	3.4	2,430	7.3	5
June 1-2	416	--	--	--	--		198	--	257	947	56	--	--	--	1,730	2.35	1,940	845	634	3.0	2,120	7.6	-
June 3-17	431	--	--	--	--		151	--	225	747	44	--	--	--	1,360	1.85	1,580	695	510	2.5	1,760	7.5	-
June 18-19	441	--	--	--	--		106	--	220	510	28	--	--	--	1,000	1.36	1,190	520	340	2.0	1,330	7.6	-
June 20-21	341	--	--	--	--		166	--	235	815	50	--	--	--	1,510	2.05	1,390	750	557	2.6	1,880	7.5	-
June 22-23	571	--	--	--	--		107	--	214	526	30	--	--	--	1,020	1.39	1,570	532	356	2.0	1,360	7.7	-
June 24-25	308	--	--	--	--		192	--	215	894	53	--	--	--	1,610	2.19	1,340	765	589	3.0	1,980	7.7	-
June 26-30	429	--	--	--	--		132	--	224	700	35	--	--	--	1,300	1.77	1,510	675	491	2.2	1,660	7.5	-

ARKANSAS RIVER BASIN--Continued

7-1305 ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.--Continued

Chemical analyses, in parts per million, water year October 1961 to September 1962.

Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
July 1 -----	905	--	--	--	--		63	--	222	219	11	--	--	--	492	0.67	1,200	288	106	1.6	768	7.4	-
July 2-6 ----	580	--	--	--	--		81	--	202	501	28	--	--	--	944	1.28	1,480	550	384	1.5	1,300	7.6	-
July 7-9 ----	378	--	--	--	--		151	--	247	818	38	--	--	--	1,460	1.99	1,490	780	577	2.3	1,820	7.6	-
July 10 -----	696	--	--	--	--		87	--	232	435	20	--	--	--	816	1.11	1,530	482	292	1.7	1,200	7.4	-
July 11-16 ---	505	--	--	--	--		121	--	241	630	32	--	--	--	1,160	1.58	1,580	635	437	2.1	1,520	7.5	-
July 17-18 ---	449	--	--	--	--		157	--	247	789	44	--	--	--	1,450	1.97	1,760	745	542	2.5	1,820	7.5	-
July 19-21 ----	553	--	--	--	--		120	--	229	593	32	--	--	--	1,090	1.48	1,630	590	402	2.1	1,450	7.5	-
July 22 -----	860	--	--	--	--		80	--	224	413	18	--	--	--	812	1.10	1,890	464	280	1.6	1,160	7.3	-
July 23-27 ---	604	--	--	--	--		132	--	233	707	36	--	--	--	1,280	1.74	2,090	690	499	2.2	1,660	7.3	-
July 28-31 ---	660	--	--	--	--		101	--	133	553	24	--	--	--	940	1.28	1,680	500	391	2.0	1,270	7.3	-
Aug. 1 -----	592	--	--	--	--		105	--	144	553	27	--	--	--	996	1.35	1,590	504	386	2.0	1,330	7.4	-
Aug. 2-9 -----	603	--	--	--	--		155	--	173	812	42	--	--	--	1,450	1.97	2,360	710	568	2.5	1,800	7.7	-
Aug. 10 -----	935	--	--	--	--		232	--	216	1,160	60	--	--	--	1,990	2.71	5,020	965	788	3.2	2,380	7.6	-
Aug. 11-12 ---	64.9	--	--	--	--		470	--	276	2,060	125	--	--	--	3,500	4.76	613	1,520	1,290	5.2	3,950	7.6	-
Aug. 23-29 ---	149	--	--	--	--		233	--	239	1,140	66	--	--	--	2,020	2.75	813	970	774	3.2	2,400	8.2	-
Aug. 30-31 ---	50.0	--	--	--	--		390	--	293	1,810	113	--	--	--	3,160	4.30	427	1,440	1,200	4.5	3,600	7.4	-
Sept. 1-30 ---	41.7	--	--	--	--		451	--	280	1,990	121	--	--	--	3,390	4.61	382	1,490	1,260	5.1	3,840	7.6	-

a/ Discharge at time of sample collection, this analysis not included in computation of weighted averages.

ARKANSAS RIVER BASIN
MISCELLANEOUS CHEMICAL ANALYSES OF WATER FROM STREAMS IN THE ARKANSAS RIVER BASIN, COLO.

(Results in parts per million except as indicated)

Date of collection	dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids Residue at 180°C			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH	
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate					
ARKANSAS RIVER AT LA JUNTA																								
Oct. 20, 1961 ---	266	12	--	142	35	88		212	0	458	24	0.7	2.0	0.15		876	1.19	629	496	322	28	1.7	1,170	7.4
Dec. 8 -----	48.6	--	--	--	--	--		251	0	748	39	--	--	--		1,410	1.92	185	724	518	--	--	1,730	7.4
Jan. 2, 1962 ----	13.0	18	0.00	387	72	288		304	0	1,470	69	--	14	.39		2,560	3.48	89.9	1,260	1,010	33	3.5	2,860	7.6
KING ARROYO																								
Oct. 20, 1961 ---	1.2	13	--	391	120	582		376	0	1,960	252	0.9	35	0.53		3,700	5.03	12.0	1,470	1,160	46	6.6	4,270	7.5
FT. LYON CANAL AT DIVERSION FLUME NEAR LA JUNTA																								
Oct. 25, 1961 ---	347	11	0.00	124	38	75		216	0	407	20	--	3.4	0.14		796	1.08	746	468	291	26	1.5	1,070	7.3
Dec. 8 -----	587	--	--	--	--	--		224	0	484	24	--	--	--		956	1.30	1,520	536	352	--	--	1,250	7.3
Jan. 2, 1962 ----	250	14	.01	267	42	156		289	0	848	38	--	1.5	.25		1,580	2.15	1,070	836	599	29	2.3	1,880	7.2
FT. LYON AT HORSE CREEK FLUME																								
Oct. 25, 1961 ---	311	11	0.00	136	31	78		211	0	414	22	--	4.6	0.15		812	1.10	682	468	295	27	1.6	1,090	7.3
FT. LYON CANAL NORTH OF LAS ANIMAS																								
June 13, 1961 ---	--	11	0.00	77	22	42	4.0	133	0	242	13	0.6	4.4	--		450	0.61	--	282	174	24	1.1	732	7.5
HORSE CREEK AT HIGHWAY 194																								
Oct. 24, 1961 ---	9.75	15	0.00	351	151	633		323	0	2,270	172	--	1.5	0.91		3,880	5.28	102	1,500	1,230	48	7.1	4,360	7.5
Dec. 8 -----	12	--	--	--	--	--		326	0	2,320	162	--	--	--		4,030	5.48	131	1,570	1,300	--	--	4,460	7.5
Jan. 3, 1962 ----	6.87	16	.00	429	178	726		352	0	2,700	196	--	4.6	.97		4,600	6.26	85.3	1,800	1,510	47	7.4	4,990	7.8

ARKANSAS RIVER BASIN--Continued
MISCELLANEOUS CHEMICAL ANALYSES OF WATER FROM STREAMS IN THE ARKANSAS RIVER BASIN, COLO.--Continued

(Results in parts per million except as indicated)

Date of collection	dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Po- tas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids Residue at 180°C			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate				
Oct. 24, 1961 ---	6.82	13	0.01	477	100	743		HORSE CREEK AT FT. LYON FLUME 317	0	2,570	197	--	2.3	0.97	4,370	5.94	80.5	1,600	1,340	50	8.1	4,860	7.6
Oct. 20, 1961 ---	7.56	15	0.00	399	147	705		HORSE CREEK AT MOUTH 310	0	2,510	187	--	2.6	0.97	4,280	5.82	87.4	1,600	1,350	49	7.7	4,770	7.6
Oct. 20, 1961 ---	243	13	--	159	47	128		ARKANSAS RIVER NEAR CORNELIA 222	0	607	36	0.6	1.7	0.21	1,120	1.52	735	590	408	32	2.3	1,460	7.3
Oct. 20, 1961 ---	278	12	--	144	36	89		ARKANSAS RIVER NEAR HADLEY 212	0	472	25	0.7	2.7	0.15	896	1.22	673	510	336	28	1.7	1,210	7.4
Jan. 3, 1962 ---	3.29	11	--	273	73	374		ADOBE CREEK 0.5 MILE BELOW HIGHWAY 194 260	0	1,390	92	0.5	1.1	0.44	2,390	3.25	21.2	980	767	45	5.2	2,880	7.7
Dec. 8, 1961 ---	44.7	--	--	--	--	--		ADOBE CREEK NEAR LAS ANIMAS 240	0	1,480	90	--	--	--	2,550	3.47	32.4	980	783	--	--	3,030	7.7
Oct. 20, 1961 ---	4.30	12	--	291	79	392		ADOBE CREEK AT MOUTH 262	0	1,500	88	0.7	1.5	0.47	2,670	3.63	31.0	1,050	835	45	5.3	3,020	7.5
Dec. 8, 1961 ---	38.8	--	--	--	--	--		LAS ANIMAS CONSOLIDATED DITCH NEAR LAS ANIMAS 247	0	683	38	--	--	--	1,300	1.77	136	672	469	--	--	1,620	7.3
aEstimated mean discharge.																							

RIO GRANDE BASIN
RIO GRANDE ABOVE CULEBRA CREEK, NEAR LOBATOS, COLO.

Chemical analyses, in parts per million, water year October 1959 to September 1960

Date of Collection	Mean dis- charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Pot- as- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Boron (B)	Dissolved Solids			Hardness as CaCO ₃		Per- cent ad-sorp- tion ratio (SAR)	Specific conduct- ance (micro- mhos at 25°C)	pH	
														Parts per million	Tons per acre- foot	Tons per day	Calcium, Magnesium	Son- Carbon- ate				
Oct. 1-3, 1959.....	38.0	--	--	43	9.6	50	--	191	--	--	--	--	--	368	0.50	37.8	147	0	43	1.8	504	8.2
Oct. 4-5.....	103	--	--	28	7.3	37	--	135	--	--	--	--	--	258	.35	71.7	100	0	45	1.6	370	7.8
Oct. 6-Nov. 1.....	37.7	48	0.01	47	9.4	45	6.8	162	102	14	0.6	1.0	0.13	358	.49	94.4	156	23	37	1.6	502	7.8
Nov. 2.....	78.0	--	--	36	7.3	34	--	163	--	--	--	--	--	306	.42	64.4	120	0	38	1.4	404	9.0
Nov. 3-8.....	31.8	--	--	46	10	55	--	165	--	--	--	--	--	403	.55	39.9	158	23	43	1.3	548	8.5
Nov. 9.....	150	--	--	32	6.3	29	--	122	--	--	--	--	--	246	.33	99.6	106	6	37	1.2	345	9.0
Nov. 10-25.....	309	--	--	29	5.5	22	--	73	--	--	--	--	--	207	.28	173	95	19	34	1.0	290	8.2
Nov. 26-Dec. 9.....	216	--	--	36	6.3	28	--	139	--	--	--	--	--	260	.35	152	116	2	34	1.1	350	8.2
Dec. 10-29.....	258	--	--	32	5.4	21	--	119	--	--	--	--	--	211	.29	147	102	4	31	.9	302	7.7
Dec. 30-Jan. 6, 9, 1960	196	49	.01	36	6.6	24	4.5	132	51	6.6	.4	1.2	.08	250	.34	132	117	9	30	1.0	339	7.7
Jan. 7-8.....	202	--	--	30	5.1	18	--	102	--	--	--	--	--	208	.28	113	96	12	29	.8	283	7.0
Jan. 13-19, 21-31.....	242	--	--	26	4.6	17	--	101	--	--	--	--	--	185	.25	121	84	1	31	.8	249	7.5
Jan. 20.....	200	--	--	30	6.8	20	--	122	--	--	--	--	--	224	.30	121	103	0	30	.9	308	8.6
Feb. 1-29.....	226	--	--	28	3.4	15	--	99	--	--	--	--	--	180	.24	110	84	3	28	.7	243	7.4
Mar. 1-15.....	361	--	--	26	5.6	17	--	96	--	--	--	--	--	183	.26	183	88	10	30	.8	260	7.1
Mar. 16-19.....	478	--	--	36	7.3	28	--	118	--	--	--	--	--	258	.35	333	120	24	34	1.1	370	7.3
Mar. 20-Apr. 2.....	587	--	--	29	6.2	22	--	112	--	--	--	--	--	214	.29	339	98	6	33	1.0	302	7.5
Apr. 3-6.....	313	--	--	40	7.5	30	--	162	--	--	--	--	--	270	.37	223	131	0	33	1.1	394	7.5
Apr. 7-9.....	684	--	--	27	5.5	19	--	121	--	--	--	--	--	208	.28	384	90	0	32	.9	271	7.0
Apr. 10-13.....	1,395	--	--	19	4.0	12	--	76	--	--	--	--	--	142	.19	535	64	2	29	.6	194	6.6
Apr. 14-19, 22, 24.....	1,034	24	.11	25	5.7	17	4.5	98	35	6.6	.4	.8	.08	185	.25	516	86	6	29	.8	254	7.0
Apr. 20-21, 23, 25.....	1,052	--	--	20	4.1	11	--	70	--	--	--	--	--	150	.20	426	67	10	26	.6	201	7.0
Apr. 26-30.....	585	--	--	30	6.6	22	--	117	--	--	--	--	--	214	.29	358	102	6	32	1.0	307	7.0
May 1-2.....	396	--	--	33	7.7	24	--	26	--	--	--	--	--	--	--	--	114	92	31	1.0	341	4.8
May 3-10.....	242	--	--	40	8.5	33	--	120	--	--	--	--	--	291	.40	130	134	36	35	1.2	414	7.4
May 11-21.....	340	--	--	24	3.2	17	--	99	--	--	--	--	--	172	.23	158	73	0	34	.9	231	7.5
May 22, 29.....	149	--	--	34	6.8	27	--	127	--	--	--	--	--	248	.34	99.8	113	9	34	1.1	348	7.3
May 23, 25-27, 30.....	129	--	--	61	12	48	--	144	--	--	--	--	--	426	.58	144	200	82	34	1.5	598	7.6
May 28, 28.....	116	--	--	45	8.6	34	--	136	--	--	--	--	--	315	.43	98.7	148	36	33	1.2	446	7.5
May 31-June 1.....	188	--	--	30	6.1	22	--	130	--	--	--	--	--	216	.29	110	100	0	32	1.0	305	7.8
June 2-3.....	219	--	--	38	7.3	29	--	146	--	--	--	--	--	266	.36	157	125	0	34	1.1	373	8.1
June 4-12, 17.....	682	--	--	28	4.4	26	--	141	--	--	--	--	--	205	.28	483	88	0	33	1.2	285	7.7
June 13-16, 16-20.....	1,374	--	--	36	7.1	34	--	124	--	--	--	--	--	278	.38	1,030	119	18	36	1.4	391	7.3
June 21-23.....	664	--	--	46	10	50	--	142	--	--	--	--	--	379	.52	679	158	42	41	1.7	539	7.7
June 24-30.....	172	--	--	88	18	93	--	190	--	--	--	--	--	698	.95	324	294	138	41	2.4	960	7.2
July 1-7.....	103	27	.03	87	19	90	14	187	296	33	.8	2.1	.25	676	.92	188	296	143	38	2.3	958	7.3
July 8-9.....	156	--	--	57	12	50	--	162	--	--	--	--	--	412	.56	174	191	58	36	1.6	591	7.9
July 10-27.....	116	--	--	72	15	72	--	190	--	--	--	--	--	538	.73	169	243	88	39	2.0	769	7.5
July 28-31.....	68.5	--	--	56	12	56	--	171	--	--	--	--	--	414	.56	76.6	190	50	39	1.8	613	7.2
Aug. 1-26.....	46.0	--	--	56	12	63	--	184	--	--	--	--	--	439	.60	54.5	190	39	42	2.0	646	7.4
Aug. 27-30.....	15.2	--	--	64	14	81	--	198	--	--	--	--	--	526	.72	21.6	219	56	45	2.4	760	8.1
Aug. 31-Sept. 8.....	14.3	--	--	60	13	72	--	194	--	--	--	--	--	488	.66	18.8	202	43	44	2.2	704	7.7
Sept. 9-10.....	26.5	--	--	40	9.0	50	--	186	--	--	--	--	--	321	.44	23.0	137	0	44	1.9	482	8.2
Sept. 11-21.....	22.7	--	--	50	12	61	--	186	--	--	--	--	--	410	.56	25.1	173	20	43	2.0	601	7.7
Sept. 22-23.....	26.0	--	--	58	12	68	--	185	--	--	--	--	--	453	.62	31.8	194	42	43	2.1	668	7.8
Sept. 24-30.....	29.0	--	--	46	9.5	50	--	171	--	--	--	--	--	351	.48	27.5	154	14	41	1.8	522	7.5
Weighted average....	290	--	--	32	6.3	26	--	117	--	--	--	--	--	258	0.32	186	106	10	35	1.1	332	--

- a. Includes equivalent of 26 parts per million of carbonate (CO₃).
b. Includes equivalent of 7 parts per million of carbonate (CO₃).
c. Includes equivalent of 13 parts per million of carbonate (CO₃).
d. Includes equivalent of 6 parts per million of carbonate (CO₃).
e. Carbonate included as bicarbonate.

RIO GRANDE BASIN

8-2472, RIO GRANDE ABOVE CULEBRA CREEK NEAR LOMAS, COLO.

Chemical analyses, in parts per million, water year October 1960 to September 1961

Date of Collection	Mean dis- charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- nesium (Mg)	Sodium (Na)	Pot- assium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluor- ide (F)	Ni- trate (NO ₃)	Boron (B)	Dissolved Solids			Hardness as CaCO ₃		Per- cent sod- ium	Sodium adsorp- tion ratio (SAR)	Specific conductance (micro- mhos at 25°C)	pH
															Parts per million	Tons per acre- foot	Tons per day	Calcium, Magnesium	Non- Carbon- ate				
Oct. 1-11, 1960.....	30.1	--	--	52	8.9	52	--	172	0	--	--	--	--	--	370	0.50	32.1	166	25	41	1.8	552	7.5
Oct. 12-18.....	43.0	--	--	57	11	57	--	174	0	--	--	--	--	--	418	.57	40.5	188	46	40	1.8	615	7.8
Oct. 19-31.....	106	--	--	48	8.0	45	--	160	0	--	--	--	--	--	330	.46	96.7	153	22	39	1.6	505	7.4
Nov. 1-7.....	75.4	--	--	54	10	56	--	165	0	--	--	--	--	--	500	.52	75.5	177	44	38	1.6	561	7.8
Nov. 8-9.....	69.0	--	--	17	2.6	12	--	60	0	--	--	--	--	--	134	.16	21.2	32	4	33	.7	167	7.1
Nov. 10-12, 14.....	505	10	0.05	16	1.0	9.5	2.5	52	0	19	1.9	0.2	0.7	0.03	100	.14	157	44	2	30	1.6	139	7.2
Nov. 13, 15.....	592	--	--	20	7.3	15	--	88	0	--	--	--	--	--	170	.23	272	60	8	34	.9	250	7.4
Nov. 16, 18-22, 24-26, 28, 30.....	126	--	--	44	7.5	35	--	141	0	--	--	--	--	--	294	.40	100	140	24	35	1.3	432	7.5
Nov. 17.....	166	--	--	51	2.0	47	--	151	0	--	--	--	--	--	353	.49	160	164	32	38	1.6	528	7.5
Nov. 23, 27, 29.....	119	--	--	36	7.1	28	--	144	0	--	--	--	--	--	245	.33	78.7	119	1	34	1.1	355	7.6
Dec. 1-7.....	126	--	--	38	7.1	29	--	146	0	--	--	--	--	--	253	.36	89.5	124	4	34	1.1	377	7.6
Dec. 8-29.....	137	--	--	34	5.6	22	--	140	0	--	--	--	--	--	283	.31	96.6	108	0	31	.9	311	7.9
Dec. 26-31.....	172	--	--	30	6.6	19	--	126	0	--	--	--	--	--	300	.27	92.9	102	0	29	.8	275	7.8
Jan. 1-10, 1961.....	145	30	.01	32	4.1	18	4.5	135	0	31	4.8	.4	.8	.07	204	.26	79.9	97	0	27	.8	271	7.9
Jan. 11-20.....	140	--	--	20	3.4	16	--	105	0	--	--	--	--	--	174	.24	69.5	84	0	29	.8	238	8.0
Jan. 21.....	160	--	--	29	2.0	73	--	321	0	--	--	--	--	--	352	.75	241	250	0	20	2.0	705	8.0
Jan. 26-Feb. 4.....	176	--	--	67	3.5	16	--	90	0	--	--	--	--	--	180	.24	85.5	82	2	30	.8	242	7.3
Feb. 5.....	192	--	--	41	7.7	32	--	144	6	--	--	--	--	--	280	.38	147	134	6	34	1.2	406	8.5
Feb. 6-15.....	206	--	--	26	4.1	17	--	105	0	--	--	--	--	--	180	.24	100	86	0	31	.8	243	7.7
Feb. 16-17.....	269	--	--	30	5.4	26	--	151	0	--	--	--	--	--	200	.26	140	97	0	37	1.1	305	7.6
Feb. 18-20.....	240	--	--	31	5.6	20	--	116	0	--	--	--	--	--	195	.27	126	93	0	32	.9	277	7.7
Mar. 1-11.....	230	--	--	31	6.0	20	--	111	0	--	--	--	--	--	212	.29	132	102	11	30	.9	294	7.7
Mar. 12-17.....	211	--	--	30	6.6	26	--	122	0	--	--	--	--	--	255	.35	145	122	22	32	1.0	364	7.4
Mar. 18-29.....	168	--	--	42	6.8	51	--	135	0	--	--	--	--	--	234	.30	129	133	22	34	1.2	407	7.3
Mar. 30-31.....	156	--	--	52	8.9	40	--	146	0	--	--	--	--	--	335	.40	150	166	46	34	1.4	509	7.6
Apr. 1-3.....	168	--	--	44	6.6	33	--	134	0	--	--	--	--	--	296	.40	134	137	27	34	1.2	426	7.9
Apr. 4-5.....	150	--	--	54	11	44	--	150	0	--	--	--	--	--	285	.52	175	178	35	35	1.4	545	7.5
Apr. 6-8.....	277	--	--	36	6.8	29	--	126	0	--	--	--	--	--	263	.36	158	123	20	34	1.1	379	7.5
Apr. 9-16.....	216	--	--	56	10	42	--	142	0	--	--	--	--	--	324	.52	224	181	64	34	1.4	549	7.6
Apr. 17-18.....	164	--	--	62	12	47	--	139	4	--	--	--	--	--	442	.60	196	205	86	35	1.4	613	8.5
Apr. 19-20.....	320	--	--	26	5.1	16	--	61	0	--	--	--	--	--	194	.26	208	91	24	28	.7	266	7.5
Apr. 21-24.....	740	--	--	19	5.0	10	--	61	0	--	--	--	--	--	143	.19	206	60	10	27	.6	175	7.1
Apr. 25-29.....	490	--	--	24	4.9	17	--	91	0	--	--	--	--	--	173	.24	237	80	6	32	.8	242	7.4
Apr. 30, May 2, 7, 12, 16, May 1, 5-6.....	595	--	--	17	2.8	11	--	69	0	--	--	--	--	--	135	.18	214	94	0	31	.7	164	7.4
May 7-14.....	1,120	--	--	30	6.5	44	--	173	2	--	--	--	--	--	189	.25	476	82	8	32	.9	295	7.4
May 15-16.....	433	--	--	34	6.6	23	--	104	0	--	--	--	--	--	235	.32	272	101	0	49	1.9	392	8.3
May 17, 19-21.....	472	--	--	23	4.0	16	--	85	0	--	--	--	--	--	162	.22	206	74	27	31	.9	334	7.1
May 22, 17-23, 25-30.....	597	29	.05	23	4.7	18	4.3	112	0	22	3.6	.4	.8	.07	174	.24	238	77	0	32	.8	226	7.4
May 24.....	777	--	--	22	3.6	10	--	104	0	--	--	--	--	--	223	.30	468	70	0	36	.9	220	6.6
May 31-June 1.....	857	--	--	32	5.9	20	--	110	0	--	--	--	--	--	236	.32	533	96	6	39	1.2	319	8.2
June 2-5.....	521	--	--	29	5.9	29	--	114	0	--	--	--	--	--	257	.36	410	126	32	33	1.1	364	7.7
June 7-11.....	251	--	--	50	11	33	--	146	0	--	--	--	--	--	440	.60	298	190	70	36	1.7	525	7.2
June 12.....	211	--	--	42	7.5	33	--	126	0	--	--	--	--	--	320	.44	182	136	32	35	1.2	420	7.5
June 13-17.....	140	--	--	60	13	51	--	152	4	--	--	--	--	--	456	.62	172	201	70	40	1.9	640	8.3
June 18-21.....	131	--	--	52	9.8	43	--	192	0	--	--	--	--	--	378	.51	134	170	12	36	1.6	537	7.1
June 22-29.....	130	--	--	60	13	67	--	194	0	--	--	--	--	--	471	.64	165	202	43	42	2.0	662	7.4
June 30-July 17.....	62.0	31	.00	72	15	72	8.4	190	0	200	26	.8	1.4	1.6	540	.73	91.6	241	86	30	2.0	768	7.1
July 18-21.....	54.0	--	--	78	16	84	--	242	2	--	--	--	--	--	600	.82	87.5	260	91	41	2.3	850	8.3
July 22-23.....	70.0	--	--	50	11	30	--	204	0	--	--	--	--	--	376	.51	111.1	170	3	39	1.7	548	7.7
July 24-25.....	46.5	--	--	63	12	65	--	212	0	--	--	--	--	--	467	.64	58.6	205	32	41	2.0	666	8.0
July 26.....	39.0	--	--	64	19	88	--	208	0	--	--	--	--	--	628	.85	66.1	206	116	40	2.3	920	6.9
July 27-30.....	82.0	--	--	69	15	69	--	204	0	--	--	--	--	--	529	.72	117	233	66	39	2.0	745	7.6
July 29.....	24.0	--	--	48	8.5	40	--	170	11	--	--	--	--	--	330	.45	48.1	154	0	36	1.4	463	8.6
July 30.....	42.0	--	--	67	13	65	--	200	0	--	--	--	--	--	402	.66	54.7	222	58	39	1.9	701	7.6
July 31-Aug. 1.....	36.5	--	--	53	10	53	--	106	2	--	--	--	--	--	308	.53	30.2	174	18	40	1.8	560	8.3
Aug. 2-3, 5, 7.....	48.0	--	--	65	14	67	--	132	0	--	--	--	--	--	405	.66	65.9	220	62	40	2.0	692	7.9
Aug. 4, 6, 8.....	56.0	--	--	44	9.7	29	--	134	0	--	--	--	--	--	337	.46	51.0	150	0	36	1.4	464	8.2
Aug. 9-11.....	44.3	--	--	58	13	69	--	106	0	--	--	--	--	--	454	.62	54.3	198	46	40	1.9	641	7.6
Aug. 12-13.....	41.5	--	--	44	10	48	--	132	0	--	--	--	--	--	362	.49	40.6	152	3	41	1.7	505	7.7
Aug. 14-15.....</																							

RIO GRANDE BASIN
RIO GRANDE ABOVE CULEBRA CREEK NEAR LORATOS, COLO.

