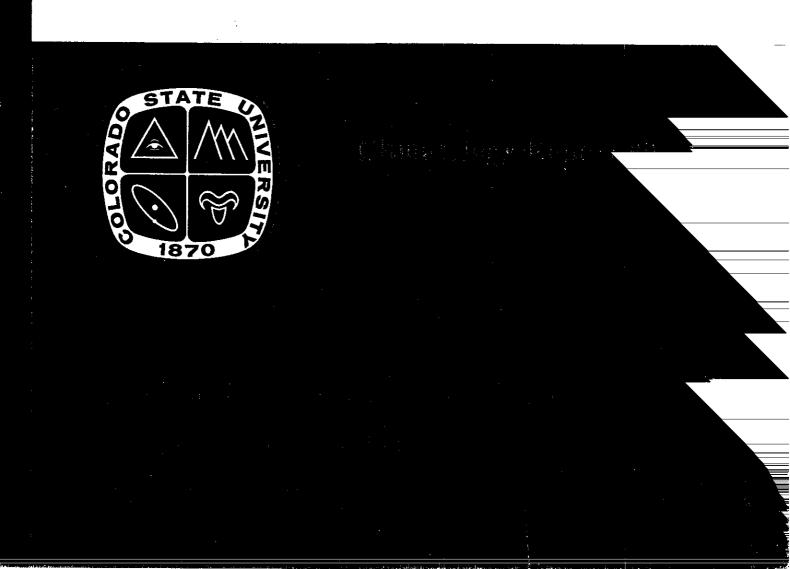
Final Report

Colorado Extreme Storm Precipitation Data Study

Summary of accomplishments and work performed February 15, 1995 through October 31, 1996

Thomas B. McKee Nolan J. Doesken



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Colorado Extreme Storm Precipitation Data Study

Summary

The Colorado Extreme Storm Precipitation Data Study was undertaken in Colorado in response to ongoing scientific uncertainty regarding the magnitude (intensity, duration and area) of precipitation that can conceivably occur at high elevations in the Rocky Mountain region. This uncertainty has significant implications for spillway design, sizing requirements and overall dam safety policies in Colorado and in other western states. Colorado has extensive land areas at elevations above 7,500 feet and many large and small reservoirs at high elevations. The study area for this project focused on areas in Colorado bounded by the Utah border on the western edge, the Wyoming border on the northern edge, the 5,000 foot (above mean sea level) elevation contour in eastern Colorado and the New Mexico border on the southern edge. Data on extreme storm precipitation amounts were also gathered from neighboring states having similar topography.

The Extreme Precipitation Data Study is the first step in a comprehensive effort, supported by the Colorado Department of Natural Resources, Division of Water Resources, to better understand extreme precipitation as a function of location and elevation and its impact on dam safety regulations. This study focused on observational precipitation and streamflow data during the period of instrumental record which dates back approximately 125 years. The results of this study are intended to be utilized in later project phases that will focus on numerical simulation of extreme storms at high elevations leading toward a better definition of extreme storms and their spatial variations.

More than 300 storms were identified by this study since the late 1800s that have produced very heavy precipitation either locally or over sizable areas in or near the mountains of Colorado based on a definition given in Section 2. Of this large set of heavy precipitation events, 36 extreme storms were identified that stand out as the heaviest storms of record for selected geographic regions of the state and the storms that must be considered when evaluating extreme precipitation and dam safety policies for high elevation areas of Colorado. This set of storms also becomes candidates for inclusion in future numerical modeling studies of extreme precipitation in elevated regions or in future deterministic studies of probable maximum precipitation (PMP).

One of the nagging problems that continues to plague extreme precipitation studies is uncertainty in the reliability of precipitation and flooding reports, especially for storms that occurred long ago. Efforts were made in this study to identify storms for which precipitation reports may be suspect, and some storms were removed from consideration when lack of reliability was apparent. However, thorough evaluations of data reliability were not performed for all storms.