Chemical analyses, in parts per million, water year October 1961 to September 1962

Date of Collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Sulfate (SO ₄)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved Solids			Hardness as CaCO ₃		Percent sodium-sulfate ratio (Na/SO ₄)	Sodium-sulfate ratio (Na/SO ₄)	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-Carbonate				
Oct. 1-11, 1961.....	68.3	--	--	47	10	45	--	164	0	--	--	--	--	--	359	0.49	66.2	160	26	38	1.5	500	8.0
Oct. 12.....	73.0	--	--	41	6.2	32	--	130	0	--	--	--	--	--	280	.38	55.2	128	22	35	1.2	405	6.7
Oct. 13.....	111	--	--	48	8.8	46	--	161	4	--	--	--	--	--	352	.48	105	156	18	39	1.6	500	8.4
Oct. 14-17.....	109	--	--	42	8.0	34	--	145	0	--	--	--	--	--	268	.41	87.7	138	19	35	1.3	418	8.0
Oct. 18.....	32.0	--	--	51	9.5	44	--	152	4	--	--	--	--	--	360	.49	89.4	166	35	37	1.5	511	8.3
Oct. 19.....	90.0	--	--	46	6.6	36	--	242	0	--	--	--	--	--	268	.39	70.0	142	0	36	1.3	415	6.9
Oct. 20-27.....	85.9	--	--	48	8.8	40	--	160	0	--	--	--	--	--	343	.47	79.6	156	25	36	1.4	479	7.8
Oct. 28-31.....	109	--	--	42	7.1	31	--	131	0	--	--	--	--	--	281	.38	82.7	134	26	33	1.2	405	7.1
Nov. 1.....	153	--	--	28	4.1	19	--	104	0	--	--	--	--	--	180	.24	79.2	87	2	32	.9	263	7.0
Nov. 2-3.....	466	--	--	21	2.6	14	--	72	0	--	--	--	--	--	155	.21	195	63	4	33	.8	136	8.2
Nov. 4-6.....	818	--	--	26	4.4	18	--	99	0	--	--	--	--	--	185	.25	409	83	2	32	.9	252	7.5
Nov. 7.....	542	--	--	44	7.5	32	--	126	0	--	--	--	--	--	308	.42	451	141	38	33	1.2	425	7.2
Nov. 8-10.....	438	30	0.03	27	5.0	18	4.1	36	0	39	8.0	0.2	0.9	0.06	183	.25	241	88	10	30	.8	256	7.1
Nov. 19-20, 22-30.....	305	--	--	32	5.4	21	--	115	0	--	--	--	--	--	206	.28	214	102	12	31	.9	255	7.3
Nov. 21.....	395	--	--	17	4.0	19	--	32	16	--	--	--	--	--	152	.21	162	59	6	41	1.1	216	9.3
Dec. 1-8.....	386	--	--	38	1.5	19	--	108	0	--	--	--	--	--	201	.27	209	101	12	29	.8	294	7.4
Dec. 9-12.....	149	--	--	42	5.4	23	--	136	0	--	--	--	--	--	254	.35	102	127	16	28	.9	362	7.8
Dec. 13-17.....	247	--	--	33	4.7	17	--	112	0	--	--	--	--	--	195	.26	129	102	10	27	.7	266	7.3
Dec. 18.....	270	--	--	41	6.9	24	--	124	0	--	--	--	--	--	254	.35	185	131	30	28	.9	372	7.8
Dec. 19-31.....	268	--	--	29	4.0	15	--	106	0	--	--	--	--	--	172	.23	124	89	2	27	.7	252	7.4
Jan. 1-3, 1962.....	270	--	--	28	4.9	15	--	103	0	--	--	--	--	--	176	.24	130	90	6	27	.7	248	7.8
Jan. 4-5.....	270	--	--	30	5.1	20	--	114	0	--	--	--	--	--	208	.28	152	96	2	31	.9	275	8.2
Jan. 6-29, 31.....	270	--	--	26	4.4	16	--	101	0	--	--	--	--	--	174	.24	127	83	0	30	.8	240	7.6
Jan. 30.....	270	--	--	30	6.1	22	--	102	14	--	--	--	--	--	190	.26	139	100	0	32	1.0	285	8.9
Feb. 1-17.....	508	30	.00	24	3.9	15	3.8	91	0	28	5.8	.4	1.3	.07	154	.21	211	75	2	29	.7	227	7.3
Feb. 18-20.....	579	--	--	28	3.9	18	--	95	0	--	--	--	--	--	174	.24	272	86	8	31	.8	260	7.2
Feb. 21-26.....	489	--	--	32	5.4	18	--	103	0	--	--	--	--	--	197	.27	260	102	18	28	.8	290	7.1
Mar. 1-25.....	416	--	--	33	5.7	20	--	110	0	--	--	--	--	--	202	.27	227	106	16	29	.8	305	7.4
Mar. 24-26.....	294	--	--	38	7.1	27	--	132	0	--	--	--	--	--	243	.33	193	124	16	32	1.1	364	7.5
Mar. 27-31.....	315	--	--	32	6.8	24	--	116	0	--	--	--	--	--	226	.31	192	138	13	32	1.0	323	7.5
Apr. 1-13.....	482	30	.01	34	6.8	26	4.8	128	0	53	9.8	.5	.9	.12	236	.32	307	113	8	32	1.1	343	7.3
Apr. 14-15.....	561	--	--	29	5.7	20	--	92	7	--	--	--	--	--	211	.29	320	96	9	31	.9	276	8.7
Apr. 16-20, 22, 24-26.....	1,708	--	--	20	2.4	11	--	69	0	--	--	--	--	--	133	.18	613	60	4	29	.6	175	6.9
Apr. 21, 23.....	2,410	--	--	24	4.9	18	--	100	0	--	--	--	--	--	179	.24	1,160	80	0	33	.9	235	7.2
Apr. 27-29.....	1,683	--	--	24	3.2	11	--	69	0	--	--	--	--	--	152	.21	691	73	16	25	.6	205	6.9
Apr. 30-May 2.....	1,603	--	--	34	4.9	18	--	89	0	--	--	--	--	--	204	.28	883	105	32	27	.8	256	7.4
May 3-6.....	1,338	--	--	26	3.6	14	--	74	0	--	--	--	--	--	171	.23	618	80	20	28	.7	228	8.0
May 7-16.....	1,383	--	--	27	5.0	16	--	77	0	--	--	--	--	--	183	.25	930	88	25	28	.7	250	7.6
May 17-29.....	669	--	--	38	7.3	27	--	102	0	--	--	--	--	--	254	.35	459	125	42	32	1.0	367	7.9
May 30-June 1.....	550	--	--	49	9.1	39	--	121	0	--	--	--	--	--	342	.47	508	160	61	35	1.3	490	7.7
June 2, 7-9.....	222	--	--	35	6.4	26	--	106	0	--	--	--	--	--	244	.33	607	114	27	33	1.1	353	7.7
June 3-6.....	745	--	--	45	9.1	40	--	123	0	--	--	--	--	--	324	.44	652	150	49	37	1.4	478	7.5
June 10-12.....	869	--	--	35	7.4	28	--	106	9	--	--	--	--	--	255	.35	598	118	16	34	1.1	351	8.7
June 13-21.....	854	--	--	44	10	34	--	124	0	--	--	--	--	--	301	.41	694	152	50	33	1.2	442	7.2
June 22-30.....	391	--	--	50	10	46	--	159	2	--	--	--	--	--	371	.50	392	166	32	38	1.6	518	8.3
July 1-7.....	315	--	--	58	14	65	--	168	0	--	--	--	--	--	472	.64	401	202	64	41	2.0	664	7.9
July 8-10.....	455	--	--	48	9.2	42	--	182	0	--	--	--	--	--	334	.45	410	158	9	37	1.5	479	7.6
July 11-19, 21-25.....	209	--	--	72	14	61	--	182	0	--	--	--	--	--	504	.69	284	236	87	36	1.7	706	7.7
July 20.....	117	--	--	60	12	50	--	202	0	--	--	--	--	--	415	.56	131	200	34	35	1.5	589	7.7
July 26-Aug. 2.....	150	--	--	48	9.7	40	--	183	0	--	--	--	--	--	332	.45	134	160	6	35	1.4	478	7.7
Aug. 3-7.....	116	--	--	56	11	50	--	186	0	--	--	--	--	--	398	.54	125	186	34	37	1.6	569	7.5
Aug. 8-12.....	85.2	--	--	62	13	56	--	188	0	--	--	--	--	--	440	.60	101	210	56	37	1.7	632	7.9
Aug. 13-20.....	48.6	--	--	71	15	68	--	193	0	--	--	--	--	--	515	.70	67.6	238	80	38	1.9	735	7.8
Aug. 21.....	53.0	--	--	32	3.6	23	--	122	0	--	--	--	--	--	203	.28	29.0	95	0	34	1.0	289	7.9
Aug. 22-25.....	74.2	--	--	68	14	65	--	184	0	--	--	--	--	--	504	.69	101	229	78	38	1.9	707	7.8
Aug. 26-31.....	85.5	--	--	52	10	45	--	158	0	--	--	--	--	--	363	.49	81.8	172	42	36	1.5	531	7.7
Sept. 1-30.....	67.2	31	.01	50	9.5	44	6.2	170	0	102	13	.7	.9	.12	346	.47	62.8	164	24	36	1.5	509	7.8

COLORADO RIVER MAIN STEM
9-345 COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.

LOCATION.---(revised) At bridge at Hot Sulphur Springs, Grand County, 1 mile downstream from gaging station and 3.5 miles upstream from Beaver Creek.

DRAINAGE AREA.---782 square miles (above gaging station).

RECORDS AVAILABLE.---Chemical analyses: April 1947 to September 1960.

Water temperatures: April 1949 to September 1960.

EXTREMES, 1959-60.---Dissolved solids: Maximum, 110 ppm July 1-31; minimum, 42 ppm April 4.

Hardness: Maximum, 70 ppm July 1-31; minimum, 31 ppm March 18-24, 30-31.

Specific conductance: Maximum daily, 176 micromhos July 21; minimum daily, 67 micromhos Mar. 21, 23.

Water temperatures: Maximum, 73° F Sept. 10; minimum, freezing point on many days during November to May.

EXTREMES, 1947-60.---Dissolved solids (1947-50, 1952-60): Maximum, 123 ppm July 22-31, 1955; minimum, 38 ppm June 21-30, 1947.

Hardness (1947-50, 1952-60): Maximum, 80 ppm Aug. 1-10, 1955; minimum, 20 ppm June 21-30, 1947.

Specific conductance: Maximum daily, 210 micromhos Apr. 13, 1958; minimum daily, 48 micromhos June 27, 1947.

Water temperatures (1949-60): Maximum, 75° F Aug. 8, 1957; minimum, freezing point on many days during winter months.

REMARKS.---Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate				
Oct. 1-31, 1959 ---	121	11	0.03	20	3.6	6.8	1.9	82	0	11	1.4	0.4	0.3	0.02	94	0.13	30.7	65	0	18	0.4	151	7.4
Nov. 1-30 -----	104	11	.02	20	2.4	6.9	1.9	77	0	11	1.2	.4	.4	.02	89	.12	25.0	60	0	19	.4	143	7.4
Dec. 1-31 -----	74.3	10	.02	18	3.4	11	1.6	81	0	8.8	3.1	.4	.2	.05	102	.14	20.5	58	0	28	.6	155	7.5
Jan. 1-31, 1960 ---	66.1	9.2	.01	17	2.9	12	1.5	78	0	8.8	3.5	.4	.4	.01	98	.13	17.5	54	0	32	.7	152	7.5
Feb. 1-29 -----	68.0	12	.02	17	2.4	11	1.6	79	0	8.4	3.2	.4	.5	.02	98	.13	18.0	52	0	31	.7	151	7.5
Mar. 1-15 -----	72.2	12	.00	16	2.9	10	1.4	71	0	8.6	2.2	.4	.3	.03	94	.13	18.3	53	0	28	.6	139	6.8
Mar. 16-17, 25-29 --	257	10	.03	14	2.4	4.8	2.7	58	0	6.2	1.0	.4	1.0	---	74	.10	51.3	46	0	17	.3	111	6.9
Mar. 18-24, 30-31 --	172	12	.04	10	1.5	3.1	.9	37	0	4.3	.2	.6	.7	.05	58	.08	26.9	31	1	17	.2	72	7.1
Apr. 1-3 -----	148	---	---	18	2.9	5.7	3.6	74	0	---	---	---	---	---	92	.13	36.8	56	0	17	.3	138	6.4
Apr. 4 -----	176	---	---	13	1.9	4.1	.9	52	0	---	---	---	---	---	42	.06	20.0	41	0	17	.3	97	6.7
Apr. 5-6, 8-21 ---	479	11	.03	16	2.4	5.3	2.4	66	0	6.4	.5	.3	.7	.04	84	.11	109	51	0	18	.3	129	6.7
Apr. 7 -----	686	---	---	11	1.7	3.6	.9	40	0	---	---	---	---	---	58	.08	107	34	1	18	.3	77	6.9
Apr. 22-30 -----	387	12	.03	12	1.9	3.9	.9	48	0	5.6	.8	.3	.6	.04	62	.08	64.8	39	0	17	.3	91	6.8
May 1-7 -----	331	11	.02	14	1.5	4.3	1.0	54	0	7.2	.8	.5	.7	.04	74	.10	66.1	42	0	18	.3	102	7.5
May 8-19 -----	651	11	.04	11	1.5	3.2	1.0	42	0	5.1	.2	.5	.7	.04	60	.08	105	33	0	17	.2	78	7.5
May 20-31 -----	582	9.9	.04	12	1.0	3.5	1.0	46	0	5.8	.5	.6	.5	.04	65	.09	102	35	0	18	.3	86	7.5
June 1-15, 17-22, 24-27 -----	763	9.5	.02	12	1.7	3.6	1.0	47	0	4.9	.5	.4	.8	.05	64	.09	132	38	0	17	.3	88	7.2
June 16, 23, 28-30--	461	12	.04	20	1.9	5.8	1.3	77	0	4.5	1.0	.4	.8	.04	91	.12	113	57	0	18	.3	138	7.4
July 1-31 -----	219	12	.01	23	2.9	6.9	1.2	94	0	5.8	1.1	.2	.3	.05	110	.15	65.0	70	0	17	.4	161	7.6
Aug. 1-31 -----	117	10	.02	22	1.9	6.8	1.2	89	0	6.2	1.1	.2	.3	.05	100	.14	31.6	62	0	19	.4	151	7.6
Sept. 1-30 -----	65.6	10	.01	20	2.7	7.4	1.5	82	0	5.6	1.5	.3	.4	.02	94	.13	16.6	61	0	20	.4	149	7.1
Weighted average	221	all	a0.03	15	2.1	5.3	1.4	62	0	a6.3	a0.9	a0.4	a0.6	a0.04	78	0.11	46.5	46	0	19	0.3	114	---

a Includes estimates where data are missing.

COLORADO RIVER MAIN STEM
9-345 COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.

LOCATION.--(revised) At bridge at Hot Sulphur Springs, Grand County, 1 mile downstream from gaging station and 3.5 miles upstream from Beaver Creek.

DRAINAGE AREA.--782 square miles (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1961.

Water temperatures: April 1949 to September 1961.

EXTREMES, 1960-61.--Dissolved solids: Maximum, 104 ppm July 1-31; minimum, 68 ppm June 1, 3-5.

Hardness: Maximum, 73 ppm July 1-31; minimum, 39 ppm May 1-31.

Specific conductance: Maximum daily, 175 micromhos Aug. 9; minimum daily, 76 micromhos May 28.

Water temperatures: Maximum, 74° F Aug. 28; minimum, freezing point on many days during November to April.

EXTREMES, 1947-61.--Dissolved solids (1947-50, 1952-61): Maximum, 123 ppm July 22-31, 1955; minimum, 38 ppm June 21-30, 1947.

Hardness (1947-50, 1952-61): Maximum, 80 ppm Aug. 1-10, 1955; minimum, 20 ppm June 21-30, 1947.

Specific conductance: Maximum daily, 210 micromhos Apr. 13, 1958; minimum daily, 48 micromhos June 27, 1947.

Water temperatures (1949-61): Maximum, 75° F Aug. 8, 1957; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1960 --	72.9	10	0.00	18	3.2	6.9	0.9	80	0	8.4	2.0	0.4	0.2	0.02	94	0.13	18.5	59	0	20	0.4	140	7.6
Nov. 1-21 -----	102	11	.00	17	3.2	6.6	1.2	73	0	8.0	2.5	.3	.4	.01	88	.12	24.2	55	0	20	.4	133	7.5
Nov. 22-30 -----	88.0	11	.00	18	3.6	10	1.2	84	0	8.8	4.0	.4	.1	.02	100	.14	23.8	59	0	26	.6	154	7.6
Dec. 1-31 -----	49.7	10	.00	18	2.9	12	1.4	85	0	8.8	4.5	.4	.5	.02	102	.14	13.7	56	0	31	.7	156	7.7
Jan. 1-31, 1961 --	47.5	12	.01	16	2.9	12	1.4	81	0	3.8	5.0	.4	.5	.01	100	.14	12.8	52	0	33	.7	155	7.6
Feb. 1-28 -----	54.1	10	.00	16	2.4	11	1.6	76	0	8.6	4.0	.3	.4	.02	98	.13	14.3	50	0	31	.7	150	7.4
Mar. 1-31 -----	78.5	12	.00	18	1.9	10	1.9	79	0	7.0	4.5	.4	.5	.04	100	.14	21.2	54	0	28	.6	154	7.9
Apr. 1-30 -----	150	9.6	.04	18	2.4	6.8	1.9	73	0	6.2	2.5	.4	.4	.03	91	.12	36.9	55	0	20	.4	139	7.7
May 1-31 -----	326	9.8	.03	13	1.7	4.0	.9	50	0	5.1	1.0	.5	.5	.01	72	.10	63.4	39	0	18	.3	96	7.2
June 1, 3-5 -----	372	11	.03	13	2.4	4.5	1.2	50	0	5.4	2.0	.6	.6	.04	58	.09	68.3	42	1	18	.3	97	7.1
June 2, 6-20 -----	323	11	.02	18	1.9	5.7	1.2	70	0	4.9	.5	.3	.4	.02	82	.11	71.5	52	0	19	.3	127	7.3
June 21-23 -----	392	9.3	.01	14	2.4	4.2	.8	55	0	3.3	1.0	.6	.5	.03	74	.10	78.3	44	0	17	.3	100	7.3
June 24-30 -----	308	13	.02	22	2.4	7.1	1.3	92	0	3.9	.5	.3	.5	.03	103	.14	85.7	65	0	19	.4	158	7.6
July 1-31 -----	192	12	.01	22	4.4	7.1	1.4	100	0	4.3	1.5	.4	1.2	.18	104	.14	53.9	73	0	17	.4	166	7.3
Aug. 1-31 -----	101	11	--	23	3.2	7.1	1.9	98	0	4.5	1.0	.3	.7	.19	96	.13	26.2	71	0	17	.4	160	7.5
Sept. 1-30 -----	186	11	--	20	2.7	6.1	1.7	80	0	4.7	1.0	.3	.6	.22	85	.12	42.7	60	0	18	.3	139	7.5

COLORADO RIVER MAIN STEM

9-345 COLORADO RIVER AT HOT SULPHUR SPRINGS, COLO.

LOCATION.--(revised) At bridge at Hot Sulphur Springs, Grand County, 1 mile downstream from gaging station and 3.5 miles upstream from Beaver Creek.

DRAINAGE AREA.--782 square miles (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1962.

Water temperatures: April 1949 to September 1962.

EXTREMES, 1961-62.--Dissolved solids, 132 ppm July 16; minimum, 65 ppm July 1-15.

Hardness: Maximum, 69 ppm July 16; minimum, 40 ppm May 22.

Specific conductance: Maximum daily, 160 micromhos July 23-24, Sept. 27; minimum daily, 71 micromhos May 14.

Water temperatures: Maximum, 67° F Aug. 20; minimum, freezing point on many days during November to April.

EXTREMES, 1947-62.--Dissolved solids (1947-50, 1952-62): Maximum, 132 ppm July 16, 1962; minimum, 38 ppm June 21-30, 1947.

Hardness (1947-50, 1952-62): Maximum, 80 ppm Aug. 1-10, 1955; minimum, 20 ppm June 21-30, 1947.

Specific conductance: Maximum daily, 210 micromhos Apr. 13, 1958; minimum daily, 48 micromhos June 27, 1947.

Water temperatures (1949-62): Maximum, 75° F Aug. 8, 1957; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.

Chemical analyses, in parts per million, water year October 1961 to September 1962.

Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Residue at 180° C			Calcium, magnesium	Non-carbonate				
															Parts per million	Tons per acre-foot	Tons per day						
Oct. 1-31, Nov. 1-30, 1961 -	229	--	--	15	2.4		5.6	--	64	6.0	1.0	--	--	--	83	0.11	51.3	48	0	0.3	111	7.3	--
Dec. 1-31 ----	131	--	--	16	4.9		6.1	--	72	11	2.0	--	--	--	87	.12	30.8	60	1	.3	126	7.4	--
Jan. 1-31, 1962 -	83.5	--	--	16	3.6		11	--	77	13	2.0	--	--	--	84	.11	18.9	56	0	.6	131	7.3	--
Feb. 1-28 ----	105	--	--	17	3.6		11	--	79	13	2.0	--	--	--	87	.12	24.7	58	0	.6	137	7.5	--
Mar. 1-4 ----	130	--	--	18	2.7		16	--	80	20	3.0	--	--	--	104	.14	36.5	56	0	.9	159	7.5	--
Mar. 5-31 ----	257	--	--	13	2.9		9.9	--	52	20	1.5	--	--	--	68	.09	47.2	44	1	.6	106	7.2	--
Apr. 1-30 ----	1,254	--	--	15	1.9		10	--	53	23	.5	--	--	--	70	.10	237	46	3	.7	104	7.4	--
May 1-31 ----	1,475	--	--	14	1.7		4.3	--	51	7.8	.5	0.3	--	--	69	.09	275	42	0	.3	96	7.4	--
May 22 -----	894	13	0.12	15	.7		4.0	0.8	51	6.6	.5	.3	0.4	0.04	74	.10	179	40	0	.3	94	7.3	10
June 1-30 ----	1,026	--	--	14	2.9		2.9	--	56	5.8	1.0	--	--	--	72	.10	199	47	1	.2	103	7.4	--
July 1-15 ----	1,425	--	--	--	--		4.4	--	57	3.3	1.0	--	--	--	65	.09	250	42	0	.3	102	7.5	--
July 16 -----	538	--	--	--	--		8.1	--	98	4.1	1.5	--	--	--	132	.18	192	69	0	.4	157	7.5	--
July 17 -----	538	--	--	--	--		6.0	--	70	1.6	1.5	--	--	--	98	.13	142	48	0	.4	113	7.4	--
July 18-31 ----	299	--	--	--	--		7.7	--	91	5.1	2.0	--	--	--	95	.13	76.7	66	0	.4	153	7.5	--
Aug. 1-31 ----	170	--	--	18	2.7		6.4	--	78	5.4	1.0	--	--	--	97	.13	44.5	57	0	.4	138	7.8	--
Sept. 1-30 ----	82.1	--	--	19	3.9		6.3	--	84	5.8	2.0	--	--	--	102	.14	22.6	64	0	.3	149	7.3	--
Sept. 11 -----	a/ 93.0	9.3	.09	18	2.9		6.2	1.1	75	4.9	.5	.4	.9	.03	80	.11	20.1	56	0	.4	130	7.5	5

a/Discharge at time of sample collection, this analysis not included in computation of weighted averages.

EAGLE RIVER BASIN

9- 690 EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--At bridge at Gypsum, Eagle County, about 400 feet upstream from Gypsum Creek, about 520 feet upstream from bridge on U. S. Highways 6 and 24, and about 550 feet upstream from gaging station.

DRAINAGE AREA.--84.4 square miles above sampling station (957 square miles above gaging station below Gypsum).

RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1960.

Water temperatures: April 1949 to September 1960.

EXTREMES, 1959-60.--Dissolved solids: Maximum, 818 ppm Sept. 1-30; minimum, 108 ppm June 3.

Hardness: Maximum, 472 ppm Sept. 1-30; minimum, 82 ppm June 3.

Specific conductance: Maximum daily, 1,230 micromhos Feb. 6; minimum daily, 183 micromhos June 3.

Water temperatures: Maximum observed, 71° F July 26; minimum observed, freezing point on many days during November to March.

EXTREMES, 1957-60.--Dissolved solids: Maximum, 1,370 ppm Aug. 11-12, 1952; minimum, 106 ppm June 11-20, 1953.

Hardness (1957-50, 1957-60): Maximum, 558 ppm Oct. 11-20, 1957; minimum, 70 ppm June 23, 1957.

Specific conductance: Maximum daily, 1,850 micromhos Aug. 6, 1949; minimum daily, 155 micromhos May 23, 1958.

Water temperatures(1949-60): Maximum observed, 76° F Aug. 24, 1949; minimum observed, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-12, 1959 ---	311	8.2	0.00	106	21	53	2.5	171	0	219	72		0.6	0.04	581	0.79	488	352	212	25	1.2	893	7.7
Oct. 2-----	a/297	9.8	---	120	26	46		208	0	248	56		1.4	---	630	.86	505	408	237	20	1.0	921	7.5
Oct. 13-31 -----	340	7.3	.00	91	18	47	2.4	149	0	180	64		.5	.05	504	.69	463	302	180	25	1.2	783	7.6
Oct. 25 -----	a/321	8.9	---	83	26	54		156	0	207	63		1.3	---	537	.73	465	316	188	27	1.3	805	7.9
Nov. 1-30 -----	270	5.1	---	103	19	59	2.4	158	0	217	80		.8	.03	582	.79	424	336	206	27	1.4	901	7.6
Nov. 5 -----	a/309	8.2	---	91	27	39		170	0	198	54		1.2	---	527	.72	440	338	199	20	.9	794	8.0
Dec. 1-31 -----	188	7.5	---	118	24	72	2.8	172	0	259	100		.5	.04	696	.95	353	394	253	28	1.6	1,070	7.6
Jan. 1-31, 1960 ---	171	9.4	---	120	26	79	2.9	180	0	270	108		.5	.06	727	.99	336	406	258	30	1.7	1,120	7.7
Feb. 1-29 -----	165	9.0	---	116	23	79	3.0	171	0	260	114		.4	.06	711	.97	317	386	246	31	1.8	1,080	7.9
Mar. 1-20 -----	191	8.9	---	113	22	67	3.7	165	0	249	96		.6	.06	664	.90	342	372	237	28	1.5	1,010	7.8
Mar. 21-31 -----	340	9.2	---	91	17	40	3.4	156	0	173	56		.6	.07	481	.65	442	294	166	23	1.0	753	7.6
Apr. 1-6 -----	302	7.7	---	88	18	48	2.2	150	0	179	66		.4	.08	503	.68	410	296	173	26	1.2	786	7.9
Apr. 7-20 -----	564	5.8	---	56	11	18	1.7	120	0	93	25		.4	.05	276	.38	420	186	88	17	.6	445	7.8
Apr. 16 -----	a/529	9.2	---	49	11	16		107	0	82	20		1.0	---	245	.33	416	167	79	17	.5	391	8.0
Apr. 21-29 -----	741	7.0	---	46	8.0	15	1.4	108	0	65	21		.4	.03	222	.30	444	148	59	18	.5	353	7.8
Apr. 21 -----	a/659	9.8	---	54	10	14		113	0	84	18		1.0	---	253	.34	450	175	82	15	.5	402	8.1
Apr. 27 -----	a/600	7.9	---	46	10	17		104	0	72	24		1.0	---	231	.31	374	157	72	19	.6	380	7.9
Apr. 30, May 1-9 ---	480	5.1	---	55	11	26	1.7	118	0	94	35		.8	.02	292	.40	378	182	85	23	.8	466	7.7
May 4 -----	a/450	8.8	---	55	13	29		119	0	99	36		.8	---	298	.41	362	190	92	25	.9	482	7.5
May 10, 13-19, 22-31-	1,578	6.3	---	32	5.4	7.0	1.1	86	0	34	9.0		1.5	.03	143	.19	609	102	31	13	.3	229	7.6
May 11, -----	a/1,100	9.9	---	47	6.6	14		125	0	50	14		1.3	---	202	.27	600	144	42	18	.5	322	7.7
May 11, 12, 20-21 --	1,128	7.7	---	40	7.3	12	1.1	102	0	51	15		1.3	.05	187	.25	570	129	45	17	.5	298	7.7
May 19 -----	a/1,350	7.7	---	34	6.1	18		94	0	53	12		.9	---	158	.21	576	110	33	26	.8	250	7.7
May 25 -----	a/1,360	7.0	---	30	4.9		8.8	78	0	33	10		1.0	---	137	.19	503	94	30	17	.4	225	7.3
June 1-23 -----	2,778	5.1	---	31	3.9	4.9	.9	77	0	34	6.0		.3	.07	135	.18	1,010	94	31	10	.2	214	7.4
June 3 -----	a/2,960	6.2	.03	26	3.9		4.4	71	0	26	3.5		1.0	.06	108	.15	863	82	24	10	.2	183	7.3
June 16 -----	a/2,180	6.1	.04	33	4.9	7.4	1.3	74	0	43	8.5		1.4	.02	143	.19	842	102	41	13	.3	238	7.4
June 24-30 -----	1,577	5.1	---	35	5.8	9.7	1.1	79	0	52	14		.3	.05	169	.23	720	112	47	16	.4	272	7.5
July 1-8 -----	1,067	5.2	.01	44	7.5	15	1.2	92	0	71	20		.3	.00	214	.29	617	141	66	19	.5	349	7.5
July 8 -----	a/909	6.6	---	48	8.0	21		98	0	81	25		.7	---	235	.32	577	154	74	23	.7	391	7.3
July 9-16 -----	796	5.7	.01	57	10	23	1.4	114	0	96	32		.3	.00	287	.39	617	183	90	21	.7	460	7.6
July 17-31 -----	453	6.4	.00	75	14	36	1.9	144	0	136	50		.3	.03	400	.54	489	244	126	24	1.0	633	7.7
July 21 -----	a/490	7.7	---	70	13	38		139	0	126	48		.7	---	379	.52	501	230	116	27	1.1	604	7.3

EAGLE RIVER BASIN--Continued
9- 690 EAGLE RIVER AT GYPSUM, COLO.--Continued

Chemical analyses, in parts per million, Water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Aug. 16, 1960 ----	354	6.9	--	83	15	38	2.1	152	0	150	55		0.2	0.06	439	0.60	420	267	142	23	1.0	686	7.7
Aug. 4 -----	a/ 317	9.3	--	85	16	47		154	0	163	58		.7	--	463	.63	396	276	150	27	1.2	718	7.7
Aug. 7-31 -----	209	8.1	--	125	22	59	3.0	199	0	247	88		.3	.06	671	.91	379	402	239	24	1.3	1,000	7.8
Aug. 18 -----	a/ 220	9.2	--	129	25	58		205	0	265	74		.8	--	685	.93	407	424	256	23	1.2	1,000	7.8
Sept. 1-30 -----	178	10	--	147	26	76	3.4	212	0	310	105		.6	.07	818	1.11	393	472	298	26	1.5	1,190	7.9
Sept. 1 -----	a/ 179	9.8	--	131	26	82		182	0	297	110		.6	--	773	1.05	374	435	286	29	1.7	1,140	7.9
Sept. 3b -----	177	45	--	91	27	92		70	0	305	116		1.7	--	c/ 712	.97	340	340	283	37	2.2	1,030	7.6
Sept. 29 -----	a/ 170	9.3	--	138	27	88		184	0	312	121		.7	--	790	1.07	363	456	305	30	1.8	1,190	7.7
Weighted average -	516	6.3	--	58	10	25	1.6	112	0	101	34		0.6	0.05	304	0.41	460	186	94	23	0.8	473	--

b/ Not included in weighted average.
a/ Discharge at time of collection; analysis not included in computation of weighted average.
c/ Calculated from determined constituents.

EAGLE RIVER BASIN
9- 690 EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--At bridge at Gypsum, Eagle County, about 400 feet upstream from Gypsum Creek, about 520 feet upstream from bridge on U. S. Highways 6 and 24, and about 550 feet upstream from gaging station.

DRAINAGE AREA.--84.4 square miles above sampling station (957 square miles above gaging station below Gypsum).

RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1961.

Water temperatures: April 1949 to September 1961.

EXTREMES, 1960-61.--Dissolved solids: Maximum, 904 ppm Oct. 14; minimum, 102 ppm May 26-31.

Hardness: Maximum, 540 ppm Oct. 14; minimum, 71 ppm May 26-31.

Specific conductance: Maximum daily, 1,380 micromhos Nov. 1; minimum daily, 156 micromhos May 30.

Water temperatures: Maximum, 70° F Aug. 2; minimum, freezing point on many days during November to March.

EXTREMES, 1947-61.--Dissolved solids: Maximum, 1,370 ppm Aug. 11-12, 1952; minimum, 102 ppm May 26-31, 1961.

Hardness (1947-50, 1957-61): Maximum, 558 ppm Oct. 11-20, 1957; minimum, 70 ppm June 23, 1957.

Specific conductance: Maximum daily, 1,850 micromhos Aug. 6, 1949; minimum daily, 155 micromhos May 23, 1958.

Water temperatures (1949-61): Maximum, 76° F Aug. 24, 1949; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Oct. 1-31, 1960--	178	7.9	0.00	146	28	99	3.6	206	0	322	148		0.2	0.04	865	1.18	416	478	309	2.0	1,310	7.8
Oct. 14 -----	a/ 172	9.6	--	172	27	91	--	248	0	355	117		.8	--	904	1.23	420	540	337	1.7	1,310	7.5
Nov. 1 -----	a/ 209	11	--	143	25	124	--	202	0	309	171		1.4	--	896	1.22	506	460	294	2.5	1,360	7.9
Nov. 1-30 -----	224	9.2	--	139	26	94	3.3	195	0	296	138		.6	.09	824	1.12	498	452	292	1.9	1,250	7.7
Dec. 1-31 -----	193	9.7	--	142	26	94	3.3	200	0	304	130		.9	.10	829	1.13	432	460	296	1.9	1,240	7.8
Jan. 1-31, 1961-	166	8.7	.00	142	26	85	2.9	198	0	299	125		1.2	.04	817	1.11	366	460	298	1.7	1,220	7.8
Jan. 14 -----	a/ 172	12	--	143	24	97	--	208	0	308	124		2.1	--	806	1.10	374	456	285	2.0	1,220	7.8
Feb. 1-28 -----	158	7.0	--	134	26	81	2.7	187	0	288	120		.9	.04	781	1.06	333	440	287	1.7	1,170	7.7
Feb. 15 -----	a/ 167	13	--	114	22	56	--	154	0	263	68		1.9	--	614	.84	277	376	250	1.3	923	8.1
Mar. 1-31 -----	161	9.1	--	124	26	69	3.0	171	0	275	105		.6	.04	723	.98	314	416	276	1.5	1,090	7.4
Apr. 1-19 -----	172	7.4	.00	117	24	66	2.6	168	0	265	95		.4	.03	667	.91	310	390	252	1.5	1,020	7.7
Apr. 20-30 -----	237	8.2	.01	90	18	44	2.1	143	0	188	63		.4	.04	500	.68	320	299	182	1.1	775	7.7
May 1-11 -----	400	6.0	--	58	12	27	1.7	113	0	107	37		.4	.02	310	.42	335	193	100	.8	305	7.8
May 12-20 -----	697	7.6	--	42	7.3	13	1.0	94	0	63	19		.6	.04	203	.28	382	134	57	.5	332	7.8
May 21 -----	a/ 1,030	6.8	--	32	4.9	13	--	79	0	43	12		1.7	--	147	.20	409	100	35	.6	248	7.4
May 21-25 -----	1,452	4.9	--	27	4.4	5.8	.9	70	0	31	9.0		.6	.02	125	.17	490	86	29	.3	203	7.8
May 26-31 -----	1,978	3.5	--	22	3.6	4.4	.6	56	0	27	6.0		.8	.03	102	.14	545	71	25	.2	168	7.6
June 1-26 -----	1,518	5.2	--	27	4.1	6.6	.9	62	0	35	9.5		.2	.16	124	.17	508	85	34	.3	208	7.3
June 3 -----	a/ 1,510	6.3	--	25	5.8	9.0	--	65	0	35	10		2.0	--	125	.17	510	86	33	.4	230	7.7
June 16 -----	a/ 1,450	5.6	--	30	4.4	11	--	68	0	43	10		1.9	--	139	.19	544	92	36	.5	222	7.4
June 27 -----	a/ 804	6.5	--	46	7.3	24	--	98	0	75	28		1.1	--	236	.32	512	146	66	.9	389	7.0
June 27-30 -----	740	5.3	--	45	10	19	1.2	96	0	72	28		.2	.16	228	.31	456	154	75	.7	380	7.5
July 1-7, 12 ----	553	5.8	.01	57	11	23	1.1	113	0	91	35		.1	.02	284	.39	424	185	92	.7	468	7.5
July 8-11, 13-16	370	6.5	.01	82	13	38	1.6	151	0	139	55		.1	.02	420	.57	420	257	133	1.0	673	7.6
July 11 -----	a/ 381	6.0	--	83	9.7	35	--	143	0	131	50		.5	.04	393	.53	404	247	131	1.0	624	7.6
July 17-31 -----	276	7.5	.01	107	18	49	2.2	179	0	193	71		.4	.04	545	.74	406	342	195	1.2	849	7.5
July 25 -----	a/ 246	8.2	--	103	17	49	--	171	0	189	69		.4	.04	546	.74	363	328	188	1.2	824	7.9

EAGLE RIVER BASIN--Continued
9- 690 EAGLE RIVER AT GYPSUM, COLO.--Continued

Chemical analyses, in parts per million, water year October 1960 to September 1961

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Aug. 1-6, 1961---	422	6.9	--	86	12	34	2.0	156	0	147	45		0.7	0.03	409	0.56	466	262	134	0.9	656	7.7
Aug. 7, 9-31 ---	241	8.3	--	116	18	68	2.7	191	0	221	90		.5	.01	612	.83	398	362	205	1.6	966	7.7
Aug. 8 -----	278	4.7	--	46	9.2	22	--	100	0	76	29		.6	--	g/236	.32	177	154	72	.8	412	7.6
Aug. 8 -----	a/ 274	7.9	--	103	16	52	--	165	0	191	72		.5	.05	535	.73	396	322	187	1.3	831	7.6
Aug. 27 -----	a/ 301	10	--	113	13	44	--	187	0	186	60		.5	.05	524	.71	426	336	183	1.0	809	7.2
Sept. 1-6 -----	392	8.7	--	108	18	41	2.3	178	0	202	53		.5	.07	527	.72	558	344	198	1.0	821	7.9
Sept. 7-14 -----	715	7.2	--	63	11	24	1.2	118	0	109	30		.6	.05	300	.41	579	203	106	.7	493	7.7
Sept. 15-19 -----	460	7.8	--	88	15	39	2.0	145	0	171	53		.7	.07	439	.60	545	280	161	1.0	699	7.8
Sept. 20-30 -----	698	6.9	--	69	13	24	1.4	117	0	128	32		.9	.02	322	.44	607	224	128	.7	524	7.6

a/ Discharge at time of collection; analysis not included in computation of weighted average.

g/ Calculated from determined constituents.

EAGLE RIVER BASIN

9- 690 EAGLE RIVER AT GYPSUM, COLO.

LOCATION.--At bridge at Gypsum, Eagle County, about 400 feet upstream from Gypsum Creek, about 520 feet upstream from bridge on U. S. Highways 6 and 24, and about 550 feet upstream from gaging station.

DRAINAGE AREA.--844 square miles above sampling station (957 square miles above gaging station below Gypsum).

RECORDS AVAILABLE.--Chemical analyses: April 1947 to September 1962.

Water temperatures: April 1949 to September 1962.

EXTREMES, 1961-62.--Dissolved solids: Maximum, 822 ppm Sept. 15; minimum, 125 ppm June 20-30.

Hardness: Maximum, 486 ppm Sept. 15; minimum, 95 ppm June 20-30.

Specific conductance: Maximum daily, 1,220 micromhos Sept. 15; minimum daily, 194 micromhos June 20.

Water temperatures: Maximum, 66° F July 11, Aug. 20; minimum, freezing point on many days during November to March.

EXTREMES, 1947-62.--Dissolved solids: Maximum, 1,370 ppm Aug. 11-12, 1952; minimum, 102 ppm May 26-31, 1961.

Hardness (1947-50, 1957-62): Maximum, 558 ppm Oct. 11-20, 1957; minimum, 70 ppm June 23, 1957.

Specific conductance: Maximum daily, 1,850 micromhos Aug. 6, 1949; minimum daily, 155 micromhos May 23, 1958.

Water temperatures (1949-62): Maximum, 76° F Aug. 24, 1949; minimum, freezing point on many days during winter months.

REMARKS.--

Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962. Records of specific conductance of daily samples available in district office at

Chemical analyses, in parts per million, water year October 1961 to September 1962.

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Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180°C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct 1-31, 1961-	526	--	--	--	--	--	33	--	112	116	41	--	--	--	334	0.45	474	199	107	1.0	527	7.3	-
Nov. 1-30 -----	323	--	--	--	--	--	55	--	138	163	70	--	--	--	470	.64	410	262	149	1.5	730	7.4	-
Dec. 1-12 -----	250	--	--	--	--	--	68	--	158	196	86	--	--	--	562	.76	379	308	178	1.7	859	7.4	-
Dec. 13-14 -----	173	--	--	--	--	--	101	--	190	261	134	--	--	--	763	1.04	356	396	240	2.2	1,140	7.6	-
Dec. 15-30 -----	230	--	--	--	--	--	65	--	164	208	86	--	--	--	584	.79	363	331	197	1.6	887	7.6	-
Jan. 1-13, 1962-	194	--	--	--	--	--	73	--	171	235	98	--	--	--	630	.86	330	364	224	1.7	988	7.7	--
Jan. 14-31 -----	208	--	--	--	--	--	62	--	161	211	86	--	--	--	565	.77	317	338	206	1.5	894	7.7	-
Feb. 1-28 -----	227	--	--	--	--	--	59	--	161	223	84	--	--	--	585	.80	359	354	222	1.4	911	7.6	-
Feb. 16 -----	a/227	8.5	0.65	110	19	--	59	3.1	158	230	81	0.2	1.7	0.04	609	.83	373	352	222	1.4	927	7.6	5
Mar. 1-31 -----	217	--	--	--	--	--	67	--	166	241	88	--	--	--	630	.86	369	366	230	1.5	973	7.6	-
Apr. 1-14 -----	303	--	--	--	--	--	51	--	160	186	70	--	--	--	519	.71	425	312	181	1.3	823	7.9	-
Apr. 15 -----	480	--	--	--	--	--	8.7	--	152	58	7.0	--	--	--	228	.31	295	176	51	.3	381	7.5	-
Apr. 16-19 -----	867	--	--	--	--	--	19	--	164	94	21	--	--	--	314	.43	735	221	87	.6	509	7.7	-
Apr. 20-30 -----	1,607	--	--	--	--	--	8.0	--	127	49	8.0	--	--	--	196	.27	850	149	45	.3	325	7.8	-
May 1-5 -----	1,146	--	--	--	--	--	13	--	121	63	12	--	--	--	214	.29	662	154	55	.4	359	7.7	-
May 6-31 -----	2,058	--	--	--	--	--	9.4	--	106	44	9.0	--	--	--	162	.22	900	125	38	.4	271	7.7	-
May 23 -----	a/1,520	6.7	.00	39	6.1	--	9.0	.8	97	44	11	.2	1.1	.02	163	.22	669	122	42	.4	287	7.6	10
June 1-10 -----	2,303	--	--	--	--	--	6.1	--	91	37	8.0	--	--	--	146	.20	908	111	36	.3	242	7.5	-
June 11-19 -----	2,960	--	--	--	--	--	2.4	--	84	36	7.0	--	--	--	138	.19	1,100	111	42	.1	234	7.5	-
June 20-30 -----	3,122	--	--	--	--	--	3.8	--	72	33	7.0	--	--	--	125	.17	1,050	95	36	.2	209	7.4	-
July 1-11 -----	2,285	--	--	--	--	--	7.4	--	78	42	11	--	--	--	146	.20	901	107	43	.3	252	7.6	-
July 12-22 -----	1,127	--	--	--	--	--	19	--	108	77	26	--	--	--	246	.33	749	163	74	.7	420	7.6	-
July 23-31 -----	695	--	--	--	--	--	26	--	126	100	38	--	--	--	315	.43	591	204	101	.8	525	7.7	-
Aug. 1-21 -----	420	--	--	--	--	--	41	--	159	156	54	--	--	--	456	.62	517	280	150	1.1	714	7.5	-
Aug. 22-31 -----	295	--	--	--	--	--	53	--	191	221	72	--	--	--	611	.83	487	372	215	1.2	925	7.5	-
Sept. 1-30 -----	231	--	--	--	--	--	73	--	210	284	101	--	--	--	759	1.03	473	452	280	1.5	1,130	7.6	-
Sept. 15 -----	a/217	10	.04	147	29	--	73	3.3	200	319	106	.4	1.7	.06	822	1.12	482	486	325	1.4	1,220	7.6	5

a/ Discharge at time of sample collection; analysis not included in computation of weighted average.

EAGLE RIVER BASIN

9-699 GYPSUM CREEK AT GYPSUM, COLO.

LOCATION.--At bridge on county road, Eagle County, about 100 feet upstream from mouth.

RECORDS AVAILABLE.--Chemical analyses January 1961 to August 1961.

Chemical analyses, in parts per million, November 1958 to August 1961

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Nov. 12, 1958 --		13		127	23	7.8		237	0	221	2.0		2.7	--	514	0.70		412	218	0.2	747	7.9
June 29, 1959 --		16		103	65	24		256	0	346	4.0		.3	--	684	.93		523	313	.5	923	7.9
Sept. 3, 1960 --		51		139	37	22		66	0	461	7.0		3.5	0.24	753	1.02		500	446	.4	935	7.8
Jan. 14, 1961 --		13		121	18	9.0		216	0	202	3.0		2.3	.05	474	.64		374	197	.2	674	7.8
Feb. 15 -----		15		99	18	11		134	0	216	4.0		2.9	.07	432	.59		320	210	.3	609	8.1
Mar. 23 -----		13		109	21	2.5		166	0	213	3.0		2.2	.11	446	.61		358	222	.1	646	8.0
May 21 -----		19		319	41	28		307	0	730	6.5		6.9	.08	1,300	1.77		965	713	.4	1,530	7.8
June 3 -----		17		343	50	22		302	0	812	5.5		7.5	.16	1,410	1.92	1,060	812	.3	1,680	8.0	
June 16 -----		23		279	47	18		94	0	806	5.5		6.4	.15	1,230	1.67		890	813	.3	1,450	7.8
June 27 -----		18		309	43	26		216	0	776	7.0		6.7	.10	1,290	1.75		945	768	.4	1,530	7.8
July 11 -----		15		313	41	22		336	0	683	6.0		4.0	.08	1,250	1.70		950	674	.3	1,510	7.6
July 25 -----		16		289	45	14		326	0	630	6.0		3.5	.07	1,160	1.58		905	638	.2	1,430	7.7
Aug. 8 -----		15		303	30	28		323	0	634	10		3.6	.07	1,180	1.60		880	615	.4	1,450	7.6
Aug. 27 -----		24		204	40	17		206	0	509	6.5		3.6	.13	905	1.23		675	506	.3	1,150	7.5

COLORADO RIVER MAIN STEM

9 705 COLORADO RIVER NEAR DOTSERO, COLO.

LOCATION.--At gaging station about 500 feet south of U. S. Highways 6 and 24, 1 1/2 miles west of Dotsero, and 1 1/2 miles downstream from Eagle River.

DRAINAGE AREA.--4,390 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: May 1959 to September 1960.

REMARKS.--
WSP 1713.

Records of discharge for water year October 1959 to September 1960 given in

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Dis- charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Po- tas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate				
Oct. 2, 1959 ----	992	11	--	73	17	39		155	0	145	41	--	0.7	--	409	0.56	1,100	252	125	25	1.1	647	8.0
Oct. 25 -----	1,290	9.5	--	57	13	29		132	0	102	33	--	.7	--	320	.44	1,110	198	90	24	.9	522	7.5
Nov. 5 -----	1,180	11	--	55	13	30		132	0	97	32	--	.8	--	306	.42	975	189	81	26	1.0	501	8.0
Mar. 18, 1960----	862	--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	466	--
Apr. 21 -----	3,210	11	--	39	7.8	15		116	0	47	12	--	1.2	--	192	.26	1,660	130	35	20	.6	303	7.6
Apr. 27 -----	2,710	11	--	36	7.3	14		102	0	46	14	--	.8	--	183	.25	1,340	120	36	21	.6	290	7.7
May 4 -----	2,160	9.4	--	41	8.8	17		113	0	55	18	--	.8	--	213	.29	1,240	138	45	22	.6	341	7.6
May 11 -----	3,770	14	--	38	5.8	11		109	0	37	10	--	1.5	--	180	.24	1,830	120	31	16	.4	279	7.9
May 19 -----	5,500	9.8	--	32	5.6	9.0		92	0	34	7.5	--	1.0	--	150	.20	2,230	103	28	16	.4	235	7.6
May 25 -----	5,540	10	--	28	4.6	9.9		85	0	29	7.5	--	1.3	--	137	.19	2,050	90	20	19	.5	215	7.4
June 3 -----	7,420	9.2	0.03	30	4.6	6.1	1.0	87	0	28	4.5	0.5	1.3	0.05	134	.18	2,680	95	24	12	.3	214	7.9
June 16 -----	5,290	9.2	.03	34	6.8	9.7	1.1	88	0	50	8.0	.5	.8	.07	169	.23	2,410	112	40	16	.4	262	7.9
July 8 -----	5,100	9.4	--	51	11	22		120	0	87	20	--	.8	--	264	.36	3,640	171	73	21	.7	412	7.7
July 21 -----	1,450	10	--	57	12	29		131	0	99	29	--	.7	--	312	.42	1,220	190	83	25	.9	488	7.3
Aug. 4 -----	1,490	11	--	57	12	28		131	0	103	27	--	.8	--	313	.43	1,260	192	85	24	.9	485	7.5
Aug. 18 -----	904	8.6	--	62	11	35		132	0	111	38	--	.3	--	342	.47	835	200	92	28	1.1	535	7.7
Sept. 1 -----	735	8.8	--	65	13	42		134	0	122	50	--	.4	--	371	.50	736	216	106	30	1.3	592	8.2
Sept. 3 -----	a/ 984	11	--	63	11	44		136	0	117	46	--	.7	--	b/360	.49	956	204	92	32	1.3	566	7.2
Sept. 15 -----	855	8.4	--	65	13	33		132	0	119	40	--	.3	--	351	.48	810	216	108	25	1.0	567	7.6
Sept. 29 -----	992	8.4	--	60	12	36		116	0	119	40	--	.3	--	330	.45	884	198	103	28	1.1	533	7.4

a/ Mean daily discharge.

b/ Sum of determined constituents.