Selected findings from the Extreme Precipitation Data Study include:

- The heaviest precipitation amounts and the largest number of extreme storms observed in Colorado have occurred along the Front Range from northwest of Fort Collins southward to Trinidad.
- The largest number of extreme storms affecting mountainous areas west of the Continental Divide have occurred in southwestern Colorado, most often during late summer and fall. Many of these storms contain moisture sources with tropical origin.
- The frequencies and magnitudes of extreme precipitation events are lowest in the northern mountains and northwestern valleys of Colorado.
- Precipitation amounts that have been observed associated with extreme storms are lower at high elevations than at lower elevations.

A complete listing of storms is presented later in this report along with descriptions on data sources and analysis methods. Four progress reports were written during the course of this study and provide more background and detailed description of data collection and analysis.

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Colorado Extreme Storm Precipitation Data Study

Introduction

This report summarizes the results of a nearly two-year study of extreme precipitation characteristics in Colorado. The primary goal of this project was to identify and document the heaviest storms that have occurred in or near the Rocky Mountains in Colorado. The criterion used to define heavy storms was any storm that exceeded the 100-year storm precipitation amounts for specified storm durations as published in the NOAA (National Oceanic and Atmospheric Administration) Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume III – Colorado (1973). The critical properties of storms that determine their potential for producing flooding are precipitation intensity, storm duration and storm area. In many of the storms included in this study, particularly the local intense summer thunderstorms, only a limited amount of information is known about storm areas. However, because of the importance of area and duration, some storms with large areas or long durations were considered even though they may not have exceeded 100-year thresholds at any individual point.

The format for this report is consistent with the outline of the original proposal submitted to the State of Colorado, Department of Natural Resources Division of Water Resources in the summer of 1994. Activities and accomplishments are presented in the order described in the original proposal. Most of the work for this project was conducted by personnel of the Colorado Climate Center, Department of Atmospheric Science, Colorado State University. However, some tasks were performed with assistance of other organizations.

Activities and Accomplishments

1) Compilation of hourly and daily precipitation data.

The starting point for this project was the careful scrutiny of all archived National Weather Service precipitation records back into the 1800s and up through 1993. For each station and each month of record, the maximum observed precipitation for various durations was determined. For many stations with data going back prior to 1948, this required manual data processing and digitization. Maximum one, two and three-day precipitation totals were determined for 598 official stations where precipitation has been measured on a daily basis. For an additional 69 stations where precipitation has been measured hourly or more frequently, maximum one-hour, two-hour, three-hour, six-hour, 24-hour, 48-hour and 72-hour precipitation totals were determined for each month of record.

A database of observed monthly and annual maximum precipitation totals was assembled and is available at the Colorado Climate Center at Colorado State University. Examples of historic monthly maximum precipitation values for one site, Ouray, Colorado are shown in Table 1 and 2. Figure 1 shows a graph of ranked annual maximum precipitation amounts for specified storm durations at that same site. Similar information can be assembled for all National Weather Service data collection sites in Colorado where many years of data collection have occurred. Most stations have between 15 and 70 years of data, but several dozen sites have monthly and annual extreme values for at least 80 years. Maximum record lengths exceed 120 years at four sites, all east of the mountains.

Data from several other sources in addition to the National Weather Service were examined in order to obtain greater detail at higher elevations. Data from the U.S. Bureau of Reclamation San Juan Project, the National Atmospheric Deposition Program, the National Park Service, the Denver Urban Drainage and Flood Control District, local water departments and districts, the University of Colorado Long-Term Ecological Research Site on Niwot Ridge, the U.S. Forest Service and the Natural Resources Conservation Service were all investigated. For the most part, data from these sources were not incorporated into the Colorado Climate Center's precipitation database. However, monthly and annual maximum one, two and three-day precipitation amounts were digitized and saved for approximately 50 Natural Resources Conservation Service SNOTEL (SNOw TELemetry) stations in the mountains of Colorado. Considerable data quality evaluations were required for these data, especially for data collected prior to 1984.

Extreme rainfall dates and amounts were identified using analyzed data from all of the data sources described above. In addition to serving as an excellent starting point for this extreme precipitation study, this data set will also be of great value if and when the original 1973 NOAA Precipitation-Frequency Atlas is updated.