COLORADO RIVER MAIN STEM

9- 705 COLORADO RIVER NEAR DOTSERO, COLO.

LOCATION.--At gaging station about 500 feet south of U. S. Highways 6 and 24, 1 1/2 miles west of Dotsero, Eagle County, and 1 1/2 miles downstream from Eagle River.
DRAINAGE AREA.--4,390 square miles, approximately.

RECORDS AVAILABLE. Chemical analyses: May 1959 to September 1961.

REMARKS.--

Records of discharge for water year October 1960 to September 1961 given in

U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

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Date of collection	discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 14, 1960--	976	8.3		62	12		44		132	122	46		0.3	--	340	0.46	896	204	96	1.3	557	7.4	
Nov. 1 ----	735	15		77	14		53		158	139	63		1.1	--	440	.60	873	250	120	1.4	683	8.3	
Mar. 23, 1961--	841	14		56	11		41		134	108	38		.7	--	6335	.46	761	187	77	1.3	525	8.2	
May 22 ----	4,400	11		36	6.3		13		107	41	10		1.4	--	170	.23	2,020	116	28	.5	269	7.6	
June 4 ----	4,320	11		30	6.3		12		88	41	9.0		.9	--	b153	.21	1,780	102	30	.5	241	8.2	
June 16 ----	3,030	7.9		37	7.8		14		97	54	13		.7	--	b182	.25	1,490	124	44	.5	290	7.2	
June 27 ----	1,640	9.3		49	10		28		122	81	27		.7	--	b265	.36	1,170	163	63	.9	422	7.0	
July 11 ----	1,050	8.3		65	9.7		44		158	109	38		.5	--	335	.46	950	202	72	1.3	540	7.4	
July 25 ----	1,390	9.0		61	12		37		142	115	32		.3	--	332	.45	1,250	200	84	1.1	527	7.3	
Aug. 8 ----	834	9.3		70	14		46		150	138	47		.3	--	386	.52	869	232	109	1.3	619	7.4	
Aug. 27 ----	968	10		75	9.0		34		160	107	39		.8	0.05	357	.49	933	225	94	1.0	569	7.5	

a Includes 8 parts per million of carbonate (CO₃).
b Calculated from determined constituents.

COLORADO RIVER MAIN STEM

9-711 COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.

LOCATION.--At Shoshone power plant, 6 miles upstream from gaging station at Glenwood Springs, Garfield County, which is half a mile upstream from Roaring Fork.
DRAINAGE AREA.--4,560 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1941 to September 1960.

Water temperatures: May 1949 to September 1960.

EXTREMES, 1959-60.--Dissolved solids: Maximum, 504 ppm Nov. 28, 30; minimum, 164 ppm May 14-31.

Hardness: Maximum, 239 ppm Nov. 28, 30; minimum, 108 ppm May 14-31.

Specific conductance: Maximum daily, 889 micromhos Nov. 28; minimum daily, 246 micromhos June 7.

Water temperatures: Maximum observed, 66° F on several days July to September; minimum observed, freezing point on many days during November to March.

EXTREMES, 1941-60.--Dissolved solids: Maximum, 2,030 ppm Aug. 10, 1947; minimum, 105 ppm June 1-10, 1942.

Hardness: Maximum, 1,480 ppm Aug. 10, 1947; minimum, 72 ppm June 1-20, 11-20, 1942.

Specific conductance: Maximum daily, 2,260 micromhos Aug. 10, 1947; minimum daily, 153 micromhos May 24, 1948.

Water temperatures (1949-60): Maximum observed, 71° F July 31, 1954, Aug. 19, 1955; minimum observed, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1959 --	1,368	9.5	0.01	61	13	59	2.1	133	0	115	76		0.5	0.06	403	0.55	1,490	206	97	38	1.8	679	7.7
Nov. 1-27, 29 ----	1,180	9.9	--	59	13	62	2.1	133	0	105	84		.4	.05	405	.55	1,290	199	90	40	1.9	637	7.7
Nov. 28, 30 -----	761	9.2	--	68	17	87	2.1	150	0	130	125		.5	.05	504	.69	1,040	239	116	44	2.4	865	8.1
Dec. 1 -----	860	10	--	67	14	77		142	0	122	105		.4	--	472	.64	1,100	224	108	43	2.2	803	7.7
Dec. 2-20, 22-31 -	959	10	--	55	11	59	2.1	128	0	90	83		.4	.10	386	.52	999	183	78	41	1.9	654	7.6
Dec. 21 -----	945	10	--	66	14	83		136	0	115	120		.4	--	492	.67	1,260	220	108	45	2.4	837	7.5
Jan. 1-31, 1960 --	1,093	8.4	--	49	10	59	2.1	115	0	78	86		.2	.04	362	.49	1,070	166	72	43	2.0	615	7.6
Feb. 1-29 -----	964	8.1	--	48	11	63	2.1	118	0	76	92		.2	.07	370	.50	963	164	67	45	2.1	643	7.6
Mar. 1-24 -----	1,209	10	--	57	10	56	3.0	126	0	88	82		.3	.05	376	.51	1,230	184	81	39	1.8	637	7.8
Mar. 25-31 -----	2,521	11	--	54	8.0	31	5.2	140	0	70	40		1.5	.08	299	.41	2,040	168	53	28	1.0	470	7.8
Apr. 1-5 -----	1,550	12	.02	52	10	52	3.1	124	0	81	72		.5	.06	348	.47	1,460	172	70	39	1.7	586	7.6
Apr. 6-30 -----	3,039	11	.01	44	7.3	24	1.8	119	0	47	30		.6	.07	226	.31	1,850	139	41	27	.9	381	7.6
May 1-13 -----	2,795	11	--	45	8.0	30	1.5	120	0	52	40		.5	.07	248	.34	1,870	145	47	31	1.1	424	7.8
May 14-31 -----	6,051	10	--	35	4.9	13	1.1	102	0	31	16		.4	.06	164	.22	2,580	108	24	21	.5	282	7.7
June 1-23 -----	6,793	8.0	--	36	5.1	13	1.0	92	0	40	17		.8	.02	175	.24	3,210	110	35	20	.5	279	7.6
June 24-30 -----	3,369	7.8	--	40	7.3	25	1.3	96	0	61	33		.6	.03	232	.32	2,110	131	52	29	1.0	379	7.7
July 1-17 -----	2,229	7.9	.00	52	10	38	1.8	119	0	87	49		.5	.03	322	.44	1,940	171	73	32	1.3	514	7.6
July 18-31 -----	1,704	8.9	.00	63	12	58	2.3	136	0	113	77		.5	.04	422	.57	1,940	206	94	38	1.8	673	7.8
Aug. 1-31 -----	1,185	9.4	--	62	12	70	2.4	134	0	113	96		.6	.03	439	.60	1,400	206	96	42	2.1	730	7.7
Sept. 1-30 -----	1,121	9.4	--	61	12	69	2.3	130	0	112	96		1.1	.03	438	.60	1,330	204	97	42	2.1	733	7.8
Weighted average--	2,066	9.3	--	47	8.4	36	1.8	114	0	67	49		0.6	0.05	283	0.38	1,580	152	59	34	1.3	473	--

a Includes estimates where data are missing.

COLORADO RIVER MAIN STEM

9-711 COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.

LOCATION.--At Shoshone power plant, 6 miles upstream from gaging station at Glenwood Springs, Garfield County, which is half a mile upstream from Roaring Fork.

DRAINAGE AREA.--4,560 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1941 to September 1961.

Water temperatures: May 1949 to September 1961.

EXTREMES, 1960-61.--Dissolved solids: Maximum, 459 ppm Oct. 1-31; minimum, 169 ppm May 22-31.

Hardness: Maximum, 226 ppm Nov. 1-30; minimum, 107 ppm June 1-14.

Specific conductance: Maximum daily, 870 micromhos July 1; minimum daily, 252 micromhos June 2.

Water temperatures: Maximum observed, 69° F Aug. 19; minimum observed, freezing point on many days during November to March.

EXTREMES, 1941-61.--Dissolved solids: Maximum, 2,030 ppm Aug. 10, 1947; minimum, 105 ppm June 1-10, 1942.

Hardness: Maximum, 1,480 ppm Aug. 10, 1947; minimum, 72 ppm June 1-10, 11-20, 1942.

Specific conductance: Maximum daily, 2,260 micromhos Aug. 10, 1947; minimum daily, 153 micromhos May 24, 1948.

Water temperatures (1949-61): Maximum observed, 71° F July 31, 1954, Aug. 19, 1955; minimum observed, freezing point on many days during winter months.

REMARKS.-- at Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1960 --	998	8.3	0.01	65	15	74	2.1	136	0	121	102		0.5	0.05	459	0.62	1,240	222	110	42	2.2	771	7.6
Nov. 1-30 -----	936	9.0	--	66	15	73	2.5	142	0	122	98		.8	.03	458	.62	1,160	226	110	41	2.1	762	7.6
Dec. 1-31 -----	984	11	--	58	12	64	2.3	133	0	96	93		.1	.04	408	.55	1,080	192	83	42	2.0	686	7.8
Jan. 1-31, 1961 --	1,090	9.8	.00	55	9.7	63	2.2	124	0	79	94		.1	.03	382	.52	1,090	176	74	43	2.1	653	7.8
Feb. 1-28 -----	1,014	9.3	--	54	10	68	2.0	120	0	82	99		.0	.03	393	.53	1,080	176	78	45	2.2	674	7.5
Mar. 1-31 -----	886	11	--	60	12	68	2.6	131	0	106	99		.2	.03	434	.59	1,040	200	93	42	2.1	730	7.6
Apr. 1-30 -----	1,113	11	.00	58	11	59	2.4	131	0	94	85		.2	.04	396	.54	1,190	188	81	40	1.9	667	8.1
May 1-11 -----	1,735	10	--	49	9.2	41	1.7	116	0	66	62		.3	.03	310	.42	1,450	161	66	35	1.4	522	7.7
May 12-21 -----	2,849	11	--	42	7.3	24	1.6	110	0	49	32		.3	.04	229	.31	1,760	135	45	28	.9	376	7.6
May 22-31 -----	5,682	9.0	--	35	5.1	14	1.1	98	0	32	18		.3	.04	169	.23	2,590	109	29	22	.6	280	7.5
June 1-14 -----	4,739	8.6	--	34	5.6	17	1.2	93	0	32	23		.3	.17	178	.24	2,280	107	31	25	.7	299	7.6
June 15-23 -----	2,669	7.7	--	39	8.3	29	1.2	98	0	57	39		.3	.17	234	.32	1,690	132	52	32	1.1	402	7.6
June 24-30 -----	1,729	8.8	--	51	11	48	2.0	124	0	80	66		.3	.19	333	.45	1,550	173	71	37	1.6	561	7.7
July 1-31 -----	1,341	9.4	.01	68	13	59	2.4	152	0	113	82		.2	.03	432	.59	1,560	223	98	36	1.7	717	7.7
Aug. 1-31 -----	1,297	10	--	67	11	69	2.3	144	0	112	93		.6	.06	433	.59	1,520	214	96	41	2.0	734	7.7
Sept. 1-26 -----	1,703	9.3	--	53	11	53	2.1	136	0	107	69		.6	.05	379	.52	1,740	205	93	36	1.6	636	7.6
Sept. 27-30 -----	2,642	10	--	54	12	36	1.9	128	0	88	46		.6	.04	312	.42	2,230	183	78	30	1.2	523	7.6

COLORADO RIVER MAIN STEM

9-711 COLORADO RIVER NEAR GLENWOOD SPRINGS, COLO.

LOCATION.--At Shoshone power plant, 6 miles upstream from gaging station at Glenwood Springs, Garfield County, which is half a mile upstream from Roaring Fork.

DRAINAGE AREA.--4,560 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1941 to September 1962.

Water temperatures: May 1949 to September 1962.

EXTREMES, 1961-62.--Dissolved solids: Maximum, 429 Sept. 1-30; minimum, 163 ppm May 9.

Hardness: Maximum, 210 ppm Sept. 1-30; minimum, 114 ppm July 1-11.

Specific conductance: Maximum daily, 727 micromhos Sept. 8, 23; minimum daily, 241 micromhos May 15.

Water temperatures: Maximum, 68° F Sept. 4; minimum, freezing point on many days during November to March.

EXTREMES, 1941-62.--Dissolved solids: Maximum, 2,030 ppm Aug. 10, 1947; minimum, 105 ppm June 1-10, 1942.

Hardness: Maximum, 1,480 ppm Aug. 10, 1947; minimum, 72 ppm June 1-10, 11-20, 1942.

Specific conductance: Maximum daily, 2,260 micromhos Aug. 10, 1947; minimum daily, 153 micromhos May 24, 1948.

Water temperatures (1949-62): Maximum, 71° F July 31, 1954, Aug. 19, 1955; minimum, freezing point on many days during winter months.

REMARKS.-- at Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.

Chemical analyses, in parts per million, water year October 1961 to September 1962.

Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-22, 1961-	2,234	--	--	--	--	--	46	--	118	81	58	--	--	--	311	0.42	1,880	163	66	1.6	513	7.5	--
Oct. 23-31 ----	1,716	--	--	--	--	--	54	--	122	83	72	--	--	--	339	.46	1,570	171	71	1.8	574	7.6	--
Nov. 1-30 ----	1,364	--	--	--	--	--	58	--	127	91	82	--	--	--	369	.50	1,360	188	84	1.8	627	7.6	--
Dec. 1-31 ----	1,258	--	--	--	--	--	59	--	124	81	80	--	--	--	344	.47	1,170	171	69	2.0	590	7.6	--
Jan. 1-31, 1962-	1,297	--	--	--	--	--	54	--	123	72	71	--	--	--	321	.44	1,124	159	58	1.9	547	7.6	--
Feb. 1-28 ----	1,631	--	--	--	--	--	49	--	119	77	64	--	--	--	307	.42	1,350	161	63	1.7	526	7.5	--
Feb. 16 -----	a/ 1,790	9.9	1.3	53	6.1	--	64	2.8	116	76	87	0.3	1.4	0.05	362	.49	1,750	156	61	2.2	613	7.5	10
Mar. 1 -----	1,600	--	--	--	--	--	56	--	122	79	68	--	--	--	324	.44	1,400	156	56	2.0	547	7.4	--
Mar. 2-18 ----	1,950	--	--	--	--	--	34	--	109	58	44	--	--	--	257	.35	1,350	138	49	1.3	441	7.7	--
Mar. 19-28 ----	1,892	--	--	--	--	--	50	--	129	91	70	--	--	--	355	.48	1,810	189	83	1.6	609	7.7	--
Mar. 29-31 ----	2,623	--	--	--	--	--	30	--	132	67	34	--	--	--	271	.37	1,920	161	53	1.0	457	7.6	--
Apr. 1-7 -----	2,809	--	--	--	--	--	32	--	139	74	37	--	--	--	293	.40	2,220	174	60	1.0	494	7.8	--
Apr. 8 -----	2,520	--	--	--	--	--	6.8	--	214	23	1.0	--	--	--	196	.27	1,350	186	11	.2	353	7.9	--
Apr. 9-16 ----	3,799	--	--	--	--	--	25	--	143	71	28	--	--	--	279	.38	2,860	177	60	.8	463	7.8	--
Apr. 17-30 ----	9,354	--	--	--	--	--	12	--	132	40	9.5	--	--	--	222	.30	5,610	138	30	.4	320	7.7	--
May 1-31 ----	8,983	--	--	--	--	--	14	--	108	44	12	--	--	--	170	.23	4,120	120	31	.6	282	7.5	--
May 9 -----	a/ 8,540	10	.64	39	4.6	--	8.4	1.6	113	31	8.5	.2	2.8	.04	163	.22	3,760	116	23	.3	262	7.6	30
June 1-30 ----	7,751	--	--	--	--	--	14	--	98	47	14	--	--	--	171	.23	3,580	118	38	.6	281	7.5	--
July 1-11 ----	6,927	--	--	--	--	--	15	--	90	47	17	--	--	--	172	.23	3,220	114	40	.6	288	7.5	--
July 12-23 ----	3,962	--	--	--	--	--	27	--	108	72	32	--	--	--	246	.33	2,630	149	60	1.0	419	7.6	--
July 24-31 ----	2,685	--	--	--	--	--	38	--	123	93	47	--	--	--	310	.42	2,250	181	80	1.2	527	7.7	--
Aug. 1-31 ----	1,786	--	--	--	--	--	50	--	129	94	68	--	--	--	370	.50	1,780	190	84	1.6	614	7.4	--
Sept. 1-30 ----	1,243	--	--	--	--	--	61	--	136	105	87	--	--	--	429	.58	1,440	210	98	1.8	713	7.4	--
Sept. 15 -----	a/ 1,270	9.9	.11	65	11	--	64	2.4	132	110	86	.3	.7	.05	423	.58	1,450	208	100	1.9	719	7.6	--

a/ Discharge of time of sample collection, this analysis not included in computation of weighted averages.

COLORADO RIVER MAIN STEM
9- 725 COLORADO RIVER AT GLENWOOD SPRINGS, COLO.

LOCATION.--At cableway 1/4 mile below gaging station at power plant at Glenwood Springs, Garfield County, 10 feet from U. S. Highways 6 and 24 and half a mile upstream from Roaring Fork.

DRAINAGE AREA.--4,560 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: May 1959 to September 1960.

REMARKS ---

Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960

Date of collection	Dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Po- tas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (Residue at 180°C)			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate				
Oct. 2, 1959 -----	1,360	9.9	--	71	18	99		160	0	141	134	--	0.6	--	568	0.77	2,090	252	121	46	2.7	951	7.7
Oct. 25 -----	1,310	12	--	58	14	92		139	0	98	130	--	.3	--	480	.65	1,700	200	86	50	2.8	833	8.1
Nov. 5 -----	1,360	11	--	58	15	87		142	0	105	120	--	.7	--	476	.65	1,750	206	90	48	2.6	818	7.6
Apr. 21, 1960 ----	3,140	13	--	42	8.3	37		118	0	52	49	--	1.4	--	263	.36	2,230	140	43	37	1.4	433	7.8
Apr. 27, -----	2,830	11	--	41	7.8	50		108	0	52	70	--	1.4	--	292	.40	2,230	134	45	45	1.9	495	7.9
May 4 -----	2,000	12	--	46	9.7	75		124	0	64	105	--	.7	--	378	.51	2,040	154	52	51	2.6	639	8.2
May 11 -----	4,160	11	--	40	7.1	32		115	0	43	42	--	.7	--	238	.32	2,670	128	34	36	1.2	395	8.0
May 19 -----	5,840	12	--	33	6.6	21		101	0	35	26	--	.9	--	192	.26	3,030	110	27	30	.9	309	7.8
May 25 -----	6,060	9.6	--	32	5.4	21		98	0	28	27	--	1.2	--	178	.24	2,910	102	22	31	.9	299	7.3
June 3 -----	8,320	8.3	0.03	34	4.6	16	1.0	100	0	27	21	0.5	1.2	0.06	172	.23	3,860	105	23	25	.7	281	7.4
June 16 -----	5,330	10	.02	35	7.3	25	1.4	95	0	45	33	.4	1.0	.07	209	.28	3,010	118	40	31	1.0	351	7.5
July 8 -----	2,160	10	--	52	11	63		126	0	87	84	--	.7	--	378	.51	2,200	176	73	44	2.1	627	7.5
July 21 -----	1,720	9.8	--	57	12	83		128	0	96	117	--	.3	--	459	.62	2,130	190	85	49	2.6	772	7.6
Aug. 4 -----	1,410	12	--	67	15	100		144	0	133	132	--	.6	--	552	.75	2,100	226	108	49	2.9	904	7.7
Aug. 18 -----	1,120	8.6	--	62	13	112		140	0	107	160	--	.2	--	556	.76	1,680	207	92	54	3.4	943	7.8
Sept. 1 -----	909	8.3	--	65	14	140		144	0	122	198	--	.2	--	633	.86	1,550	220	102	58	4.1	1,080	8.0
Sept. 3 -----	1,050	13	--	59	9.7	61		130	0	103	75	--	.7	--	385	.52	1,090	188	81	41	1.9	623	8.1
Sept. 15 -----	1,280	8.7	--	61	11	94		130	0	101	135	--	.2	--	490	.67	1,690	198	91	51	2.9	855	7.8
Sept. 29 -----	1,190	8.5	--	61	13	120		131	0	106	175	--	.4	--	560	.76	1,800	204	97	56	3.7	987	7.9
a/mean daily discharge.																							
b/Calculated from determined constituents.																							

COLORADO RIVER MAIN STEM
9- 725 COLORADO RIVER AT GLENWOOD SPRINGS, COLO.

LOCATION.--At cableway 1/4 mile below gaging station at power plant at Glenwood Springs, Garfield County, 10 feet from U. S. Highways 6 and 24 and half a mile upstream from Hoaring Fork.
DRAINAGE AREA.--4,560 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: May 1959 to September 1961.
REMARKS.--Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 14, 1960 --	1,100	9.1		64	12		126		144	109	177		0.3	--	571	0.78	1,700	208	90	3.8	984	7.5	
Nov. 2 -----	708	13		82	15		185		176	150	260		.6	--	796	1.08	1,520	254	120	5.0	1,340	8.0	
Jan. 14, 1961 --	1,130	13		55	9.7		98		130	86	137		.9	--	477	.65	1,460	176	69	3.2	809	8.1	
Feb. 16 -----	1,180	13		56	12		106		134	87	154		1.0	--	a/495	.67	1,580	188	78	3.4	861	7.0	
Mar. 23 -----	1,130	12		63	14		104		142	117	141		.9	--	a/522	.71	1,590	212	96	3.1	890	8.2	
May 22 -----	4,310	12		38	4.9		33		115	47	31		1.2	--	219	.30	2,550	116	22	1.3	356	7.7	
June 4 -----	4,480	9.3		34	7.8		25		97	44	31		1.2	--	a/200	.27	2,420	116	36	1.0	326	7.2	
June 17 -----	2,900	8.6		40	6.8		44		106	60	52		.6	--	a/264	.36	2,070	128	41	1.7	434	8.0	
June 27 -----	1,700	7.9		53	8.8		70		122	79	98		.5	--	a/377	.51	1,730	168	68	2.4	644	7.8	
July 11 -----	1,150	9.5		79	9.2		109		162	113	155		1.6	0.05	571	.78	1,770	234	101	3.1	972	7.1	
July 25 -----	1,350	10		70	11		92		146	124	121		.7	.06	514	.70	1,870	220	100	2.7	850	7.4	
Aug. 8 -----	1,040	10		84	13		120		165	143	168		1.1	.05	639	.87	1,790	262	127	3.2	1,070	7.5	
Aug. 27 -----	1,400	9.5		63	10		83		138	98	117		.6	.05	465	.63	1,760	199	86	2.6	789	7.7	

a/Calculated from determined constituents.

ROARING FORK BASIN

9- 350 ROARING FORK AT GLENWOOD SPRINGS, COLO.

LOCATION.--(revised) At gaging station at Glenwood Springs, Garfield County, 1,500 feet upstream from mouth.

DRAINAGE AREA.--1,460 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1960.

Water temperatures: November 1958 to September 1960.

REMARKS.--Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960

Date of collection	dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Pot- as- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate				
Oct. 2, 1959 -----	877	12		83	16	26		184	0	133	27		1.0		400	0.54	947	272	121	17	0.7	620	7.5
Oct. 25 -----	706	10		76	14	22		164	0	122	24		1.0		362	.49	690	248	114	16	.6	567	8.0
Nov. 5 -----	599	11		75	14	22		163	0	122	24		.8		358	.49	579	247	113	16	.6	563	8.0
Apr. 16, 1960 ----	1,110	12		55	9.2	12		130	0	78	8.0		1.4		242	.33	725	174	67	13	.4	372	7.7
Apr. 21 -----	1,180	11		52	8.3	9.2		118	0	72	8.0		1.0		229	.31	730	164	67	11	.3	348	8.0
Apr. 27 -----	1,010	8.6		52	8.3	12		120	0	71	12		.8		236	.32	644	164	66	14	.4	365	7.8
May 4 -----	690	11		61	11	17		136	0	91	18		.8		286	.39	533	196	84	16	.5	438	8.1
May 11 -----	1,730	11		48	6.8	9.2		116	0	57	8.5		1.9		204	.28	953	148	53	12	.3	318	7.7
May 19 -----	2,140	9.9		44	5.8	10		102	0	57	9.0		1.0		191	.26	1,100	134	50	14	.4	299	8.2
May 25 -----	2,340	8.7		40	5.8	11		100	0	50	9.0		1.0		178	.24	1,120	124	42	16	.4	284	7.6
June 3 -----	5,660	8.5	0.03	38	3.4	4.5	0.7	104	0	30	3.2	0.4	1.5	0.02	163	.22	2,490	110	25	8	.2	236	7.8
June 16 -----	4,110	8.4	.00	34	4.1	5.8	1.0	88	0	35	5.0	.3	1.4	.02	160	.22	1,780	103	31	11	.2	236	7.4
July 8 -----	1,870	8.5		51	8.0	13		120	0	68	13		.8		226	.31	1,140	160	62	15	.4	357	7.5
July 21 -----	1,010	10		67	12	20		158	0	94	24		.8		325	.44	886	218	88	17	.6	497	7.5
Aug. 4 -----	772	12		79	14	26		182	0	115	30		.9		384	.52	800	255	106	18	.7	582	7.6
Aug. 18 -----	480	12		91	17	41		195	0	147	50		.3		467	.64	605	294	134	23	1.0	718	7.6
Sept. 1 -----	480	12		87	17	42		182	0	156	48		.5		462	.63	599	288	139	24	1.1	708	8.1
Sept. 15 -----	425	11		99	19	42		213	0	162	54		.3		504	.69	578	327	152	22	1.0	831	7.8
Sept. 29 -----	450	12		97	18	36		206	0	157	44		.3		474	.64	576	317	148	20	.9	745	7.7

ROARING FORK BASIN

9- 850 ROARING FORK AT GLENWOOD SPRINGS, COLO.

LOCATION.--(revised) At gaging station at Glenwood Springs, Garfield County, 1,500 feet upstream from mouth.

DRAINAGE AREA.--1,460 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1961.

Water temperatures: November 1958 to September 1961.

REMARKS.--Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961

Date of collection	dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calc-ium (Ca)	Mag-ne-sium (Mg)	So-dium (Na)	Po-tas-sium (K)	Bicar-bonate (HCO ₃)	Car-bonate (CO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO ₃)	Bo-ron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Per-cent so-dium	So-dium adsorp-tion ratio	Specific conduct-ance (micro-mhos at 25°C)	pH
															Parts per mil-lion	Tons per acre-foot	Tons per day	Calcium mag-nesium	Non-carbon-ate				
Oct. 14, 1960 --	498	12		97	17	32		208	0	151	39		0.6	--	457	0.62	614	313	142	18	0.8	714	7.7
Nov. 2 -----	498	13		90	17	27		185	0	153	30		.8	--	426	.58	573	295	143	17	.7	658	7.4
Jan. 14, 1961 --	425	15		80	18	30		148	0	165	31		1.6	--	417	.57	479	274	153	19	.8	625	7.3
Feb. 16 -----	328	12		89	17	33		187	0	162	30		.9	--	a436	.59	386	292	139	20	.9	664	6.9
Mar. 23 -----	336	11		89	15	33		182	0	162	26		1.6	--	a427	.58	387	284	135	20	.8	650	8.1
May 17 -----	1,090	12		53	8.8	16		120	0	79	15		.8	--	a244	.33	718	168	70	17	.5	393	7.9
May 22 -----	2,650	11		34	6.3	8.5		91	0	43	7.0		1.0	--	156	.21	1,120	112	37	14	.3	245	8.0
June 4 -----	3,010	8.6		34	6.8	7.8		88	0	46	7.0		1.1	--	a154	.21	1,250	114	42	13	.3	248	8.0
June 16 -----	2,990	7.6		34	7.8	7.6		91	0	44	8.0		.7	--	a155	.21	1,250	116	41	12	.3	248	8.2
June 27 -----	2,150	8.6		48	7.3	13		116	0	65	10		1.4	--	a210	.29	1,220	150	55	15	.4	335	8.1
July 11 -----	950	7.5		69	11	25		160	0	105	22		.1	--	322	.44	826	218	87	20	.7	501	7.3
July 25 -----	531	11		86	14	39		194	0	137	39		.2	--	425	.58	609	272	113	24	1.0	659	7.6
Aug. 8 -----	538	11		86	16	36		192	0	137	41		.3	--	429	.58	623	280	123	22	.9	673	7.5
Aug. 27 -----	510	13		103	12	32		208	0	140	40		1.4	0.04	454	.62	625	304	133	19	.8	715	7.5

a Calculated from determined constituents.

ROARING FORK BASIN

9- 850 ROARING FORK AT GLENWOOD SPRINGS, COLO.

LOCATION.--(revised) At gaging station at Glenwood Springs, Garfield County, 1,500 feet upstream from mouth.

DRAINAGE AREA.--1,460 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1962.

Water temperatures: November 1958 to September 1962.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.

Chemical analyses, in parts per million, water year October 1961 to September 1962.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Feb. 16, 1962 --	a/ 468	11	0.09	89	12	22	1.9	177	0	136	22	0.1	1.2	0.06	395	0.54	499	270	125	0.6	598	7.6
May 9 -----	a/ 4,890	8.0	.08	37	5.1	4.4	1.0	100	0	33	3.5	.1	2.8	.04	148	.20	1,950	113	31	.2	245	7.6
May 9-31 -----	3,419	--	--	--	--	5.8	--	104	0	45	7.5	--	--	--	179	.24	1,650	130	45	.2	276	7.4
June 1-30 -----	5,398	--	--	--	--	2.7	--	93	0	34	4.5	--	--	--	145	.20	2,110	112	36	.1	238	7.4
July 1-14 -----	4,711	--	--	--	--	6.3	--	94	0	38	6.5	--	--	--	152	.21	1,930	112	35	.3	249	7.4
July 15-31 -----	2,218	--	--	--	--	9.8	--	124	0	65	12	--	--	--	222	.30	1,330	165	63	.3	372	7.5
Aug. 1-31 -----	1,031	--	--	--	--	22	--	171	0	103	28	--	--	--	342	.47	952	238	98	.6	559	7.6
Sept. 1-30 -----	586	--	--	--	--	34	--	202	0	143	43	--	--	--	443	.60	701	302	136	.8	706	7.8
Sept. 15 -----	a/ 510	12	.35	92	17	38	2.0	196	0	148	44	.3	.9	.04	456	.62	628	300	139	1.0	731	7.6

a/ Discharge at time of sample collection.

COLORADO RIVER MAIN STEM
9. 955 COLORADO RIVER NEAR CAMEO, COLO.

LOCATION.--At Grand Valley project diversion dam, 3.7 miles upstream from Cameo, Mesa County, 0.4 mile upstream from Plateau Creek and 5.9 miles downstream from gaging station.
DRAINAGE AREA.--Approximately 8,050 square miles above gaging station.
RECORDS AVAILABLE.--Chemical analyses: October 1933 to September 1960.
Water temperatures: April 1949 to September 1960.
EXTREMES, 1959-60.--Dissolved solids: Maximum, 788 ppm Nov. 30; minimum, 205 ppm June 1-22.
Hardness: Maximum, 302 ppm Nov. 30; minimum, 121 ppm June 1-22.
Specific conductance: Maximum daily, 1,380 micromhos Dec. 21-22; minimum daily, 306 micromhos June 20.
Water temperatures: Maximum observed, 72° F July 30; minimum observed, freezing point on many days during December to March.
EXTREMES, 1933-60.--Dissolved solids (1933-43, 1950-60): Maximum, 1,050 ppm Dec. 21-31, 1939; minimum, 143 ppm June 11-20, 1935.
Hardness (1933-35, 1958-60): Maximum, 399 ppm July 21-31, 1934; minimum, 98 ppm June 21-30, 1935.
Specific conductance (1941-60): Maximum daily, 1,850 micromhos June 8, 1944; minimum daily, 244 micromhos July 2, 1947, July 3, 1957.
Water temperatures (1949-60): Maximum observed, 75° F July 27, 1953, July 12, 29, 31, 1954, July 28, 1956; minimum observed, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1959 --	2,242	8.2		75	18	107		170	0	149	140		1.0	--	599	0.81	3,630	260	121	47	2.9	1,010	7.5
Nov. 1-29 -----	1,969	8.3		75	19	123		174	0	157	162		1.5	--	636	.86	3,380	268	125	50	3.3	1,070	7.8
Nov. 30 -----	1,600	8.8		86	21	168		196	0	181	225		2.1	--	788	1.07	3,400	302	141	55	4.2	1,340	7.9
Dec. 1-9, 11-16, 18-24, 26-31 -----	1,624	8.8		76	20	156		169	0	168	210		1.7	0.01	748	1.02	3,280	272	133	55	4.1	1,270	7.8
Dec. 10 -----	1,700	5.7		52	10	73		114	0	91	100		1.4	--	410	.56	1,880	172	79	48	2.4	734	8.1
Dec. 17 -----	1,500	4.4		43	9.7	81		94	0	82	115		.5	--	404	.55	1,640	148	71	54	2.9	730	7.4
Dec. 25 -----	1,630	6.3		57	12	84		130	0	105	112		.6	--	462	.63	2,030	192	85	49	2.6	812	7.5
Jan. 1-31, 1960 --	1,627	9.0		71	18	132		160	0	149	175		1.7	--	655	.89	2,880	248	117	54	3.6	1,120	8.0
Feb. 1-29 -----	1,593	8.1		69	21	158		163	0	174	201		3.2	--	700	.95	3,010	258	124	57	4.2	1,210	7.9
Mar. 1-22 -----	1,761	9.9		67	22	141		176	0	168	172		3.7	--	669	.91	3,180	257	113	54	3.9	1,130	7.7
Mar. 23-31 -----	3,241	9.8		60	15	69		161	0	105	83		2.0	--	439	.60	3,840	210	78	42	2.1	722	7.3
Apr. 1-7 -----	2,474	10		67	16	103		161	0	131	134		.4	--	564	.77	3,770	234	102	49	2.9	925	7.6
Apr. 8-29 -----	4,686	11		53	10	49		144	0	71	62		.3	--	338	.46	4,280	174	56	38	1.6	559	7.5
Apr. 30, May 1-10 --	3,219	9.4		55	11	74		141	0	90	96		.2	--	417	.57	3,620	184	68	47	2.4	697	7.7
May 11-13 -----	6,713	11		57	9.2	44		158	0	61	58		.3	--	338	.46	6,130	180	50	35	1.4	541	7.6
May 14-31 -----	9,217	9.0		42	6.8	29		118	0	47	36		.2	--	235	.32	5,850	134	37	32	1.1	392	7.6
June 1-22 -----	12,710	7.4		38	6.3	22		100	0	45	28		.3	--	205	.28	7,030	121	39	28	.9	341	7.6
June 23-30, July 1-2	6,777	6.7		44	8.3	43		104	0	68	57		1.5	--	291	.40	5,320	145	60	39	1.5	489	7.5
July 3-19 -----	4,012	7.1		59	12	67		137	0	103	87		1.0	--	414	.56	4,480	197	85	43	2.1	689	7.6
July 20-31 -----	2,526	7.0		71	15	100		157	0	134	132		1.3	--	554	.75	3,780	238	109	48	2.8	917	7.7
Aug. 1-31 -----	1,903	7.4		75	18	126		164	0	155	170		.5	--	655	.89	3,370	261	127	51	3.4	1,090	7.8
Sept. 1-30 -----	1,711	7.5		78	19	138		162	0	169	185		1.9	--	700	.95	3,230	271	138	53	3.7	1,160	7.6
Weighted average -	3,391	8.4		56	12	72		137	0	97	94		1.0	--	420	0.57	3,850	189	76	45	2.3	704	--

COLORADO RIVER MAIN STEM
9. 955 COLORADO RIVER NEAR CAMEO, COLO.

LOCATION.--At Grand Valley project diversion dam, 3.7 miles upstream from Cameo, Mesa County, 0.4 mile upstream from Plateau Creek and 5.9 miles downstream from gaging station.
DRAINAGE AREA.--Approximately 8,050 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: October 1933 to September 1961.
Water temperatures: April 1949 to September 1961.
EXTREMES, 1960-61.--Dissolved solids: Maximum, 813 ppm Apr. 1-4; minimum, 213 ppm June 1-16.
Hardness: Maximum, 316 ppm Apr. 1-4; minimum, 119 ppm June 1-16.
Specific conductance: Maximum daily, 1,440 micromhos Apr. 2; minimum daily, 303 micromhos June 2.
Water temperatures: Maximum observed, 71° F July 29-31, Aug. 1; minimum observed, freezing point on many days from December to February.
EXTREMES, 1933-61.--Dissolved solids (1933-43, 1950-61): Maximum, 1,050 ppm Dec. 21-31, 1939; minimum, 143 ppm June 11-20, 1935.
Hardness (1933-35, 1958-61): Maximum, 399 ppm July 21-31, 1934; minimum, 98 ppm June 21-30, 1935.
Specific conductance (1941-61): Maximum daily, 1,850 micromhos June 8, 1944; minimum daily, 244 micromhos July 2, 1947, July 3, 1957.
Water temperatures (1949-61): Maximum observed, 75° F July 27, 1953, July 12, 29, 31, 1954, July 28, 1956; minimum observed, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961, given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1960 --	1,732	8.6	--	81	21	143		168	0	183	190		4.3	--	734	1.00	3,430	289	151	52	3.6	1,200	7.5
Nov. 1-30 -----	1,664	7.9	--	88	21	148		168	0	192	202		5.6	--	775	1.05	3,480	306	168	51	3.7	1,290	7.7
Dec. 1-31 -----	1,527	9.0	--	82	20	142		161	0	176	195		6.4	--	742	1.01	3,260	286	154	52	3.7	1,230	7.7
Jan. 1-31, 1961 --	1,606	8.2	0.01	77	18	143	4.2	150	0	162	202		6.3	0.03	710	.97	3,080	266	143	53	3.8	1,190	7.6
Feb. 1-28 -----	1,532	8.0	.03	75	17	142	4.2	141	0	165	195		8.3	.05	694	.94	2,870	256	140	54	3.9	1,180	7.6
Mar. 1-31 -----	1,393	8.5	.01	80	25	152		153	0	186	218		6.7	--	782	1.06	2,940	302	177	52	3.8	1,300	7.6
Apr. 1-4 -----	1,428	8.7	.01	86	25	159		160	0	187	235		5.5	--	813	1.11	3,130	316	185	52	3.9	1,360	7.6
Apr. 5-30 -----	1,777	6.9	.01	73	22	119		153	0	152	172		4.1	--	646	.88	3,100	271	146	49	3.1	1,090	7.7
May 1-3 -----	2,477	7.6	.02	67	18	102		145	0	128	148		3.1	--	562	.76	3,760	242	123	48	2.9	946	7.7
May 4-12 -----	2,991	8.3	.01	56	22	61		130	0	96	108		2.4	--	438	.60	3,540	229	122	37	1.7	747	7.6
May 13-22 -----	5,106	8.2	.01	52	15	37		133	0	68	65		1.9	--	328	.45	4,520	193	84	29	1.2	551	7.7
May 23-31 -----	10,370	6.3	.01	41	10	15		110	0	40	32		1.0	--	214	.29	5,990	145	55	18	.5	357	7.6
June 1-16 -----	8,989	7.2	--	36	6.8	29		100	0	45	38		.3	.17	213	.29	5,170	119	37	35	1.2	367	7.5
June 17-21 -----	6,300	6.6	--	41	8.0	40		106	0	59	52		.3	.17	266	.36	4,520	135	48	39	1.5	453	7.6
June 22-30 -----	4,374	6.4	--	52	8.8	61		126	0	81	78		.2	.18	356	.48	4,200	166	63	44	2.0	610	7.6
July 1-31 -----	2,252	9.6	--	75	16	105		170	0	130	144		1.1	--	593	.81	3,610	251	112	48	2.9	980	7.3
Aug. 1-31 -----	1,875	9.9	--	79	18	121		175	0	150	166		3.2	--	656	.89	3,320	272	128	49	3.2	1,060	7.3
Sept. 1-23 -----	2,642	9.9	--	73	16	100		157	0	144	150		4.0	--	572	.78	4,080	248	119	47	2.7	941	7.2
Sept. 24-30 -----	3,913	11	--	62	14	69		143	0	122	83		3.1	--	450	.61	4,750	214	97	41	2.0	729	7.5

COLORADO RIVER MAIN STEM
9- 955 COLORADO RIVER NEAR CAMEO, COLO.

LOCATION.--At Grand Valley project diversion dam, 3.7 miles upstream from Cameo, Mesa County, 0.4 mile upstream from Plateau Creek and 5.9 miles downstream from gaging station.

DRAINAGE AREA.--Approximately 8,050 square miles (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1933 to September 1962.

Water temperatures: April 1949 to September 1962.

EXTREMES, 1961-62.--Dissolved solids: Maximum, 1,080 ppm Sept. 22; minimum, 199 ppm June 1-30.

Hardness: Maximum, 474 ppm Sept. 22; minimum, 122 ppm July 1-12.

Specific conductance: Maximum daily, 1,580 micromhos Sept. 22; minimum daily, 293 micromhos June 15.

Water temperatures: Maximum, 76° F Aug. 16; minimum, freezing point on many days during December to March.

EXTREMES, 1933-62.--Dissolved solids (1933-43, 1950-62): Maximum, 1,080 ppm Sept. 22, 1962; minimum, 143 ppm June 11-20, 1935.

Hardness (1933-35, 1958-62): Maximum, 474 ppm Sept. 22, 1962; minimum, 98 ppm June 21-30, 1935.

Specific conductance (1941-62): Maximum daily, 1,850 micromhos June 8, 1944; minimum daily, 244 micromhos July 2, 1947, July 3, 1957.

Water temperatures (1949-62): Maximum, 76° F Aug. 16, 1962; minimum, freezing point on many days during winter months.

REMARKS.--
at Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.

Chemical analyses, in parts per million, water year October 1961 to September 1962.

137114

Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180°C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1961-	3,256	--	--	59	12		78	--	150	106	95	--	--	--	435	0.59	3,820	198	75	2.4	730	7.5	--
Nov. 1-30 ---	2,196	--	--	65	15		107	--	160	126	139	--	--	--	540	.73	3,200	225	94	3.1	916	7.8	--
Dec. 1-31, Jan. 1-31, 1962 --	1,915	--	--	73	14		114	--	161	134	152	--	--	--	577	.78	2,980	239	107	3.2	985	7.6	--
Feb. 1-27 ----	2,442	--	--	65	14		101	--	160	125	126	--	--	--	540	.73	3,560	219	88	3.0	895	7.6	--
Feb. 15 -----	a/2,860	10	0.30	69	13		82	4.4	152	140	101	0.4	4.1	0.06	516	.70	3,980	227	102	2.4	829	7.4	20
Feb. 28 -----	2,130	--	--	76	15		143	--	178	140	192	--	--	--	688	.94	3,960	252	106	3.9	1,150	7.3	--
Mar. 1-3 -----	2,197	--	--	--	--		149	--	172	148	198	--	--	--	682	.93	4,050	250	109	4.1	1,180	7.7	--
Mar. 4-31 ----	2,655	--	--	--	--		91	--	158	123	112	--	--	--	492	.67	3,530	217	87	2.7	843	7.7	--
Apr. 1-10 ----	3,584	--	--	64	14		72	--	170	112	82	--	--	--	445	.61	4,310	216	77	2.1	741	7.7	--
Apr. 11-16 ---	5,112	--	--	63	13		43	--	190	83	44	--	--	--	360	.49	4,970	211	55	1.3	590	7.7	--
Apr. 17-30 ---	13,710	--	--	52	8.8		26	--	160	53	26	--	--	--	259	.35	9,590	166	35	.9	429	7.7	--
May 1-31 -----	14,520	--	--	44	8.0		26	--	138	48	26	--	--	--	231	.31	9,060	144	31	.9	395	7.6	--
May 9 -----	20,300	11	.10	45	7.5		17	1.6	146	38	17	.4	3.7	.05	207	.28	11,350	144	24	.6	353	7.6	20
June 1-30 ----	14,830	--	--	38	8.0		18	--	109	41	25	--	--	--	199	.27	7,970	129	40	.7	339	7.5	--
July 1-12 ----	13,270	--	--	--	--		25	--	104	46	31	--	--	--	213	.29	7,630	122	37	1.0	369	7.7	--
July 13-20 ---	7,499	--	--	--	--		39	--	126	66	51	--	--	--	293	.40	5,930	160	57	1.3	507	7.6	--
July 21-24 ---	5,480	--	--	--	--		54	--	135	84	70	--	--	--	359	.49	5,310	179	68	1.8	619	7.7	--
July 25 -----	5,280	--	--	--	--		58	--	148	333	70	--	--	--	762	1.04	10,860	441	320	1.2	1,050	7.4	--
July 26-31 ---	4,715	--	--	--	--		65	--	146	103	84	--	--	--	416	.57	5,300	204	84	2.0	717	7.7	--
Aug. 1-31 ----	3,018	--	--	69	15		92	--	160	121	124	--	--	--	527	.72	4,290	232	101	2.6	889	7.5	--
Sept. 1-21 ---	2,007	--	--	83	18		133	--	180	161	180	--	--	--	692	.94	3,750	280	132	3.5	1,160	7.5	--
Sept. 15 -----	a/1,940	8.8	.09	83	18		142	4.2	176	166	188	.3	2.2	.04	713	.97	3,730	280	136	3.7	1,220	7.6	5
Sept. 22 -----	2,180	--	--	156	20		179	--	240	435	152	--	--	--	1,080	1.47	6,360	474	277	3.6	1,580	7.3	--
Sept. 23-30 --	2,080	--	--	83	18		130	--	185	167	169	--	--	--	679	.92	3,810	282	130	3.4	1,130	7.5	--

a/Discharge at time of sample collection, this analysis not included in computation of weighted averages.

GUNNISON RIVER BASIN
9-1375 GUNNISON RIVER NEAR CORY, COLO.

LOCATION.--(revised) At discontinued gaging station, at highway bridge 0.5 mile upstream from Tongue Creek, and 1.5 miles southwest of Cory, Delta County.
DRAINAGE AREA.--5,410 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: May 1959 to September 1960.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1, 1959 ---	650	14	--	103	48	128		197	0	519	16	--	7.4	--	969	1.32	1,700	452	290	38	2.6	1,270	7.7
Oct. 15 -----	950	13	--	67	29	58		163	0	255	8.5	--	2.8	--	522	.71	1,340	288	154	30	1.5	755	7.5
Nov. 4 -----	900	14	--	68	33	62		159	0	281	9.8	--	2.7	--	558	.76	1,360	304	174	31	1.5	782	8.0
Apr. 15, 1960 --	4,200	16	--	34	8.3	15		98	0	61	3.5	--	1.6	--	183	.25	2,080	118	38	22	.6	282	7.8
Apr. 21 -----	4,300	17	--	32	9.2	10		99	0	51	3.5	--	1.4	--	177	.24	2,050	118	37	16	.4	265	8.1
Apr. 27 -----	2,800	14	--	33	8.3	14		93	0	61	3.5	--	1.2	--	186	.25	1,410	116	40	20	.5	280	7.8
May 3 -----	1,600	15	--	42	12	21		112	0	97	5.5	--	.9	--	252	.34	1,090	155	63	23	.7	386	7.9
May 10 -----	3,200	14	--	38	9.2	14		106	0	67	4.0	--	1.2	--	204	.28	1,750	132	45	19	.5	312	7.7
May 18 -----	4,700	12	--	30	7.8	11		86	0	52	3.0	--	.9	--	161	.22	2,040	106	35	18	.4	251	7.4
May 24 -----	3,800	16	--	30	7.8	13		89	0	56	2.5	--	1.0	--	171	.23	1,750	108	35	20	.5	266	7.5
June 2 -----	5,300	13	0.03	28	6.6	9.1	1.4	88	0	39	2.0	0.3	1.0	0.05	162	.22	2,320	96	24	17	.4	231	7.2
June 15 -----	5,200	14	.01	28	7.1	8.8	1.4	88	0	40	2.0	.4	.8	.05	167	.23	2,340	100	28	16	.4	241	7.3
July 7 -----	1,100	12	--	56	21	39		144	0	171	8.0	--	1.6	--	390	.53	1,160	225	107	27	1.1	569	7.5
July 20 -----	400	14	--	79	32	73		181	0	302	18	--	2.2	--	621	.84	671	331	183	33	1.8	878	7.4
Aug. 3 -----	650	14	--	69	25	53		160	0	230	12	--	1.8	--	492	.67	863	273	142	30	1.4	710	8.0
Aug. 17 -----	270	11	--	105	50	122		194	0	515	24	--	1.9	--	969	1.32	706	466	307	36	2.5	1,270	8.0
Aug. 31 -----	300	11	--	91	41	95		185	0	405	20	--	1.8	--	781	1.06	633	396	244	34	2.1	1,070	8.2
Sept. 14 -----	390	12	--	106	48	103		192	0	478	20	--	3.0	--	895	1.22	942	462	305	33	2.1	1,200	7.6
Sept. 29 -----	200	12	--	167	85	194		265	0	882	32	--	7.0	--	1,580	2.15	853	764	547	36	3.0	1,950	7.8
a/ Estimated.																							

GUNNISON RIVER BASIN

9-1375 GUNNISON RIVER NEAR CORY, COLO.

LOCATION.--(revised) At discontinued gaging station, at highway bridge 0.5 mile upstream from Tongue Creek, and 1.5 miles southwest of Cory, Delta County.

DRAINAGE AREA.--5,410 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: May 1959 to September 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961

101156

Date of collection	Mean c/ discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro- mhos at 25°C)	pH	Color
															Parts per million	Tons per acre- foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 13, 1960 --	250	13		171	85		198		258	910	30		7.2	--	1,620	2.20	1,090	776	564	3.1	1,990	7.6	
Nov. 1 ----	450	18		91	45		82		183	405	13		3.5	--	770	1.05	936	414	264	1.8	1,050	8.2	
Jan. 13, 1961 --	450	21		90	32		66		193	299	19		3.1	--	625	.85	759	356	198	1.5	869	7.5	
Feb. 15 -----	500	17		80	33		75		174	322	13		2.9	--	a629	.86	849	336	193	1.8	881	7.9	
Mar. 23 -----	850	22		55	19		40		145	163	9.0		2.4	--	a381	.52	874	216	97	1.2	565	8.1	
May 23 -----	5,300	16		30	8.0		13		90	51	5.5		2.0	--	a170	.23	2,430	109	35	.5	262	7.6	
June 3 -----	4,900	15		28	6.8		13		82	51	3.5		2.4	--	a160	.22	2,120	98	31	.6	237	7.9	
June 15 -----	3,300	14		34	8.0		14		96	63	3.0		.7	--	a184	.25	1,640	117	38	.6	277	7.5	
June 26 -----	1,000	12		53	16		33		b132	144	7.0		.9	--	a331	.45	894	196	88	1.0	491	8.3	
July 10 -----	450	12		78	22		52		174	233	9.0		.4	--	496	.67	603	284	141	1.4	729	7.5	
July 24 -----	300	9.6		111	46		122		204	505	25		1.6	--	924	1.26	748	464	297	2.5	1,260	7.4	
Aug. 7 -----	400	13		93	36		81		176	370	18		1.3	--	708	.96	765	380	236	1.8	983	7.8	
Aug. 26 -----	450	12		93	27		68		170	319	14		.9	0.15	641	.87	779	344	205	1.6	900	7.4	

b/Includes 4 parts per million of carbonate (CO₃).

a/Calculated from determined constituents.

c/Estimated.