2) Colorado Extreme Precipitation Storm List

The most essential and most time consuming portion of this study was the assembly of a comprehensive list of extreme storms that have been observed in Colorado or which occurred elsewhere in the Rocky Mountain region but which may be applicable to Colorado. The purpose of this investigative research was primarily to produce a sufficiently complete list of large storms so that it was nearly certain that the *largest* storms to have ever been observed in or near Colorado were captured. Secondly, by compiling a large list of storms, it is possible to learn the climatological aspects of extreme precipitation in and near the high elevations of Colorado and the central Rocky Mountain region.

Table 1. Maximum observed one-hour precipitation totals (in hundredths of an inch) by month and year for the National Weather Service cooperative weather station at Ouray, Colorado, 1947-1993.

Year	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1947				······································	<u></u>			26	25		12	12	26
1948	18	10	27	15	17	. 9	20	23	14	13	18	11	27
1949	19	10	12	10	17	27	20	25	15	15	12	13	27
1950	14	21	14	0	0	10	19	31	17	4	9	18	31
1951	11	9	15	17	9	9	18	15	10	20	26	18	26
1952	9	16	14	15	15	1	52	36	10	0	10	12	52
1953	24	7	13	10	22	14	64	14	5	25	5	13	64
1954	3	13	11	4	32	18	24	8	27	15	16	14	32
1955	14	10	14	10	18	12	43	51	13	- 8	10	6	51
1956	16	11	2	17	10	19	17	15	4	14	10	12	19
1957	17	10	7	18	20	30	14	26	12	14	17	6	30
1958	9	17	9	6	29	5	6	29	44	30	26	3	44
1959	9	14	5	19	11	6	10	36	1	10	26	13	36 30
1960	13	17	30	21	13	4	21	10	25	15	20	7	30
1961	8	4	13	14	6	16	58	32	20	22	16	5	58 37
1962	10	8	23	13	16	4	17	17	37	26	11	8	37
1963	9	13	11	11	15	17	26	18	15	16	15	10	26
1964	14	7	9	10	- 19	5	19	61	18	11	12	14	61
1965	17	28	13	10	19	17	34	33	18	16	16	19	34
1966	12	7	16	12	10	18	2.5	46	21	12	10	20	46
1967	9	11	15	10	18	10	62	18	13	9	13	10	62
1968	13	15	6	18	18	3	39	16	12	14	8	10	39
1969	14	19	15	25	9	28	35	20	20	10	10	3	35
1970	15	10	7	13	8	26	13	35	29	13	11	10	35
1971	6	5	7	13	12	10	25	28	27	9	12	6	28
1972	10	5	12	11	7		16	10	18	18	12	12	18
1973	7	4	13	22	31	30	40	55	13	8	0	29	55
1974	10	15	13	9	2	14	17	9	11	10	18	9	18
1975	13	5	29	10	11	26	32	33	10	10	4	2	33
1976	9	12	8	11	18	10	26	6					26
1977			6	12	13	14	32	30	47	24	33	15	47
1978	10	6	14	19	8	6	31	15	15	18	19	10	31
1979	13	4	13	17	31	11	10	21	4	21	8	5	31 15
1980	8	6	8	15	15	0	12	12	10	15	11	7	66
1981	4	8	12	8	19	23	43	52	66	10	13	11 11	33
1982	15	11	11	9	12	12	23	33	17	8	8	18	37
1983	12	7	11	9	15	28	32	37	12	18	10	10	23
1984	6	7	8	12	0	20	16	15 8	16	23	11	11	23
1985	12	10	8	14	19	6	18	27	23	13 25	26	6	108
1986	16	7	10	12	11	108	26		19	25 15	18	7	20
1987	5	15	12	11	9	8	20 15	17 18	26	11	17	14	26
1988	10	5	24	10	14	24					4	8	30
1989	7	9	12	8	11	5	30	14	15 40	14	10	10	40
1990	8	12	19	16	15	14	37	13 40	10	20 10	20	10	40
1991	10	10	10	10	10	10	30	40 20		10	10	20	60
1992	20	10	10	20	20	10	60 10	20	10	10	10	10	20
1993	10	20	10	10	20	10	70	20	10	10	10	- 10	20
1994					ļ			 		····			
1995							ļ				 		
						400	6.4	64	66	30	33	29	108
Max	24	28	30	25	32	108	64	61	00	30	<u> </u>	29	100

Precipitation in 1/100 of an inch.

Table 1. Maximum observed one-hour precipitation totals (in hundredths of an inch) by month and year for the National Weather Service cooperative weather station at Ouray, Colorado, 1947-1993.

Year	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annuai
1947			1774		17.27	00.1	701	26	25		12	12	
1948	18	10	27	15	17	9	20	23	14	13	18	11	2
1949	19	10	12	10	17	27	20	25	15	15	12	13	2
1950	14	21	14	0	0	10	19	31	17	4		18	3
1951	11	9	15	17	9	9	18	15	10	20	26	18	20
1952	9	16	14	15	15	1	52	36	10	- 20		12	5
1953	24	7	13	10	22	14	64	14	5	25	5	13	
1954	3	13	11	4	32	18	24	8	27	15	16	14	3
1955	14	10	14	10	18	12	43	51	13	8	10	6	64 33 51
1956	16	11	2	17	10	19	17	15	4	14	10	12	10
1957	17	10	7	18	20	30	14	26	12	14	17	- 12	19 30 44
1958	9	17	9	6	29	5	- 6	29	44	30	26	3	44
1959	9	14	5	19	11	6	10	36	1	10	26	13	36
1960	13	17	30	21	13	4	21	10	25	15	20	7	
1961	8	4	13	14	6	16	58	32	20	22	16	5	
1962	10	8	23	13	16	4	17	17	37	26	11	8	30 58 37
1963	9	13	11	11	15	17		18	15	16	15	10	26
1964	14	7	9	10	19	5	19	61	18	11	12	14	61
1965	17	28	13	10	19	17		33	18	16	16	19	34
1966	12	7	16	12	10	18		46	21	12	10	20	46
1967	9	11	15	10	18	10	62	18	13	9	13	10	62
1968	13	15	6	18	18	3	39	16	12	14	8	10	39
1969	14	19	15	25	9	28		20	20	10	10	3	35
1970	15	10	7	13	8	26	13	35	29	13	11	10	35
1971	6	5	7	13	12	10		28	27	9	12	- 6	28
1972	10	5	12	11	7		16	10	18	18	12	12	18
1973	7	4	13	22	31	30	40	55	13	8	0	29	55
1974	10	15	13	9	2	14	17	9	11	10	18	9	18
1975	13	5	29	10	11	26	32	33	10	10	4	2	33
1976	9	12	8	11	18	10	26	6					26
1977			6	12	13	14	32	30	47	24	33	15	47
1978	10	6	14	19	8	6	31	15	15	18	19	10	31
1979	13	4	13	17	31	11	10	21	4	21	8	5	31
1980	8	6	8	15	15	0	12	12	10	15	11	7	15
1981	4	8	12	8	19	23	43	52	66	10	13	11	66
1982	15	11	11	9	12	12	23	33	17	8	8	11	33
1983	12	7	11	9	15	28	32	37	12	18	9	18	37
1984	6	7	8	12	0	20	16	15	16	23	10	10	23
1985	12	10	8	14	19	6	18	8	23	13	11	11	23
1986	16	7	10	12	11	108	26	27	27	25	26	6	108
1987	5	15	12	11	9	8	20	17	19	15	18	7	20
1988	10	5	24	10	14	24	15	18	26	11	17	14	26
1989	7	9	12	8	11	5	30	14	15	14	4	8	30
1990	8	12	19	16	15	14	37	13	40	20	10	10	40
1991	10	10	10	10	10	10	30	40	10	10	20	10	40
1992	20	10	10	20	20	10	60	20	10	10	10	20	60
1993	10	20	10	10	20	10	10	20	10	10	10	10	20
1994													
1995													
Max	24	28	30	25	32	108	64	61	66	30	33	29	108

Precipitation in 1/100 of an inch.