GUNNISON RIVER BASIN

9-1495 UNCOMPAGRE RIVER AT DELTA, COLO.

LOCATION.--(revised) At gaging station, at west edge of Delta, Delta County, and 1.2 miles upstream from mouth.

DRAINAGE AREA.--1,110 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: November 1959 to September 1960.

REMARKS.--Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

9-267 b

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Po- tas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non- carbon- ate				
Oct. 2, 1959 ----	835	18	--	198	75	194		257	0	939	21	--	11	--	1,580	2.15	3,560	804	593	34	3.0	1,960	7.9
Oct. 15 -----	452	16	--	189	66	150		253	0	800	14	--	9.9	--	1,370	1.86	1,670	742	535	31	2.4	1,720	8.0
Nov. 4 -----	413	14	--	181	67	158		248	0	807	15	--	10	--	1,370	1.86	1,530	728	525	32	2.5	1,780	7.7
Apr. 15, 1960 ----	535	17	--	112	36		76	166	0	420	11	--	6.1	--	760	1.03	1,100	428	292	28	1.6	1,040	7.7
Apr. 21 -----	370	16	--	117	36		87	182	0	444	10	--	4.3	--	803	1.09	802	440	291	30	1.8	1,100	7.6
Apr. 26 -----	118	18	--	175	50		126	196	0	699	14	--	8.2	--	1,190	1.62	379	640	479	30	2.2	1,520	8.0
May 3 -----	105	20	--	242	72		180	250	0	1,010	19	--	9.7	--	1,680	2.28	476	900	695	30	2.6	2,060	7.9
May 10 -----	195	20	--	162	50		105	194	0	628	12	--	7.3	--	1,080	1.47	569	608	449	27	1.8	1,420	7.7
May 18 -----	310	15	--	186	52		115	216	0	696	12	--	8.3	--	1,190	1.62	996	676	499	27	1.9	1,530	7.9
May 24 -----	219	19	--	198	56		140	219	0	788	15	--	10	--	1,330	1.81	786	724	544	30	2.3	1,670	7.7
June 2 -----	546	15	0.04	126	36	79	3.2	176	0	461	10	0.7	3.7	0.11	822	1.12	1,210	460	316	27	1.6	1,090	7.7
June 15 -----	568	17	.01	147	41	96	3.0	176	8	557	10	.7	5.8	.13	972	1.32	1,490	536	379	28	1.8	1,250	8.4
July 7 -----	140	21	--	275	78		201	289	0	1,120	20	--	14	--	1,870	2.54	707	1,010	769	30	2.8	2,200	7.5
July 20 -----	115	23	--	289	89		205	278	0	1,220	20	--	7.1	--	1,990	2.71	618	1,080	857	29	2.7	2,360	7.7
Aug. 3 -----	194	23	--	259	74		168	281	0	1,010	18	--	10	--	1,700	2.31	890	950	720	28	2.4	2,070	7.6
Aug. 17 -----	125	20	--	273	88		185	260	0	1,150	17	--	11	--	1,870	2.54	631	1,040	827	28	2.5	2,220	7.8
Aug. 31 -----	132	21	--	291	89		207	296	0	1,210	20	--	12	--	2,000	2.72	713	1,090	847	29	2.7	2,360	7.3
Sept. 14 -----	178	22	--	285	90		192	290	0	1,180	18	--	7.2	--	1,940	2.64	932	1,080	842	28	2.5	2,280	7.3
Sept. 29 -----	258	17	--	261	88		200	274	0	1,140	17	--	12	--	1,870	2.54	1,300	1,010	785	30	2.7	2,270	7.6

GUNNISON RIVER BASIN

9-1495 UNCOMPAGRE RIVER AT DELTA, COLO.

LOCATION.--(revised) At gaging station, at west edge of Delta, Delta County, and 1.2 miles upstream from mouth.

DRAINAGE AREA.--1,110 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: November 1958 to September 1961.

REMARKS.--Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961

Date of collection	discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 13, 1960 --	420	17		212	72		163		253	907	14		9.3	--	1,520	2.07	1,720	824	617	2.5	1,890	7.6	
Nov. 1 -----	414	26		157	73		172		121	901	16		12	--	1,420	1.93	1,590	694	595	2.8	1,780	8.1	
Jan. 13, 1961 --	a/ 160	19		269	107		320		296	1,440	32		23	--	2,360	3.21	1,020	1,110	867	4.2	2,740	7.6	
Feb. 15 -----	128	25		257	102		328		278	1,430	30		17	--	2,330	3.17	805	1,060	832	4.4	2,730	7.9	
Mar. 23 -----	148	16		236	88		246		268	1,170	25		14	--	1,930	2.62	771	950	730	3.5	2,330	7.8	
May 23 -----	579	13		124	34		73		186	421	9.0		5.8	--	771	1.05	1,210	450	297	1.5	1,070	7.5	
June 3 -----	632	18		148	36		105		190	551	10		6.4	--	967	1.32	1,650	520	364	2.0	1,260	7.8	
June 16 -----	596	17		196	49		142		226	758	13		7.9	--	1,290	1.75	2,080	690	505	2.4	1,620	8.0	
June 26 -----	275	18		236	61		175		270	927	17		11	--	1,580	2.15	1,170	840	619	2.6	1,920	7.5	
July 10 -----	142	18		289	78		215		282	1,190	20		12	--	1,960	2.67	751	1,040	809	2.9	2,290	7.6	
July 24 -----	104	19		277	78		213		266	1,170	20		11	--	1,920	2.61	539	1,010	792	2.9	2,260	7.7	
Aug. 7 -----	210	20		261	68		210		266	1,090	17		11	--	1,810	2.46	1,030	930	712	3.0	2,160	7.6	
Aug. 26 -----	258	19		277	66		168		282	1,020	17		10	0.29	1,720	2.34	1,200	960	729	2.4	2,070	7.6	

a/Mean daily discharge.

GUNNISON RIVER BASIN

9 1525 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

LOCATION.--At bridge on State Highway 141, 180 feet downstream from gaging station, 0.4 miles downstream from Whitewater Creek, 0.5 miles south of Whitewater, and 8 miles southeast of Grand Junction, Mesa County. Prior to January 1, 1960 at site 12 miles downstream.

DRAINAGE AREA.--7,870 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1931 to September 1960.

Water temperatures: April 1949 to September 1960.

EXTREMES, 1959-60.--Dissolved solids: Maximum, 1,780 ppm Sept. 29; minimum, 235 ppm Apr. 23-26.

Hardness: Maximum, 972 ppm Sept. 29; minimum, 156 ppm Apr. 23-26, and Apr. 26.

Specific conductance: Maximum daily, 2,180 micromhos Sept. 30; minimum daily, 348 micromhos Apr. 25.

Water temperatures: Maximum observed, 79° F July 20; minimum observed, freezing point on several days during December to February.

EXTREMES, 1931-60.--Dissolved solids: Maximum, 2,820 ppm Sept. 11-20, 1934; minimum, 203 ppm May 11-20, 1944.

Hardness(1931-35, 1943-60): Maximum, 1,370 ppm Sept. 1-20, 1934; minimum, 138 ppm May 11-31, 1958.

Specific conductance (1941-60): Maximum daily, 2,730 micromhos Sept. 10, 1956; minimum daily, 280 micromhos May 23, 1948.

Water temperatures (1949-60): Maximum observed, 86° F Aug. 13, 1958; minimum observed, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1, 1959a-----	d877	16	---	181	64	141	---	234	0	772	15	---	7.7	---	1,310	1.78	3,100	716	524	30	2.3	1,660	7.7
Oct. 1-4-----	1,895	14	0.01	178	63	135	4.9	237	0	759	17	---	6.1	0.20	1,290	1.75	6,600	705	511	29	2.2	1,680	7.6
Oct. 3a-----	d811	18	---	177	68	169	---	233	0	828	19	---	9.0	---	1,400	1.90	3,070	720	529	34	2.7	1,760	7.5
Oct. 5-31-----	1,515	14	.00	144	53	105	4.2	213	0	589	12	---	5.1	.16	1,030	1.40	4,210	576	401	28	1.9	1,390	7.7
Oct. 15a-----	d818	15	---	139	48	107	---	213	0	559	12	---	5.2	---	990	1.35	2,190	544	369	30	2.0	1,300	7.7
Nov. 1-30-----	1,211	15	---	135	54	107	4.7	217	0	578	14	---	4.7	.17	1,020	1.39	3,340	558	380	29	2.0	1,360	7.8
Nov. 4a-----	d1,200	13	---	133	50	116	---	209	0	568	14	---	6.3	---	1,000	1.36	3,240	536	365	32	2.2	1,310	7.9
Nov. 5a-----	d1,190	14	---	133	51	111	---	209	0	563	14	---	5.9	---	995	1.35	3,200	540	369	31	2.1	1,310	7.5
Dec. 1-31-----	818	14	---	143	61	123	4.8	239	0	644	18	---	6.6	.15	1,130	1.54	2,500	610	414	30	2.2	1,500	7.3
Jan. 1-31, 1960---	798	15	.01	131	59	118	4.5	230	0	611	16	---	4.4	.19	1,070	1.46	2,310	572	383	31	2.1	1,470	7.8
Feb. 1-29-----	711	15	---	135	57	123	4.5	219	0	623	19	---	4.6	.17	1,090	1.48	2,090	572	392	32	2.2	1,460	8.0
Mar. 1-25-----	1,099	17	---	139	58	132	5.1	213	0	669	10	---	5.5	.20	1,140	1.55	3,380	588	413	33	2.4	1,530	7.9
Mar. 26-31-----	2,757	8.0	---	93	26	51	3.4	192	0	275	10	---	3.1	.10	564	.77	4,200	336	179	25	1.2	822	7.9
Apr. 1-7-----	2,333	14	.02	88	28	55	4.0	185	0	286	9.0	---	1.6	.09	577	.78	3,630	336	184	26	1.3	837	7.4
Apr. 8-22, 27-30--	5,055	15	.02	61	13	25	2.4	154	0	121	4.0	---	.8	.06	318	.43	4,340	204	78	21	.8	490	7.6
Apr. 14a-----	b5,500	18	---	55	13	29	---	128	0	132	5.0	---	2.5	---	318	.43	4,722	188	83	25	.9	470	8.0
Apr. 20a-----	b4,920	15	---	56	12	26	---	136	0	120	4.5	---	2.3	---	303	.41	4,030	188	76	23	.8	457	7.8
Apr. 23-26-----	5,905	13	.02	46	10	17	1.6	121	0	84	3.0	---	.5	.07	235	.32	3,750	156	57	19	.6	374	7.6
Apr. 26a-----	b3,930	16	---	45	11	22	---	106	0	106	4.0	---	1.8	---	258	.35	2,740	156	69	24	.8	384	7.6
May 1-9-----	2,043	14	---	74	23	44	2.3	143	0	238	8.0	---	.7	.12	474	.64	2,610	280	163	25	1.1	700	7.6
May 3a-----	b1,970	15	---	74	20	45	---	136	0	233	7.5	---	2.5	---	464	.63	2,470	268	156	27	1.2	671	8.1
May 4a-----	b1,970	14	---	69	21	45	---	136	0	221	8.5	---	2.4	---	448	.61	2,380	258	146	27	1.2	657	7.8
May 10a-----	b4,090	14	---	60	15	32	---	134	0	154	6.5	---	2.2	---	350	.48	3,870	212	102	25	1.0	519	7.7
May 11a-----	b5,810	15	---	51	10	21	---	126	0	101	4.0	---	2.2	---	266	.36	4,170	170	67	21	.7	399	7.8
May 10-20-----	6,298	13	---	52	11	19	1.6	125	0	107	3.5	---	.5	.10	269	.37	4,570	176	74	19	.6	423	7.6
May 18a-----	b5,500	15	---	50	11	26	---	106	0	124	4.5	---	1.7	---	284	.39	4,220	168	81	25	.9	449	7.6
May 21-31-----	3,914	15	---	61	16	31	1.6	121	0	176	5.0	---	.3	.09	366	.50	3,870	220	121	23	.9	551	7.5
May 24a-----	b4,400	16	---	54	15	29	---	114	0	155	4.0	---	1.9	---	331	.45	3,930	198	105	24	.9	500	7.7

GUNNISON RIVER BASIN--Continued

9 1525 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate				
June 1-24, 1960 ---	6,321	14	---	57	14	25	1.6	121	0	144	4.0	---	0.5	0.09	320	0.44	5,460	198	99	21	0.8	488	7.5
June 2a -----	b6,080	16	0.02	57	14	27	1.9	130	0	139	4.0	0.3	1.9	0.05	325	.44	5,340	198	91	23	.8	487	7.4
June 3a -----	b7,750	14	.08	56	13	24	1.9	130	0	123	3.5	.3	2.0	.05	302	.41	6,320	194	87	21	.7	475	7.7
June 15a -----	b6,050	16	.01	59	17	31	1.9	120	0	175	4.0	.3	2.1	.05	365	.50	5,960	214	116	24	.9	529	7.8
June 16a -----	b5,790	15	.01	60	16	31	1.9	122	0	172	3.5	.3	1.9	.04	362	.49	5,660	216	116	24	.9	531	7.7
June 25-30 -----	2,938	14	---	72	20	43	2.1	142	0	227	6.5	---	1.6	.11	456	.62	3,620	264	148	26	1.1	675	8.0
July 1-14 -----	1,384	13	.01	117	36	73	3.0	178	0	433	12	---	.8	.13	776	1.06	2,900	442	296	26	1.5	1,060	7.6
July 7a -----	b1,270	14	---	118	36	78	---	177	0	435	10	---	3.4	---	781	1.06	2,680	444	299	28	1.6	1,060	7.6
July 8a -----	b1,250	13	---	119	39	79	---	174	0	451	10	---	3.4	---	800	1.09	2,700	456	313	27	1.6	1,090	7.7
July 15-19 -----	696	12	.00	167	56	120	4.3	204	0	694	16	---	3.7	.25	1,170	1.59	2,200	646	479	29	2.1	1,510	7.5
July 20a -----	b475	17	---	217	73	166	---	220	0	954	20	---	3.7	---	1,560	2.12	2,000	844	664	30	2.5	1,920	7.7
July 20-31 -----	530	15	.00	208	67	145	5.1	217	0	887	21	---	4.6	.25	1,460	1.99	2,090	795	617	28	2.2	1,820	7.6
July 21a -----	b520	17	---	214	72	164	---	216	0	939	22	---	3.3	---	1,540	2.09	2,160	832	655	30	2.5	1,900	7.4
Aug. 1-10 -----	709	16	---	192	64	129	4.7	212	0	805	18	---	3.4	.26	1,340	1.82	2,570	744	570	27	2.1	1,700	7.7
Aug. 3a -----	b984	19	---	169	52	110	---	223	0	642	14	---	3.4	---	1,120	1.52	2,980	634	451	27	1.9	1,460	7.7
Aug. 5a -----	b654	21	---	175	55	120	---	223	0	691	14	---	3.2	---	1,190	1.62	2,100	664	481	28	2.0	1,530	7.8
Aug. 17a -----	b401	14	---	215	76	173	---	206	0	982	22	---	3.0	---	1,590	2.16	1,720	848	679	31	2.6	1,960	7.8
Aug. 11-31 -----	472	14	---	232	80	169	5.6	226	0	1,030	22	---	5.8	.22	1,670	2.27	2,130	910	725	29	2.4	2,050	7.6
Aug. 31a -----	b457	16	---	232	80	182	---	215	0	1,050	22	---	6.8	---	1,690	2.30	2,090	910	734	30	2.6	2,080	8.0
Sept. 1-30 -----	632	17	---	230	79	159	3.2	244	0	1,000	20	---	5.8	.26	1,630	2.22	2,780	900	700	28	2.3	2,000	7.8
Sept. 14a -----	b654	16	---	227	77	166	---	235	0	983	19	---	2.3	---	1,610	2.19	2,840	884	691	29	2.4	1,990	7.4
Sept. 29a -----	b636	18	---	248	86	187	---	245	0	1,100	20	---	5.4	---	1,780	2.42	3,060	972	771	29	2.6	2,160	7.4
Weighted average -	1,915	14	---	93	30	60	2.8	165	0	332	8.4	---	2.2	0.12	625	0.85	3,230	356	220	27	1.4	868	---

a Not included in weighted average.

b Instantaneous discharge at time of sampling.

c Includes estimated data for missing periods.

d Mean daily discharge.

GUNNISON RIVER BASIN

9-1525 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

LOCATION.--At bridge on State Highway 141, 180 feet downstream from gaging station, 0.4 mile downstream from Whitewater Creek, 0.5 mile south of Whitewater, and 8 miles southeast of Grand Junction, Mesa County. Prior to January 1, 1960 at site 12 miles downstream.

DRAINAGE AREA.--7,870 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1931 to September 1961.

Water temperatures: April 1949 to September 1961.

EXTREMES, 1960-61.--Dissolved solids: Maximum, 2,050 ppm Aug. 26; minimum, 299 ppm May 24-31.

Hardness: Maximum, 1,050 ppm Aug. 26; minimum, 186 ppm May 24-31.

Specific conductance: Maximum daily, 2,340 micromhos Aug. 26; minimum daily, 426 micromhos May 28.

Water temperatures: Maximum, 75° F June 27, July 22, 25, 29-30, Aug. 27; minimum, freezing point on many days during November to February.

EXTREMES, 1931-61.--Dissolved solids: Maximum, 2,820 ppm Sept. 11-20, 1934; minimum, 203 ppm May 11-20, 1944.

Hardness (1931-35, 1943-61): Maximum, 1,370 ppm Sept. 1-20, 1934; minimum, 138 ppm May 11-31, 1958.

Specific conductance (1941-61): Maximum daily, 2,730 micromhos Sept. 10, 1956; minimum daily, 280 micromhos May 23, 1948.

Water temperatures (1949-61): Maximum, 86° F Aug. 13, 1958; minimum, freezing point on many days during winter months.

REMARKS.--

Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1960 --	824	15	0.02	224	83	168	5.4	264	0	996	20		6.8	0.27	1,720	2.34	3,830	900	684	29	2.4	2,000	7.7
Oct. 13a -----	b770	17	--	231	85	183		252	0	1,040	20		6.4	--	1,780	2.42	3,700	924	717	30	2.6	2,090	7.5
Nov. 1a -----	b996	25	--	138	63	130		126	0	728	14		6.7	--	1,210	1.65	3,250	604	501	32	2.3	1,500	8.2
Nov. 1-30 -----	980	16	--	160	60	118	4.6	240	0	672	16		6.5	.26	1,240	1.69	3,280	644	447	28	2.0	1,540	7.8
Dec. 1-31 -----	831	16	--	146	58	114	4.6	232	0	630	16		7.2	.25	1,170	1.59	2,630	604	414	29	2.0	1,470	7.8
Jan. 1-31, 1961 --	672	17	.00	156	60	119	4.1	244	0	656	18		6.8	.16	1,210	1.65	2,200	635	435	29	2.1	1,520	8.0
Jan. 14a -----	b680	26	--	128	51	137		158	0	636	19		7.9	--	cl, 080	1.47	1,980	528	398	36	2.6	1,400	8.2
Feb. 1-28 -----	711	15	--	139	56	121	3.8	217	0	620	22		5.6	.18	1,140	1.55	2,190	576	398	31	2.2	1,450	8.0
Feb. 15a -----	b720	20	--	144	54	141		226	0	643	19		6.9	--	cl, 140	1.55	2,220	580	395	35	2.5	1,490	7.4
Feb. 17a -----	b740	21	--	120	49	138		150	4	613	19		5.8	--	cl, 040	1.41	2,080	500	370	37	2.7	1,360	8.3
Mar. 1-17 -----	747	12	--	127	58	121	4.1	204	0	603	19		5.0	.17	1,110	1.51	2,240	558	391	32	2.2	1,410	8.0
Mar. 18-29 -----	1,098	13	--	99	38	80	3.7	173	0	396	14		4.3	.14	768	1.04	2,280	402	260	30	1.7	1,040	7.9
Mar. 24a -----	b1,020	19	--	98	36	87		152	14	391	15		5.3	--	c740	1.01	2,040	392	244	32	1.9	1,000	8.6
Mar. 30-31 -----	862	14	--	144	61	125	4.3	210	0	650	18		6.5	.09	1,190	1.62	2,770	610	438	31	2.2	1,500	7.8
Apr. 1-5, 9-21 ---	959	16	.01	127	42	90	3.8	192	0	488	16		1.9	.10	915	1.24	2,370	490	333	28	1.8	1,190	7.7
Apr. 6-8 -----	1,393	16	.05	92	33	63	2.6	175	0	328	12		1.2	.08	648	.88	2,440	366	222	27	1.4	895	7.7
Apr. 22-26 -----	1,688	15	.01	94	20	46	2.8	169	0	265	10		.8	.06	557	.76	2,540	317	178	24	1.1	778	7.5
Apr. 27-30 -----	924	14	.01	111	34	68	2.9	173	0	390	14		1.3	.12	748	1.02	1,870	416	274	26	1.5	1,010	7.7
May 1 -----	2,330	12	--	108	26	54	2.8	194	0	308	11		.6	.19	612	.83	3,850	375	216	24	1.2	902	7.3
May 2-8 -----	3,234	13	--	76	16	30	1.9	154	0	181	6.0		.6	.08	410	.56	3,580	254	128	20	.8	603	7.6
May 9-11 -----	2,020	15	--	95	23	51	2.5	151	0	307	10		.3	.06	598	.81	3,260	334	210	25	1.2	821	7.4
May 12-23 -----	4,076	12	--	71	15	28	1.6	131	0	178	5.5		.4	.07	384	.52	4,230	236	129	20	.8	570	7.6
May 22a -----	b5,720	17	--	46	18	31		100	4	152	5.0		2.8	--	c325	.44	5,020	188	99	27	1.0	475	8.3
May 24-31 -----	6,796	13	--	56	11	20	1.5	117	0	127	3.5		.2	.06	299	.41	5,490	186	90	19	.6	447	7.6
June 1-17 -----	4,741	12	--	68	15	30	2.1	132	0	182	5.0		.3	.06	301	.53	5,010	231	123	22	.9	578	7.7
June 3a -----	b5,860	15	--	61	9.7	25		118	0	136	4.0		2.4	--	c311	.42	4,920	192	95	22	.8	462	7.3
June 16a -----	b3,590	16	--	71	19	40		138	0	210	6.0		2.7	--	c433	.59	4,200	256	143	25	1.1	624	7.9
June 18-24 -----	2,580	14	--	92	23	46	2.5	157	0	274	7.0		.4	.07	557	.76	3,830	323	194	23	1.1	793	7.7
June 25-30 -----	1,092	13	--	149	43	86	3.2	189	0	549	13		1.0	.14	980	1.33	2,890	548	393	25	1.6	1,280	7.7
June 26a -----	b1,390	15	--	138	32	94		156	14	488	12		4.2	--	c873	1.19	3,280	476	325	30	1.9	1,140	8.5

GUNNISON RIVER BASIN
9-1525 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

LOCATION.--At bridge on State Highway 141, 180 feet downstream from gaging station, 0.4 mile downstream from Whitewater Creek, 0.5 mile south of Whitewater, and 8 miles southeast of Grand Junction, Mesa County. Prior to January 1, 1960 at site 12 miles downstream.

DRAINAGE AREA.--7,870 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1931 to September 1961.

Water temperatures: April 1949 to September 1961.

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Hardness: Maximum, 1,050 ppm Aug. 26; minimum, 186 ppm May 24-31.

Specific conductance: Maximum daily, 2,340 micromhos Aug. 26; minimum daily, 426 micromhos May 28.

Water temperatures: Maximum, 75° F June 27, July 22, 25, 29-30, Aug. 27; minimum, freezing point on many days during November to February.

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Hardness (1931-35, 1943-61): Maximum, 1,370 ppm Sept. 1-20, 1934; minimum, 138 ppm May 11-31, 1958.

Specific conductance (1941-61): Maximum daily, 2,730 micromhos Sept. 10, 1956; minimum daily, 280 micromhos May 23, 1948.

Water temperatures (1949-61): Maximum, 86° F Aug. 13, 1958; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1960 ---	824	15	0.02	224	83	168	5.4	264	0	996	20		6.8	0.27	1,720	2.34	3,830	900	684	29	2.4	2,000	7.7
Oct. 13a -----	b770	17	---	231	85	183		252	0	1,040	20		6.4	---	1,780	2.42	3,700	924	717	30	2.6	2,090	7.5
Nov. 1a -----	b996	25	---	138	63	130		126	0	728	14		6.7	---	1,210	1.65	3,250	604	501	32	2.3	1,500	8.2
Nov. 1-30 -----	980	16	---	160	60	118	4.6	240	0	672	16		6.5	.26	1,240	1.69	3,280	644	447	28	2.0	1,540	7.8
Dec. 1-31 -----	831	16	---	146	58	114	4.6	232	0	630	16		7.2	.25	1,170	1.59	2,630	604	414	29	2.0	1,470	7.8
Jan. 1-31, 1961 --	672	17	.00	156	60	119	4.1	244	0	656	18		6.8	.16	1,210	1.65	2,200	635	435	29	2.1	1,520	8.0
Jan. 14a -----	b680	26	---	128	51	137		158	0	636	19		7.9	---	cl,080	1.47	1,980	528	398	36	2.6	1,400	8.2
Feb. 1-28 -----	711	15	---	139	56	121	3.8	217	0	620	22		5.6	.18	1,140	1.55	2,190	576	398	31	2.2	1,450	8.0
Feb. 15a -----	b720	20	---	144	54	141		226	0	643	19		6.9	---	cl,140	1.55	2,220	580	395	35	2.5	1,490	7.4
Feb. 17a -----	b740	21	---	120	49	138		150	4	613	19		5.8	---	cl,040	1.41	2,080	500	370	37	2.7	1,360	8.3
Mar. 1-17 -----	747	12	---	127	58	121	4.1	204	0	603	19		5.0	.17	1,110	1.51	2,240	558	391	32	2.2	1,410	8.0
Mar. 18-29 -----	1,098	13	---	99	38	80	3.7	173	0	396	14		4.3	.14	768	1.04	2,280	402	260	30	1.7	1,040	7.9
Mar. 24a -----	bl,020	19	---	98	36	87		152	14	391	15		5.3	---	c740	1.01	2,040	392	244	32	1.9	1,000	8.6
Mar. 30-31 -----	862	14	---	144	61	125	4.3	210	0	650	18		6.5	.09	1,190	1.62	2,770	610	438	31	2.2	1,500	7.8
Apr. 1-5, 9-21 ---	959	16	.01	127	42	90	3.8	192	0	488	16		1.9	.10	915	1.24	2,370	490	333	28	1.8	1,190	7.7
Apr. 6-8 -----	1,393	16	.05	92	33	63	2.6	175	0	328	12		1.2	.08	648	.88	2,440	366	222	27	1.4	895	7.7
Apr. 22-26 -----	1,688	15	.01	94	20	46	2.8	169	0	265	10		.8	.06	557	.76	2,540	317	178	24	1.1	778	7.5
Apr. 27-30 -----	924	14	.01	111	34	68	2.9	173	0	390	14		1.3	.12	748	1.02	1,870	416	274	26	1.5	1,010	7.7
May 1 -----	2,330	12	---	108	26	54	2.8	194	0	308	11		.6	.19	612	.83	3,850	375	216	24	1.2	902	7.3
May 2-8 -----	3,234	13	---	76	16	30	1.9	154	0	181	6.0		.6	.08	410	.56	3,580	254	128	20	.8	603	7.6
May 9-11 -----	2,020	15	---	95	23	51	2.5	151	0	307	10		.3	.06	598	.81	3,260	334	210	25	1.2	821	7.4
May 12-23 -----	4,076	12	---	71	15	28	1.6	131	0	178	5.5		.4	.07	384	.52	4,230	236	129	20	.8	570	7.6
May 22a -----	b5,720	17	---	46	18	31		100	4	152	5.0		2.8	---	c325	.44	5,020	188	99	27	1.0	475	8.3
May 24-31 -----	6,796	13	---	56	11	20	1.5	117	0	127	3.5		.2	.06	299	.41	5,490	186	90	19	.6	447	7.6
June 1-17 -----	4,741	12	---	68	15	30	2.1	132	0	182	5.0		.3	.06	301	.53	5,010	231	123	22	.9	578	7.7
June 3a -----	b5,860	15	---	61	9.7	25		118	0	136	4.0		2.4	---	c311	.42	4,920	192	95	22	.8	462	7.3
June 16a -----	b3,590	16	---	71	19	40		138	0	210	6.0		2.7	---	c433	.59	4,200	256	143	25	1.1	624	7.9
June 18-24 -----	2,580	14	---	92	23	46	2.5	157	0	274	7.0		.4	.07	557	.76	3,880	323	194	23	1.1	793	7.7
June 25-30 -----	1,092	13	---	149	43	86	3.2	189	0	549	13		1.0	.14	980	1.33	2,890	548	393	25	1.6	1,280	7.7
June 26a -----	bl,390	15	---	138	32	94		156	14	488	12		4.2	---	c873	1.19	3,280	476	325	30	1.9	1,140	8.5

GUNNISON RIVER BASIN--Continued
9-1525 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.--Continued

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
July 1-12 -----	672	9.3	0.01	205	58	128	4.9	211	0	814	20		2.5	0.20	1,380	1.88	2,500	750	577	27	2.0	1,730	7.7
July 10a -----	b770	14	--	176	24	125		210	0	628	16		4.7	.19	1,140	1.56	2,370	580	408	32	2.3	1,410	7.6
July 13-31 -----	480	14	.01	240	74	151	6.0	229	0	989	24		4.7	.23	1,670	2.27	2,160	905	717	26	2.2	2,030	7.8
July 24a -----	b478	15	--	283	44	159		238	0	967	20		1.8	.26	1,650	2.24	2,130	885	690	28	2.3	1,960	7.1
Aug. 1-31 -----	718	16	--	196	75	137	5.6	240	0	861	18		4.2	.20	1,520	2.07	2,950	800	603	27	2.1	1,820	7.4
Aug. 7a -----	b672	18	--	208	57	132		246	0	784	15		3.5	.24	1,380	1.88	2,500	755	553	28	2.1	1,680	7.5
Aug. 25a -----	b609	15	--	184	36	132		271	0	623	17		4.3	.26	1,180	1.60	1,940	610	388	32	2.3	1,510	7.4
Aug. 26a -----	b812	18	--	287	81	210		274	0	1,190	26		7.3	.32	2,050	2.79	4,490	1,050	825	30	2.8	2,340	7.5
Sept. 1-22 -----	1,442	16	--	211	57	129	3.9	248	0	789	16		5.8	.19	1,390	1.89	5,410	760	557	27	2.0	1,710	7.8
Sept. 23-30 ----	2,338	15	--	145	39	96	2.9	205	0	511	18		4.2	.13	935	1.27	5,900	522	354	28	1.8	1,240	7.8

a Not included in weighted average.
b Instantaneous discharge at time of sampling.
c Calculated from determined constituents.

GUNNISON RIVER BASIN

9-1525 GUNNISON RIVER NEAR GRAND JUNCTION, COLO.

LOCATION.--At bridge on State Highway 141, 180 feet downstream from gaging station, 0.4 mile downstream from Whitewater Creek, 0.5 mile south of Whitewater, and 8 miles southeast of Grand Junction, Mesa County. Prior to January 1, 1960 at site 12 miles downstream.

DRAINAGE AREA.--7,870 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1931 to September 1962.

Water temperatures: April 1949 to September 1962.

EXTREMES, 1961-62.--Dissolved solids: Maximum, 1,450 ppm Sept. 1-30; minimum, 204 ppm May 4-16.

Hardness: Maximum, 786 ppm Sept. 1-30; minimum, 136 ppm May 4-16.

Specific conductance: Maximum daily, 2,010 micromhos Aug. 29; minimum daily, 287 micromhos May 13.

Water temperatures: Maximum, 73° F Aug. 12; minimum, freezing point on many days during December to March.

EXTREMES, 1931-62.--Dissolved solids: Maximum, 2,820 ppm Sept. 11-20, 1934; minimum, 203 ppm May 11-20, 1944.

Hardness (1931-35, 1943-62): Maximum, 1,370 ppm Sept. 1-20, 1934; minimum, 136 ppm May 4-16, 1962.

Specific conductance (1941-62): Maximum daily, 2,730 micromhos Sept. 10, 1956; minimum daily, 280 micromhos May 23, 1948.

Water temperatures (1949-62): Maximum, 86° F Aug. 13, 1958; minimum, freezing point on many days during winter months.

REMARKS.-- office at Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962. Records of specific conductance of daily samples available in district

Chemical analyses, in parts per million, water year October 1961 to September 1962

Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, Nov. 1-30, 1961 --	1,598	--	--	--	--	--	96	--	200	497	11	--	--	--	884	1.20	3,810	488	324	1.9	1,160	7.5	--
Dec. 1-31 -----	927	--	--	--	--	--	99	--	233	562	14	--	--	--	1,010	1.37	2,530	580	389	1.8	1,340	7.6	--
Jan. 1-31, 1962--	855	--	--	--	--	--	106	--	232	549	14	--	--	--	1,010	1.37	2,330	550	360	2.0	1,310	7.6	--
Feb. 1-28 -----	1,046	--	--	--	--	--	102	--	219	551	14	--	--	--	990	1.35	2,800	550	370	1.9	1,310	7.5	--
Feb. 14 -----	a/ 1,350	14	0.87	144	50	--	107	5.4	199	597	16	0.4	7.0	0.14	1,060	1.44	3,860	565	402	2.0	1,370	7.7	10
Mar. 1-31 -----	869	--	--	--	--	--	99	--	195	482	15	--	--	--	896	1.22	2,100	468	308	2.0	1,200	8.2	--
Apr. 1-3 -----	1,607	--	--	--	--	--	64	--	187	324	12	--	--	--	648	.88	2,810	368	215	1.5	923	7.6	--
Apr. 4-16 -----	3,261	--	--	--	--	--	34	--	180	181	6.5	--	--	--	429	.58	3,780	272	124	.9	650	7.6	--
Apr. 17 -----	8,500	--	--	--	--	--	11	--	172	74	1.0	--	--	--	276	.38	6,330	196	55	.3	438	7.5	--
Apr. 18-29 -----	10,950	--	--	--	--	--	12	--	130	60	1.5	--	--	--	209	.28	6,180	146	39	.4	338	7.9	--
Apr. 30 -----	12,000	--	--	--	--	--	51	--	132	173	1.0	--	--	--	280	.38	9,070	178	70	1.7	431	7.4	--
May 1-3 -----	8,873	--	--	--	--	--	19	--	120	99	2.0	--	--	--	252	.34	6,040	164	66	.6	400	7.7	--
May 4-16 -----	13,310	--	--	--	--	--	12	--	110	66	2.5	--	--	--	204	.28	7,330	136	46	.4	337	7.7	--
May 17-31 -----	6,000	--	--	--	--	--	20	--	111	131	3.5	--	--	--	296	.40	4,800	188	97	.6	459	7.7	--
May 23 -----	b/ 5,000	13	.08	49	12	--	20	1.5	102	125	4.0	.1	1.5	.07	278	.38	3,750	174	90	.7	433	7.7	10
June 1-4 -----	6,058	--	--	--	--	--	28	--	134	161	4.0	--	--	--	358	.49	5,860	222	112	.8	543	7.6	--
June 5-30 -----	8,311	--	--	--	--	--	20	--	111	116	2.0	--	--	--	266	.36	5,970	172	81	.6	420	7.5	--
July 1-12 -----	5,822	--	--	--	--	--	30	--	131	172	5.0	--	--	--	366	.50	5,750	228	121	.9	554	7.6	--
July 13-19 -----	2,650	--	--	--	--	--	47	--	163	303	8.0	--	--	--	584	.79	4,180	358	224	1.1	828	7.6	--
July 20-31 -----	1,838	--	--	--	--	--	70	--	195	437	11	--	--	--	819	1.11	4,060	478	318	1.4	1,100	7.6	--
Aug. 1-9 -----	1,144	--	--	--	--	--	92	--	215	618	14	--	--	--	1,070	1.46	3,310	640	464	1.6	1,400	7.6	--
Aug. 7 -----	a/ 955	14	.16	160	52	--	89	3.3	207	593	14	.6	4.2	.18	1,100	1.50	2,840	612	442	1.6	1,410	8.0	5
Aug. 10-31 -----	713	--	--	--	--	--	131	--	223	803	18	--	--	--	1,390	1.89	2,680	760	577	2.1	1,710	7.7	--
Sept. 1-30 -----	1,055	--	--	--	--	--	136	--	240	827	17	--	--	--	1,450	1.97	4,130	786	589	2.1	1,780	7.5	--

a/ Discharge at time of sample collection, this analysis not included in computation of weighted averages.

b/ Mean daily discharge, this analysis not included in computation of weighted averages.

COLORADO RIVER MAIN STEM

9-1635 COLORADO RIVER BELOW COLORADO-UTAH STATE LINE

LOCATION.--At Westwater, Grand County, Utah 9.5 miles downstream from gaging station about 18 miles southwest of Mack, Colorado and about 4 miles downstream from Colorado-Utah State line.

DRAINAGE AREA.--17,900 square miles approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: May 1962 to September 1962.

Water temperatures: May 1962 to September 1962.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.

Chemical analyses, in parts per million, water year October 1961 to September 1962.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, Magnesium	Non-carbonate			
Feb. 14, 1962 ---	a/ 6,790	12	1.5	94	21	85	5.5	183	0	275	51	0.4	4.0	0.13	656	0.89	12,030	320	170	2.1	954	7.4
May 10 -----	a/ 34,400	11	.18	44	8.5	17	1.8	125	0	65	12	.4	3.4	.06	225	.31	20,900	146	44	.6	364	7.6
May 10-18 ---	32,420	--	--	--	--	17	--	146	0	61	13	--	--	--	258	.35	22,580	164	44	.6	403	7.6
May 19-31 ---	17,240	--	--	--	--	36	--	135	0	113	30	--	--	--	336	.46	15,640	192	81	1.1	527	7.5
June 1-12 ---	20,760	--	--	--	--	31	--	132	0	105	26	--	--	--	319	.43	17,880	187	79	1.0	499	7.5
June 13-30 --	24,470	--	--	--	--	25	--	117	0	90	21	--	--	--	271	.37	17,900	165	69	.8	430	7.5
July 1-10 ---	19,950	--	--	--	--	29	--	134	0	109	24	--	--	--	320	.44	17,240	195	85	.9	505	7.8
July 11-18 ---	10,890	--	--	--	--	55	--	156	0	185	44	--	--	--	479	.65	14,080	264	136	1.5	732	7.3
July 19-30 ---	6,698	--	--	--	--	82	--	175	0	311	64	--	--	--	714	.97	12,910	380	236	1.8	1,040	7.6
July 31 -----	5,040	--	--	--	--	344	--	380	0	864	285	--	--	--	2,100	2.86	28,580	865	553	5.1	2,760	7.4
Aug. 1-5 ----	4,730	--	--	--	--	173	--	231	0	523	135	--	--	--	1,200	1.63	15,330	548	359	3.2	1,680	7.6
Aug. 6-8 ----	4,187	--	--	--	--	313	--	327	0	819	270	--	--	--	1,990	2.71	22,500	820	552	4.8	2,640	7.6
Aug. 7 -----	a/ 4,260	10	.12	115	39	98	3.2	183	0	392	80	.5	4.6	.10	872	1.19	10,030	448	298	2.0	1,260	8.0
Aug. 9 -----	3,770	--	--	--	--	108	--	194	0	407	98	--	--	--	962	1.31	9,790	486	327	2.1	1,410	7.3
Aug. 10 -----	3,470	--	--	--	--	269	--	318	0	739	220	--	--	--	1,780	2.42	16,680	755	494	4.3	2,350	7.5
Aug. 11-24 --	2,947	--	--	--	--	136	--	198	0	509	110	--	--	--	1,120	1.52	8,910	552	390	2.5	1,540	7.5
Aug. 25-31 --	2,414	--	--	--	--	166	--	214	0	628	133	--	--	--	1,390	1.89	9,060	656	480	2.8	1,840	7.5
Sept. 1-31 --	2,867	--	--	--	--	159	--	228	0	649	123	--	--	--	1,420	1.93	10,990	690	503	2.6	1,850	7.5

a/ Discharge at time of sample collection,

GREEN RIVER BASIN

9-2510 YAMPA RIVER NEAR MAYBELL, COLO.

LOCATION.---At County bridge 1 mile north of Maybell, Moffat County, and about 3.5 miles downstream from gaging station.

DRAINAGE AREA.---3,410 square miles, approximately, (above gaging station).

RECORDS AVAILABLE.---Chemical analyses: November 1950 to September 1960.

Water temperatures: November 1950 to September 1960.

EXTREMES, 1959-60.---Dissolved solids: Maximum, 489 ppm Sept. 1-18, 20-23; minimum, 84 ppm June 1-17, 20.

Hardness: Maximum, 217 ppm Sept. 1-18, 20-23; minimum, 50 ppm June 1-17, 20.

Specific conductance: Maximum daily, 909 micromhos Sept. 14; minimum daily, 107 micromhos June 17.

Water temperatures: Maximum, 82° F July 26; minimum, freezing point on Nov. 29.

EXTREMES, 1950-60.---Dissolved solids: Maximum, 545 ppm Sept. 21-30, 1956; minimum, 72 ppm June 21-30, 1951.

Hardness: Maximum, 238 ppm Dec. 1-10, 1952; minimum, 43 ppm June 1-21, 1959.

Specific conductance: Maximum daily, 947 micromhos Sept. 24, 1955; minimum daily, 94 micromhos June 14, 1959.

Water temperatures: Maximum, 82° F July 26, 1960; minimum, freezing point on many days during winter months.

REMARKS.---Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180° C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-25, 1959 --	582	8.7	0.05	33	12	24	2.1	148	0	51	11		1.0	0.10	222	0.30	349	131	10	28	0.9	370	7.6
Oct. 26-31 -----	1,010	9.1	.10	24	7.3	17	1.9	104	0	33	6.5		1.3	.09	155	.21	423	89	4	29	.8	250	7.3
Nov. 1-27 -----	559	6.8	--	30	11	26	1.9	131	0	48	12		1.0	.04	206	.28	311	120	13	32	1.0	349	7.4
Nov. 28-30, Dec. 1-31 --	369	6.4	--	37	15	39	2.3	172	0	67	19		.7	.06	274	.37	273	152	11	35	1.4	462	7.6
Jan. 1-31, 1960 --	235	10	.01	38	15	45	2.1	186	0	69	22		1.4	.01	306	.42	194	156	3	38	1.6	489	7.7
Feb. 1-29 -----	221	12	--	38	17	41	1.7	181	0	71	20		1.4	.10	284	.39	169	165	17	35	1.4	471	7.9
Mar. 1-28 -----	498	12	--	53	14	36	4.0	170	0	107	13		3.3	.11	334	.45	449	189	50	29	1.1	516	7.7
Mar. 29-31 -----	2,200	9.3	--	38	10	20	4.3	122	0	74	6.0		3.5	.09	236	.32	1,400	138	38	23	.7	356	7.8
Apr. 1-6 -----	2,183	13	.07	38	14	25	4.5	132	0	85	8.0		4.5	.09	265	.36	1,560	153	45	26	.9	413	7.4
Apr. 7-22 -----	4,708	12	.14	29	8.0	11	2.7	105	0	37	3.5		2.9	.06	166	.23	2,110	105	19	18	.5	257	7.4
Apr. 23-30 -----	4,078	12	.09	25	6.6	9.5	1.5	95	0	27	3.5		1.8	.07	140	.19	1,540	90	12	18	.4	220	7.3
May 1-12, 21-24 --	3,537	13	--	27	7.3	11	1.7	107	0	27	4.0		1.6	.05	152	.21	1,450	98	10	19	.5	237	7.4
May 13-20, 25-31 --	5,889	11	--	18	4.4	5.6	1.1	70	0	14	1.5		1.5	.05	100	.14	1,590	64	7	15	.3	148	7.5
June 1-17, 20 ----	5,562	8.7	--	15	2.9	5.5	1.2	58	0	13	1.4		1.3	.06	84	.11	1,260	50	2	19	.3	124	7.3
June 18-19, 21-26 --	3,461	9.4	--	16	4.1	8.5	1.4	67	0	17	4.0		1.3	.06	99	.13	925	58	3	24	.5	156	7.4
June 27-30 -----	1,770	8.5	--	18	4.9	11	1.4	73	0	21	6.2		1.8	.07	113	.15	540	64	4	27	.6	180	7.8
July 1-8 -----	1,062	9.0	.02	22	6.3	15	1.6	89	0	28	10		1.2	.05	148	.20	424	80	7	28	.7	226	7.2
July 9-24 -----	516	7.5	.01	28	10	26	1.7	126	0	45	14		.8	.08	209	.28	291	113	10	33	1.1	324	7.8
July 25-31 -----	231	2.9	.01	33	14	44	2.3	154	0	73	26		.8	.08	289	.39	180	142	16	40	1.6	458	7.9
Aug. 1-31 -----	155	4.8	--	46	19	62	3.5	208	0	103	34		.8	.09	374	.51	157	192	21	41	1.9	610	7.9
Sept. 1-18, 20-23 --	80.4	6.0	--	46	25	92	3.9	233	0	144	56		.6	.08	489	.67	106	217	26	47	2.7	792	8.0
Sept. 19, 24-30 --	143	4.8	--	40	20	57	3.2	211	0	93	28		.5	.12	351	.48	136	182	9	40	1.8	586	8.1
Weighted average	1,392	10	--	25	7.1	14	1.8	97	0	32	5.5		1.8	0.06	152	0.21	571	92	12	24	0.6	237	--

GREEN RIVER BASIN
9-2510 YAMPA RIVER NEAR MAYBELL, COLO.

LOCATION.--At county bridge 1 mile north of Maybell, Moffat County, and about 3.5 miles downstream from gaging station.

DRAINAGE AREA.--3,410 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1961.

Water temperatures: November 1950 to September 1961.

EXTREMES, 1960-61.--Dissolved solids: Maximum, 394 ppm Aug. 13-27; minimum, 82 ppm June 1-21.

Hardness: Maximum, 194 ppm Dec. 1-31; minimum, 52 ppm June 1-21.

Specific conductance: Maximum daily, 678 micromhos Aug. 24; minimum daily, 105 micromhos June 11.

Water temperatures: Maximum, 80° F Aug. 22, 25; minimum, 33° F on Jan. 10.

EXTREMES, 1950-61.--Dissolved solids: Maximum, 545 ppm Sept. 21-30, 1956; minimum, 72 ppm June 21-30, 1951.

Hardness: Maximum, 238 ppm Dec. 1-10, 1952; minimum, 43 ppm June 1-21, 1959.

Specific conductance: Maximum daily, 947 micromhos Sept. 24, 1955; minimum daily, 94 micromhos June 14, 1959.

Water temperatures: Maximum, 82° F July 26, 1960; minimum, freezing point on many days during winter months.

REMARKS.--Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1960 --	197	5.3	0.00	41	18	51	2.8	204	0	78	25		1.1	0.10	316	0.43	168	174	7	38	1.7	532	8.0
Nov. 1-30 -----	254	11	--	47	18	49	1.9	192	11	84	28		.8	.09	340	.46	233	190	15	36	1.5	551	8.7
Dec. 1-31 -----	211	13	--	48	18	49	1.8	219	1	83	27		.6	.09	352	.48	201	194	13	35	1.5	564	8.3
Jan. 1-31, 1961 --	199	11	.00	45	16	50	2.3	216	0	74	28		1.1	.07	340	.46	183	179	2	37	1.6	552	7.9
Feb. 1-28 -----	215	10	--	40	16	47	2.5	194	0	78	26		.9	.08	314	.43	182	168	9	37	1.6	521	7.7
Mar. 1-17, 25-31 --	287	9.2	--	44	18	45	3.0	175	0	113	22		2.6	.05	348	.47	270	187	44	34	1.4	555	7.9
Mar. 18-24 -----	384	9.1	--	38	13	32	3.4	141	0	81	16		2.7	.05	270	.37	280	146	30	32	1.2	473	7.8
Apr. 1-19 -----	762	9.0	.04	49	17	38	2.9	163	0	117	16		1.8	.03	336	.46	691	193	59	30	1.2	525	8.0
Apr. 20-30 -----	1,269	12	.17	39	9.5	18	2.2	131	0	58	6.0		2.0	.02	224	.30	767	137	30	22	.7	344	7.9
May 1-13 -----	2,535	14	--	28	7.5	11	1.5	104	0	34	5.0		1.7	.05	164	.22	1,120	102	17	19	.5	246	7.5
May 14-22 -----	3,748	11	--	24	5.6	8.6	1.5	86	0	26	2.5		2.0	.05	133	.18	1,350	82	11	18	.4	199	7.2
May 23-31 -----	5,644	9.3	--	16	3.9	4.9	1.1	61	0	13	2.0		1.7	.04	92	.13	1,400	56	6	15	.3	131	7.3
June 1-21 -----	4,028	8.8	--	14	3.9	5.7	.9	57	0	11	3.0		1.3	.04	82	.11	892	52	5	19	.3	125	7.1
June 22-23, 30 ---	1,774	7.4	--	29	9.2	27	2.0	126	0	40	19		1.0	.07	200	.27	958	110	7	34	1.1	332	7.5
June 24-29 -----	1,375	8.6	--	18	4.9	12	1.6	73	0	18	8.0		1.8	.04	112	.15	416	66	6	28	.6	184	7.3
July 1-15 -----	515	7.6	.02	28	9.5	25	1.7	122	0	37	17		1.1	.04	186	.25	259	110	10	33	1.0	321	7.1
July 16-31 -----	208	2.9	.01	37	12	37	2.5	157	0	61	25		1.3	.06	256	.35	144	141	12	36	1.4	439	7.5
Aug. 1-12 -----	200	4.1	--	42	15	45	3.7	186	0	74	27		2.3	.10	301	.41	163	167	14	36	1.5	513	7.7
Aug. 13-27 -----	86.2	4.3	--	44	19	67	4.2	207	0	103	47		2.1	.14	394	.54	91.7	188	18	43	2.1	656	7.7
Aug. 28-29 -----	99.5	6.3	--	34	11	25	2.4	146	0	46	14		1.6	.09	214	.29	57.5	130	10	29	1.0	362	8.1
Aug. 30-31 -----	92.0	5.0	--	43	19	50	3.1	192	8	84	28		2.8	.09	338	.46	84.0	186	15	36	1.6	556	8.5
Sept. 1-9 -----	264	5.4	--	46	16	56	3.3	208	0	84	30		1.5	.13	337	.46	240	180	9	40	1.8	564	8.1
Sept. 10-21 -----	352	5.1	--	36	13	30	2.5	160	0	55	18		1.8	.09	237	.32	225	144	13	31	1.1	400	7.9
Sept. 22-30 -----	1,046	11	--	33	11	17	2.5	127	0	51	8.5		1.8	.04	199	.27	562	130	26	22	.6	315	7.8

GREEN RIVER BASIN

9-2510 YAMPA RIVER NEAR MAYBELL, COLO.