Table 2. Maximum observed one-day precipitation totals (in hundredths of an inch) by month and year for the National Weather Service cooperative weather station at Ouray, Colorado, 1893-1995.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1893				-		9							
1894											42	55	
1895	325	100	110	39	100	50	35	119	62	32	150	60	325
1896	40	90	70	70	70								
Million III	inininii ila	MANAGA PARA	WHANG W										
1914	90	83	60									64	
1915	125	70	75	20222222000	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	mummmaaa	2012022222222222	000000000000000000000000000000000000000	000000000000000000000000000000000000000	000000000000000000000000000000000000000		emmania.	
					176			32	100	128	<i>4</i> 7	49	176
1941	36	61	41	54 73	35	93 20	40 34	38	66	69	15	40	73
1942 1943	40 38	30 25	45 64	6	107	107	96	64	49	99	37	89	107
1944	43	15	175	150	20	94	59	43	32	91	96	43	175
1945	16	46	61	85	44	34	67	39	27	94	39	49	94
1946	40	17	88	57	75	6	42	54	23	65	71	30	88
1947	28	50	34	70	32	88	99	61	63	154	34	30	154
1948	25	49	78	101	46	47	39	27	25	44	40	37	101
1949	34	25	51	65	32	72	41	26	40	60	30	30	72
1950	56	72	48	Ö	0	43	50	48	46	24	89	33	89
1951	38	52	52	30	23	14	31	21	62	100	47	37	100
1952	24	44	39	51	40	5	66	60	47	4	22	31	66
1953	48	26	30	60	73	32	82	42	10	111	55	33	111
1954	10	29	20	12	50	20	79	19	66	37	54	45	79 66
1955	35	49	45	53	62	47	66	55	27	22 56	42 39	56 25	56
1956	49 70	26 36	36 47	54 66	26 74	28 79	53 58	34 68	10 19	56 61	75	12	79
1957 1958	70 54	36 66	22	74	29	12	16	38	62	65	60	27	74
1959	39	36	42	56	34	19	27	92	77	120	29	24	120
1960	65	73	76	77	56	29	37	16	66	40	44	61	77
1961	48	37	58	72	32	46	53	48	71	137	52	29	137
1962	32	58	61	57	104	16	33	20	85	119	45	20	119
1963	50	41	36	32	28	30	54	38	40	158	34	50	158
1964	29	42	47	50	33	25	39	112	37	13	96	38	112
1965	56	80	75	21	103	65	51	49	118	118	41	69	118
1966	22	20	25	81	24	43	50	55	33	43	34	120	120
1967	32	32	26	70	40	22	133	58	63	98	31	51	133
1968	41	110	21	36	41	8	56	45	36	62	28	67	110
1969	69	56	32	32	36	136	52	37	44	195 69	50 107	43 31	195 129
1970	32	22	46	60 35	32 87	47 13	38 29	88 52	129 89	133	50	61	133
1971 1972	14 30	51 16	62 46	35 41	19	20		20	62	124	44	70	124
1973	40	10	60	58	140	109	101	87	74	24	40	69	140
1974	41	62	42	54	2	66	39	19	47	32	76	41	76
1975	63	32	101	61	53	60	59	85	27	48	79	29	101
1976	62	70	41	74	42	13							
1977		52	76	51	61	21	66	62	87	129	71	66	
1978	63	23	65	56	41	19	49	45	40	123	133	83	133
1979	151	23	86	88	43	116	21		8	111	62	16	151
1980	68	60		37	45	0	19		19	65	41	23	68
1981	20	34	83	32	71	47	73		95	58	34	81	95
1982	55	66	41	47	210	16	45		66	51	56	45	210
1983	35	64	82	48	70	57	52 50	43		38	91	119 58	119 111
1984	39	81	70 CF	82	52	80		40 25	56 94	111 48	41 55	24	127
1985		70 45		75 98	127 74	22 131	54 80	25 69	111	42	131	32	131
1986 1987	49 21	45 91	48	85	48	46	53		21	41	74	24	91
1987	36	67	109	41	115	45	25	75	118	16	99	67	118
1989	38	53	38	28	31	13	55 55		70	67	11	51	81
1990		71	114	162	71	16	72		89	103	82	18	162
1991	61	74	59	53		44	67		23	57	83	27	83
1992	40	46	111	64		61	90			47	68	74	111
1993		77	59	69	90	43	17		51	44	71	44	90
1994	74	59		55		30	47		52		60	51	85
1995	49	35		89	70	71	78	81	48	27	61	<u>.</u>	
1996													
								1.5	100	405	150	120	325
Max	325	110	175	162	210	136	133	123	129	195	150	120	325

Precipitation in 1/100 of an inch.

Maximum Observed Precipitation Amounts for Specified Durations

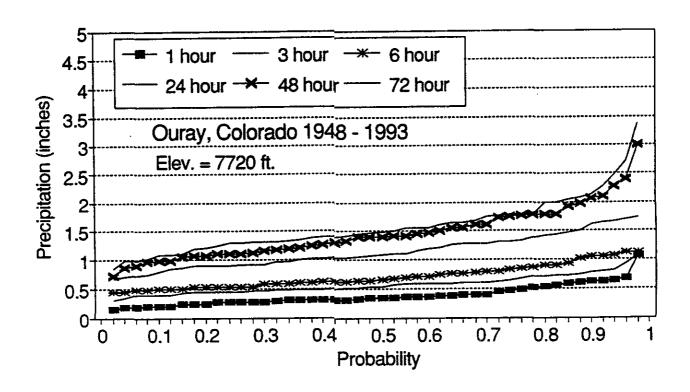


Figure 1. Ranked annual maximum precipitation totals for Ouray, Colorado, 1948-1993, for durations of one hour, three hours, six hours, 24 hours, 48 hours and 72 hours.

A variety of sources were used in determining the comprehensive Colorado storm list. The data described in section 1 above was a key starting point. Other important sources included *Storm Data* (a monthly government publication) reports, Colorado Climate Center records, special engineering and consulting meteorologist's studies, Colorado Department of Natural Resources Division of Water Resources flood reports, U.S. Geological Survey documents and reports including Water-Supply Paper 997, *Floods in Colorado*, by Robert Follansbee and Leon R. Sawyer, local site-specific Probable Maximum Precipitation consulting reports, and the formal federal Hydrometeorological Reports Technical Paper Report Series and Storm Rainfall in the United States. Special storm files maintained at the Denver Federal Center by the U.S. Bureau of Reclamation, Flood Hydrology Group were also utilized extensively. Local sources such as historical profiles and newspaper accounts were investigated to some extent, but this proved too time consuming.

A simple definition of Extreme Precipitation was needed in order to easily and quickly determine which storms qualified for consideration. Arbitrarily, it was determined that any storm that exceeded the 100-year storm precipitation amounts for the specified storm duration as published in the NOAA (National Oceanic and Atmospheric Administration) Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume III — Colorado (1973) qualified for consideration. Also, storms that did not exceed published 100-year storm amounts but which were extraordinary in other ways — large in area, long in duration or some combination of both — also could be considered.

Storms that did not exceed NOAA Atlas 2, 100-year values were still included if they were already included on existing extreme precipitation lists such as those included in Federal Hydrometeorological Reports for this region.

Each storm was given a brief descriptive name, usually based on the town, river or other landmark nearest the center of heaviest precipitation. A state name was assigned to each storm based on the state in which the heaviest precipitation fell. (Note: with large general storms, several states may receive heavy precipitation at the same time.) The date listed for each storm was the date on which the heaviest precipitation fell or the period of consecutive days when a larger storm system or episode first began and finally ended. Each storm was assigned one or more geographical regions based on a simple 6-region system as shown on Figure 2. Storms were categorized using a highly simplified meteorological typing scheme: 1) General (G) storms which were large multi-state storm systems accompanied by a clearly defined low pressure system and/or frontal boundaries, 2) Local Convective (LC) storms which were localized thunderstorms or thunderstorm complexes not clearly associated with large-scale atmospheric lifting mechanisms, and 3) Local Convective Storms embedded within General storm systems (GLC). Storms with air masses of tropical origin were not treated or categorized separately. A single latitude and longitude was assigned to most storms based on an estimate of the coordinates where the heaviest precipitation fell.