LOCATION.--At county bridge 1 mile north of Maybell, Moffat County, and about 3.5 miles downstream from gaging station.

DRAINAGE AREA.--3,410 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: November 1950 to September 1962.

Water temperatures: November 1950 to September 1962.

EXTREMES, 1961-62.--Dissolved solids: Maximum, 455 ppm Sept. 1-30; minimum, 69 ppm June 22-30.

Hardness: Maximum, 217 ppm Sept. 1-30; minimum, 53 ppm June 22-30.

Specific conductance: Maximum daily, 827 micromhos Sept. 23; minimum daily, 116 micromhos June 29.

Water temperatures: Maximum, 76° F Aug. 15; minimum, freezing point on Dec. 8, 14.

EXTREMES, 1950-62.--Dissolved solids: Maximum, 545 ppm Sept. 21-30, 1956; minimum, 69 ppm June 22-30, 1962.

Hardness: Maximum, 238 ppm Dec. 1-10, 1952; minimum, 43 ppm June 1-21, 1959.

Specific conductance: Maximum daily, 947 micromhos Sept. 24, 1955; minimum daily, 94 micromhos June 14, 1959.

Water temperatures: Maximum, 82° F July 26, 1960; minimum, freezing point on many days during winter months.

REMARKS.--

at Salt Lake City, Utah. Records of discharge for water year October 1961 to September 1962 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1962.

Records of specific conductance of daily samples available in district office

Chemical analyses, in parts per million, water year October 1961 to September 1962.

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Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180° C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, Nov. 1-4, 1961----	972	--	--	--	--	--	18	--	112	36	9.0	--	--	--	175	0.24	459	102	10	0.8	271	7.4	--
Nov. 5-30 ----	539	--	--	--	--	--	29	--	144	50	14	--	--	--	229	.31	333	126	8	1.1	362	7.4	--
Dec. 1-31 ----	353	--	--	--	--	--	39	--	171	65	19	--	--	--	272	.37	259	150	10	1.4	437	7.7	--
Dec. 14b/-----	260	15	0.18	50	13	--	45	2.0	197	79	24	0.3	0.6	0.13	331	.45	232	179	17	1.5	530	7.8	5
Jan. 1-31, 1962--	322	--	--	--	--	--	36	--	167	61	22	--	--	--	273	.37	237	153	16	1.3	456	7.9	--
Feb. 1-28 ----	743	--	--	--	--	--	42	--	179	98	20	--	--	--	332	.45	666	186	39	1.3	543	7.6	--
Feb. 17 -----	a/ 705	8.5	.29	48	13	--	35	3.9	138	122	12	.4	3.6	.08	322	.44	613	172	59	1.2	486	7.4	30
Mar. 1-31 ----	733	--	--	--	--	--	37	--	173	114	14	--	--	--	346	.47	685	199	57	1.1	552	7.7	--
Apr. 1-11 ----	2,918	--	--	--	--	--	35	--	160	124	11	--	--	--	349	.47	2,750	200	69	1.1	534	7.7	--
Apr. 12-13 ---	3,715	--	--	--	--	--	24	--	161	91	8.0	--	--	--	295	.40	2,960	186	54	.8	468	7.5	--
Apr. 14-19 ---	6,930	--	--	--	--	--	11	--	138	49	3.5	--	--	--	220	.30	4,120	145	32	.4	347	7.5	--
Apr. 19 -----	a/ 8,940	10	.16	30	8.3	--	10	2.6	105	37	2.5	.3	3.6	.05	168	.23	4,060	108	22	.4	247	7.7	60
Apr. 20-30, May 1-2 -----	9,838	--	--	--	--	--	8.5	--	107	32	2.5	--	--	--	165	.22	4,380	106	18	.4	250	7.3	--
May 3-24, 26-27--	7,682	--	--	--	--	--	6.4	--	86	21	2.5	--	--	--	126	.17	2,610	82	11	.3	190	7.2	--
May 22 -----	a/ 5,520	10	.08	21	4.9	--	6.8	.8	77	16	3.0	.6	.9	.05	107	.15	1,590	72	9	.3	169	7.4	30
May 25, 28-31--	4,602	--	--	--	--	--	8.3	--	60	23	2.0	--	--	--	75	.10	932	58	9	.5	129	7.1	--
June 1-3 -----	4,590	--	--	--	--	--	11	--	81	28	3.0	--	--	--	100	.14	1,240	75	9	.6	175	7.2	--
June 4-11 ----	5,061	--	--	--	--	--	7.6	--	62	23	1.0	--	--	--	82	.11	1,120	60	9	.4	140	7.2	--
June 12-18 ----	5,686	--	--	--	--	--	100	--	193	182	16	--	--	--	443	.60	6,800	153	0	3.5	716	7.4	--
June 19-21 ----	4,540	--	--	--	--	--	7.4	--	67	19	3.0	--	--	--	88	.12	1,080	63	8	.4	159	7.0	--
June 22-30 ----	5,100	--	--	--	--	--	7.6	--	55	20	2.5	--	--	--	69	.09	950	53	8	.5	126	7.3	--
July 1-6 -----	4,010	--	--	--	--	--	6.6	--	64	16	3.0	--	--	--	95	.13	1,030	59	7	.4	147	7.3	--
July 7-16 ----	2,066	--	--	--	--	--	9.8	--	77	20	6.0	--	--	--	116	.16	647	71	8	.5	185	7.4	--
July 17-31 ----	823	--	--	--	--	--	20	--	109	35	12	--	--	--	171	.23	380	100	11	.9	280	7.3	--
Aug. 1 -----	a/ 522	7.2	.17	32	9.5	--	24	1.6	129	47	16	.6	.7	.05	202	.27	285	119	13	1.0	352	7.9	20
Aug. 1-15 ----	400	--	--	--	--	--	33	--	141	57	20	--	--	--	234	.32	253	132	16	1.2	403	7.4	--
Aug. 16-31 ----	196	--	--	--	--	--	47	--	178	78	30	--	--	--	311	.42	165	168	22	1.6	526	7.8	--
Sept. 1-30 ----	113	--	--	--	--	--	78	--	219	131	50	--	--	--	455	.62	139	217	37	2.3	751	7.6	--

a/Discharge at time of sample collection; analysis not included in computation of weighted averages.

b/Analysis not included in computation of weighted average.

GREEN RIVER BASIN
9-2599.5 LITTLE SNAKE RIVER ABOVE LILY, COLO.

LOCATION.--About 10 miles upstream from gaging station, which is 6 miles north of Lily, Moffat County, and 10 miles upstream from mouth.
DRAINAGE AREA.--3,730 square miles, approximately (upstream from gaging station).

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1960.

Water temperatures: December 1950 to September 1960.

Sediment records: May 1958 to September 1960.

EXTREMES, 1959-60.--Dissolved solids: Maximum, 1,020 ppm Aug. 26-31; minimum, 127 ppm May 11-13, 17, 19-31, June 1-9.

Hardness: Maximum, 372 ppm Sept. 1-30; minimum, 64 ppm Mar. 11.

Specific conductance: Maximum daily, 1,870 micromhos Aug. 26; minimum daily, 159 micromhos June 6.

Water temperatures: Maximum, 87° F July 20, Aug. 3, 6, 7, 10, 22; minimum, freezing point on Dec. 25, 30.

Sediment concentrations: Maximum daily, 30,300 ppm Aug. 27; minimum daily, 0 ppm on many days.

Sediment loads: Maximum daily, 55,900 tons Apr. 12; minimum daily, 0 tons on many days.

EXTREMES, 1950-60.--Dissolved solids (1950-51, 52-60): Maximum, 2,330 ppm July 24, 1955; minimum, 109 ppm July 1-3, 10, 1957.

Hardness (1950-51, 52-60): Maximum, 1,340 ppm July 24, 1955; minimum, 64 ppm July 1-3, 10, 1957; June 1-14, 1958, Mar. 11, 1960.

Specific conductance (1950-51, 52-60): Maximum daily, 2,670 micromhos July 24, 1955; minimum daily, 135 micromhos June 10, 1958.

Water temperatures (1950-51, 52-60): Maximum, 88° F July 17, 1955; minimum, freezing point on many days during winter months.

Sediment concentrations (1958-60): Maximum daily, 33,000 ppm Sept. 25, 1959; minimum daily, no flow on many days.

Sediment loads (1958-60): Maximum daily, 142,000 tons Sept. 25, 1959; minimum daily, 0 tons on many days.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1959 to September 1960 given in WSP 1713.

Chemical analyses, in parts per million, water year October 1959 to September 1960.

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (Residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-11, 1959 ----	168	13	0.01	30	7.1	96	2.0	176	0	117	34		1.7	0.07	390	0.53	177	104	0	66	4.1	624	8.1
Oct. 12-25, 30 ----	156	14	.01	35	8.5	49	1.2	164	0	70	16		.8	.05	280	.38	118	123	0	46	1.9	447	8.0
Oct. 27-29, 31 ----	263	13	.04	27	5.8	34	1.0	134	0	41	9.5		1.0	.06	202	.27	143	92	0	44	1.5	321	8.1
Nov. 1-29 ----	165	9.7	--	38	9.2	45	1.1	163	0	70	16		.6	.06	279	.38	124	132	0	42	1.7	449	8.2
Nov. 30, Dec. 1-31 --	85.5	12	--	52	13	69	1.6	201	11	117	21		.6	.06	402	.55	92.8	184	1	45	2.2	631	8.5
Mar. 1-10, 17, 1960 --	97.3	15	--	41	7.1	102	1.6	185	0	119	58		1.6	--	440	.60	116	132	0	62	3.9	690	7.9
Mar. 11 ----	170	17	--	19	3.9	104	1.6	183	0	85	35		2.5	--	4356	.48	163	64	0	78	5.6	591	8.2
Mar. 12-16, 18-31 --	181	11	--	35	5.6	76	2.1	165	0	103	24		2.2	.08	343	.47	168	111	0	59	3.1	539	8.1
Apr. 1-7 ----	633	13	.02	42	11	38	1.4	158	0	85	8.2		1.4	.07	287	.39	491	148	18	35	1.4	442	7.8
Apr. 8-12 ----	2,322	15	.29	36	8.3	19	1.4	143	0	41	2.8		.9	.05	204	.28	1,280	124	7	25	.7	312	7.7
Apr. 13-30 ----	1,566	14	.08	30	5.6	12	.8	110	0	28	3.5		.7	.06	155	.21	655	98	8	21	.5	237	7.9
May 1-4 ----	872	20	--	36	5.1	23	1.5	143	0	33	5.6		.8	.08	198	.27	466	110	0	31	1.0	301	7.7
May 5-10, 14-16, 18 --	1,571	16	--	33	4.4	15	1.3	128	0	22	4.4		.8	.07	168	.23	713	100	0	24	.6	257	7.8
May 11-13, 17, 19-31 -	1,667	15	--	25	3.9	9.1	.8	95	0	15	2.2		.8	.07	127	.17	572	78	0	20	.5	187	7.9
June 1-9 ----	1,804	13	--	25	3.2	9.7	.9	95	0	16	2.5		.8	.09	127	.17	619	75	0	22	.5	189	7.8
June 10-11 ----	2,055	16	--	34	4.9	35	2.4	144	0	41	12		2.2	.10	226	.31	1,250	104	0	42	1.5	340	7.8
June 12-24 ----	1,088	13	--	24	4.4	16	1.3	102	0	24	3.8		.5	.08	144	.20	423	79	0	30	.8	220	7.8
June 25-30 ----	361	15	--	31	7.1	28	1.9	133	0	45	7.1		.5	.10	204	.28	199	106	0	36	1.2	318	7.9
July 1-3 ----	187	18	.01	36	9.2	40	2.7	162	0	68	12		.8	.08	285	.39	144	129	0	40	1.5	407	8.0
July 4-6 ----	115	18	.02	47	10	54	3.3	188	0	101	16		1.6	.10	363	.49	113	159	5	42	1.9	528	8.2
July 7 ----	109	20	.00	111	20	133	7.4	162	12	411	52		6.1	.26	900	1.22	265	358	205	44	3.1	1,170	8.4
July 8-31 ----	25.7	18	.01	57	15	102	5.2	211	9	198	33		1.0	.10	565	.77	39.2	204	16	51	3.1	824	8.5
Aug. 1-25 ----	1.6	27	--	66	20	120	5.4	216	0	276	40		.4	.12	660	.90	2.85	247	70	51	3.3	970	8.1
Aug. 26-31 ----	7.9	21	--	40	9.0	306	4.0	285	0	384	121		1.3	.17	1,020	1.39	21.8	138	0	82	11	1,550	8.2
Sept. 1-30 ----	4.1	20	--	116	20	154	5.0	193	0	453	56		4.7	.11	925	1.26	10.2	372	214	47	3.5	1,280	8.2
Weighted average ^b /	483	14	--	31	5.6	21	1.2	121	0	36	6.3		0.9	0.07	183	0.25	239	100	2	31	0.9	280	--

a/Calculated from determined constituents.

b/Includes estimated data for missing periods.

GREEN RIVER BASIN

9-2599.5 LITTLE SNAKE RIVER ABOVE LILY, COLO.

LOCATION.--About 10 miles upstream from gaging station, which is 6 miles north of Lily, Moffat County, and 10 miles upstream from mouth.

DRAINAGE AREA.--3,730 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1961.

Water temperatures: December 1950 to September 1961.

Sediment records: May 1958 to September 1961.

EXTREMES, 1960-61.--Dissolved solids: Maximum, 2,180 ppm Aug. 16; minimum, 139 ppm May 15-31, June 1-19.

Hardness: Maximum, 475 ppm Aug. 16; minimum, 78 ppm Oct. 12-20.

Specific conductance: Maximum daily, 3,150 micromhos Aug. 16; minimum daily, 171 micromhos May 25.

Water temperatures: Maximum, 85° F July 1, 5; minimum, freezing point on November 28.

Sediment concentrations: Maximum daily, 33,000 ppm Oct. 12; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 21,200 tons Oct. 11; minimum daily, 0 tons on many days.

EXTREMES, 1950-61.--Dissolved solids (1950-51, 52-61): Maximum, 2,330 ppm July 24, 1955; minimum, 109 ppm July 1-8, 10, 1957.

Hardness (1950-51, 52-61): Maximum, 1,340 ppm July 24, 1955; minimum, 64 ppm July 1-8, 10, 1957, June 1-14, 1958, Mar. 11, 1960.

Specific conductance (1950-51, 52-61): Maximum daily, 3,150 micromhos Aug. 16, 1961; minimum daily, 135 micromhos June 10, 1958.

Water temperatures (1950-51, 52-61): Maximum, 88° F July 17, 1955; minimum, freezing point on many days during winter months.

Sediment concentrations (1958-61): Maximum daily, 33,000 ppm Sept. 25, 1959, Oct. 12, 1960; minimum daily, no flow on many days.

Sediment loads (1958-61): Maximum daily, 142,000 tons Sept. 25, 1959; minimum daily, 0 tons on many days.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Records of discharge for water year October 1960 to September 1961 given in U. S. Geological Survey Publication of Surface Water Records of Colorado for 1961.

Chemical analyses, in parts per million, water year October 1960 to September 1961.

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Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180°C			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-11, 21-31, 1960	15.0	16	0.00	80	23	325	5.1	276	0	558	135		0.7	0.15	1,270	1.73	51.4	294	68	70	8.2	1,860	8.2
Oct. 12-20	78.8	24	.00	25	3.6	206	2.6	258	2	214	65		2.8	.10	665	.90	141	78	0	85	10	1,030	8.3
Nov. 1-8	29.6	18	--	57	19	172	2.5	249	11	292	58		1.2	.11	752	1.02	60.1	222	0	62	5.0	1,140	8.5
Nov. 9-30	48.5	19	--	48	12	79	1.5	216	2	127	27		.7	.08	420	.57	55.0	172	0	50	2.6	652	8.3
Mar. 15-18, 20, 1961	370	15	--	37	6.8	68	2.2	172	0	89	28		1.3	.05	325	.44	325	120	0	55	2.7	526	8.1
Mar. 19	558	14	--	52	9.7	92	2.6	192	0	172	26		.6	.19	496	.67	747	170	13	54	3.1	715	7.8
Mar. 21-31	357	15	--	40	8.5	38	1.3	153	0	73	12		1.5	.04	264	.36	254	134	9	38	1.4	417	8.0
Apr. 1-5	303	18	.00	34	7.1	81	2.6	194	3	91	28		1.2	.07	368	.50	301	114	0	60	3.3	581	8.4
Apr. 6-12	385	19	.02	40	8.0	27	1.2	150	0	58	9.5		1.1	.05	242	.33	252	134	11	30	1.0	377	8.2
Apr. 13-21	222	16	.00	47	10	39	1.7	169	5	77	13		.6	.05	292	.40	175	158	11	35	1.4	461	8.4
Apr. 22-30	378	14	.04	37	7.3	22	1.3	141	14	48	7.0		.8	.05	218	.30	222	123	7	28	.9	335	8.2
May 1-4	634	20	--	34	6.3	22	1.5	135	0	37	6.0		1.5	.05	196	.27	336	111	0	30	.9	301	8.2
May 5-14	791	15	--	32	5.6	15	1.2	120	0	27	3.5		1.9	.05	170	.23	363	102	4	24	.6	256	8.0
May 15-31	1,238	15	--	27	4.1	12	.8	101	0	19	3.0		1.0	.05	139	.19	465	85	2	23	.6	207	8.0
June 1-19	1,114	15	--	28	3.6	13	1.3	109	0	18	3.5		1.0	.06	139	.19	418	84	0	25	.6	217	7.9
June 20-25	336	13	--	30	7.3	26	1.9	133	0	41	7.0		1.0	.06	196	.27	178	105	0	34	1.1	311	7.7
June 26-30	134	16	--	41	9.0	44	2.9	173	0	77	14		.8	.06	287	.39	104	140	0	40	1.6	454	8.1
July 1-5	24.4	16	.01	58	13	68	3.9	219	0	138	22		.8	.05	433	.59	28.5	196	16	42	2.1	667	8.0
Aug. 14-15, 17-23, 25-31	15.0	22	--	127	20	214	6.9	345	0	462	73		2.7	.15	1,100	1.50	44.6	400	117	53	4.7	1,540	7.8
Aug. 16	28.0	21	--	160	18	595	7.2	576	0	733	375		3.2	.27	2,180	2.96	165	475	3	73	12	3,150	7.8
Aug. 24	13.0	20	--	102	17	129	5.8	324	0	278	36		.9	.02	744	1.01	26.1	324	58	46	3.1	1,060	7.8
Sept. 1-2	7.75	15	--	98	15	114	3.4	212	0	318	38		1.1	.16	704	.96	14.7	306	132	44	2.8	1,010	7.8
Sept. 3-19	7.35	20	--	65	11	245	4.6	294	0	389	80		1.4	.17	964	1.31	19.1	209	0	71	7.4	1,430	7.9
Sept. 20-24	135	18	--	55	8.5	152	4.3	262	0	225	47		1.2	.14	630	.86	230	172	0	65	5.0	964	8.1
Sept. 25-30	150	13	--	42	7.1	71	2.5	207	0	93	18		3.2	.09	342	.47	139	134	0	53	2.7	540	8.1

GREEN RIVER BASIN

9-2599.5 LITTLE SNAKE RIVER ABOVE LILY, COLO.

LOCATION.--About 10 miles upstream from gaging station, which is 6 miles north of Lily, Moffat County, and 10 miles upstream from mouth.

DRAINAGE AREA.--3,730 square miles upstream from gaging station.

RECORDS AVAILABLE.--Chemical analyses: December 1950 to September 1962.

Water temperatures: December 1950 to September 1962.

Sediment records: May 1958 to September 1962.

EXTREMES, 1961-62.--Dissolved solids: Maximum 612 ppm Aug. 1-6; minimum, 126 ppm May 19-31.

Hardness: Maximum, 250 ppm Aug. 1-6; minimum, 74 ppm Oct. 12-14.

Specific conductance: Maximum daily, 937 micromhos Aug. 2; minimum daily, 163 micromhos May 23.

Water temperatures: Maximum, 84°F July 21; minimum, freezing point on several days from December to March.

Sediment concentrations: Maximum daily, 20,500 ppm Mar. 27; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 481,000 tons Mar. 28; minimum daily, 0 tons on many days.

EXTREMES, 1950-62.--Dissolved solids (1950-51, 52-62): Maximum, 2,330 ppm July 24, 1955; minimum, 109 ppm July 1-8, 10, 1957.

Hardness (1950-51, 52-62): Maximum, 1,340 ppm July 24, 1955; minimum, 64 ppm July 1-8, 10, 1957, June 1-14, 1958, Mar. 11, 1960.

Specific conductance (1950-51, 52-62): Maximum daily, 3,150 micromhos Aug. 16, 1961; minimum daily, 135 micromhos June 10, 1958.

Water temperatures (1950-51, 52-62): Maximum, 88°F July 17, 1955; minimum, freezing point on many days during winter months.

Sediment concentrations (1958-62): Maximum daily, 33,000 ppm Sept. 25, 1959, Oct. 12, 1960; minimum daily, no flow on many days.

Sediment loads (1958-62): Maximum daily, 481,000 tons Mar. 28, 1962; minimum daily, 0 tons on many days.

REMARKS.--Records of specific conductance of daily samples available in district office at Salt Lake City, Utah. Minimum observed during water year: Dissolved solids, 123 ppm May 22.

Chemical analyses, in parts per million, water year October 1961 to September 1962.

Date of collection	Mean discharge	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Strontium (Sr)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids Residue at 180°C			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1, 1961--	173	--	--	--	--	--	53	--	202	80	13	--	--	--	314	0.43	147	152	0	1.9	481	8.3	--
Oct. 2-11 ---	227	--	--	--	--	--	37	--	164	58	9.5	--	--	--	248	.34	152	128	0	1.4	387	7.9	--
Oct. 12-14 ---	332	--	--	--	--	--	117	--	228	89	34	--	--	--	399	.54	358	74	0	5.9	616	8.1	--
Oct. 15-31 ---	186	--	--	--	--	--	45	--	164	63	12	--	--	--	251	.34	126	120	0	1.8	398	7.9	--
Nov. 1-15 ----	147	--	--	--	--	--	43	--	180	73	12	--	--	--	276	.38	110	148	0	1.5	434	7.9	--
Dec. 14b- ----	170	20	0.41	64	14	--	71	1.7	271	122	20	0.3	0.7	0.09	444	.60	204	217	0	2.1	689	7.7	5
Feb. 18-28, 1962-	291	--	--	--	--	--	59	--	174	98	22	--	--	--	326	.44	256	147	4	2.1	514	7.8	--
Mar. 1-11 ----	194	--	--	--	--	--	42	--	181	77	13	--	--	--	285	.39	149	155	7	1.5	449	7.7	--
Mar. 12-31 ----	1,846	--	--	--	--	--	72	--	170	109	26	--	--	--	339	.46	1,690	134	0	2.7	533	7.8	--
Apr. 1-15 ----	1,632	--	--	--	--	--	49	--	167	98	12	--	--	--	307	.42	1,350	149	12	1.8	495	8.0	--
Apr. 16-22 ----	3,443	--	--	--	--	--	18	--	138	41	3.5	--	--	--	193	.26	1,790	121	8	.7	307	8.0	--
Apr. 19b- ----	3,200	11	.09	28	6.6	--	16	.7	110	37	3.5	.4	2.3	.06	184	.25	1,590	98	8	.7	248	7.8	50
Apr. 23-30 ----	3,914	--	--	--	--	--	12	--	103	27	1.5	--	--	--	143	.19	1,510	89	5	.5	214	7.8	--
May 1-17 ----	3,376	--	--	--	--	--	10	--	96	21	2.0	--	--	--	131	.18	1,190	81	2	.5	190	7.8	--
May 18 ----	2,670	--	--	--	--	--	52	--	113	65	34	--	--	--	268	.36	1,930	95	2	2.3	401	7.9	--
May 19-31 ----	1,883	--	--	--	--	--	13	--	90	23	4.0	--	--	--	126	.17	641	76	2	.6	191	7.8	--
May 22b- ----	1,910	13	1.2	26	4.1	--	9.7	.8	98	17	3.0	.2	.9	.06	123	.17	634	83	3	.5	192	7.5	20
June 1-30, July 1	1,390	--	--	--	--	--	12	--	97	19	3.0	--	--	--	130	.18	488	78	0	.6	199	7.6	--
July 2 ----	1,020	--	--	--	--	--	74	--	180	119	32	--	--	--	406	.55	1,120	155	7	2.6	610	7.6	--
July 3-10 ----	494	--	--	--	--	--	27	--	127	41	7.5	--	--	--	191	.26	255	98	0	1.2	311	8.0	--
July 11-14 ----	218	--	--	--	--	--	37	--	153	65	11	--	--	--	251	.34	148	128	3	1.4	409	7.8	--
July 15-21 ----	124	--	--	--	--	--	55	--	192	103	16	--	--	--	349	.47	117	167	10	1.9	556	8.1	--
July 22-31 ----	28.3	--	--	--	--	--	95	--	221	195	32	--	--	--	526	.72	40.2	223	42	2.7	822	8.1	--
Aug. 1-6 ----	15.2	--	--	--	--	--	112	--	218	252	38	--	--	--	612	.83	25.1	250	71	3.1	933	7.0	--
Aug. 2b- ----	17.0	13	1.0	71	17	--	104	4.7	215	247	38	.5	.9	.07	609	.83	28.0	246	70	2.9	937	8.1	10

b/ this analysis not included in computation of weighted averages.

d/ Includes 4 parts per million carbonate (CO₃).

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