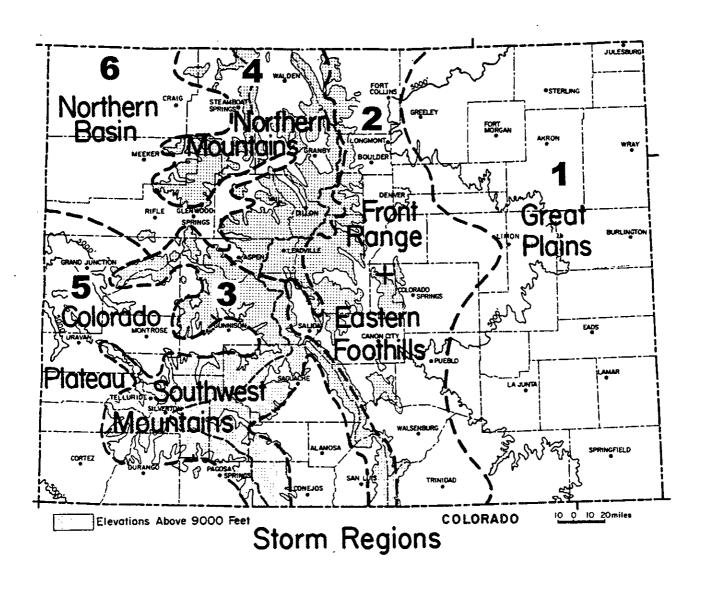


Figure 2. Approximate hydroclimatic regions of Colorado used to describe and characterize extreme precipitation events.

Two columns, "Maximum Precipitation" and "Remarks," were used to cryptically describe the heaviest rains associated with each listed storm. This was very inadequate for providing detailed storms descriptions, but was intended to provide sufficient information to a reader to allow a quick assessment as to the significance of the storm without additional research. For most storms, the "Maximum Precipitation" column listed the largest observed or estimated precipitation amount for each storm, if known. The "Remarks" column added supplemental reports or a very brief description of impacts. The storm list ends with two additional columns that indicate if information about the storm is on file at the U.S. Bureau of Reclamation Flood Hydrology Section at the Denver Federal Center and if a Depth-Area-Duration analysis has been performed.

The storm list contains very abbreviated information and was only intended to serve as an index. More comprehensive information for each storm is contained in paper files constructed and archived at the Colorado Climate Center on the Colorado State University Foothills Campus. These files contain a wide range of data which vary considerably from one storm to another. Examples include statewide precipitation data, copies of original hand-written observation forms, U.S. weather maps, *Storm Data* reports, upper-air soundings, isohyetal maps, depth-area-duration analyses, news accounts, and research reports. More attention was given to the approximately 30 most extreme storms. Little information was added to the files of the less significant storms due to time limitations imposed by the project. Streamflow data associated with each storm including total and peak discharge, areas affected and return-period analysis would be a useful addition to each storm file. Unfortunately, time and resources ran out before this step was completed.

An informal but very beneficial review process was utilized in assembling the storm list. A preliminary compilation of storms was distributed midway through the project to about 20 precipitation and flooding experts in Colorado. This review helped identify a number of addition storms and also pointed out some errors in the original list. Then in October 1996 near the end of this phase of the project, the Extreme Precipitation Committee, invited by the State Engineer reviewed final storm list results.

Appendix A is a copy of the storm list as it appeared at the end of the project period in October 1996. This list has proven to be fluid as new storms continue to come to our attention. This is especially true for local convective storms which are often small is size, short in duration and often not captured well by traditional data sources.

Evaluations of the validity of storm reports were conducted. Storms on the list that were considered suspect for any of a variety of reasons were marked as such and subjected to special scrutiny. They were not, however, removed from the comprehensive storm list since the precipitation records most likely appear as published and documented in several places and will likely be encountered in future precipitation studies. A special list of "Suspect" storms was compiled (see Appendix B). These questionable extreme storm reports were discussed by a committee of experts at a special project review meeting near the end of this portion of the project in October 1996. The results of this discussion

appear with the table in Appendix B. Some of these storms have already been studied in detail.

Large precipitation reports that are potentially significant to the design of high elevation dams and spillways but which appear totally or partially erroneous present serious problems in the analysis of extreme precipitation. Verification or disapproval of the validity of precipitation observations is a difficult process requiring detailed meteorological information and also local streamflow records. By associating properties of storms (area, intensity and duration) to observed runoff and streamflow conditions, validity of storms can be assessed. Results of selected storm evaluations follow:

There is considerable evidence that suggests that the Gladstone storm of October 1911 was a major and legitimate large storm. However, the local report of over eight inches of rainfall in 24 hours was considered questionable by several who have investigated that storm in detail. Reports of flooding were not consistent with widespread heavy rains of that magnitude. While the majority of committee members reviewing the storm doubt the validity of the individual Gladstone report, it is possible it could have occurred over a very localized area.

There is scientific agreement that several large rain reports during the 1930s from Leadville, including a 4.25" report in less than one hour in July 1937, were all inaccurate due to unrepresentative precipitation measurement methods which included the use of a special device for wind protection and improving winter snow catch that may have enhanced summer rainfall.

A recorded 5.25 inch rainfall in a short period at Cimarron in June 1952 appears to be the result of a gauge reading error by the observer. During a period of several years, a number of similar large daily precipitation amounts were reported by the same observer, suggesting a pattern of observational errors. Other reports included 3.60 inches on September 21, 1952 and 6.00 inches reported January 20, 1962. When these values were divided by 10, the Cimarron readings then were very consistent with reports from surrounding locations for each of those storms. In addition, there was no evidence of flooding associated with the June 1952 storm.

Most recently, a large high-elevation rainfall report of more than 4 inches in one day in August 1995 at the Wolf Creek Pass 1E cooperative weather station was investigated within a month of its occurrence. Again, improper manual rain gauge measurement procedures resulting in a factor of ten magnification were likely to blame. A substitute observer took the observation that day who may not have known proper procedures. The substitute observer was not available for comment. A remote automated precipitation gauge was operating within approximately one mile of that station and reported 0.40 inches. A team of USGS scientists were also in the area at that time. There was no evidence of erosion or high stream flows anywhere in that area that day. Because the storm was investigated quickly, the value was edited prior to digital archival at the National Climatic Data Center. However, anyone utilizing the original hand-written

record rather than the digital database, will encounter the most-likely-erroneous four-inch report.

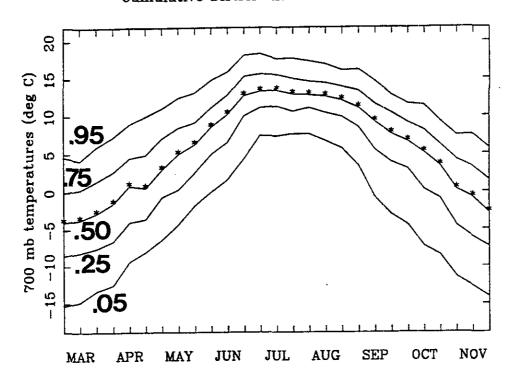
3) Upper Air Analysis

Vertical soundings of temperature, humidity, wind and pressure in the atmosphere above the ground have been taken on a regular basis at Denver and Grand Junction, Colorado, for several decades. These data were analyzed as a part of this project in order to provide a climatological perspective for evaluating extreme precipitation events occurring in or near the Rocky Mountains in Colorado. This may prove very important as we move toward greater utilization of numerical simulations of the atmosphere in understanding the relationships between elevation, topography and magnitudes of extreme precipitation.

Upper air data go back into the 1940s for Colorado, but only the 1958-1992 period was utilized in this study due to consistency in reporting times and locations. Only data through 1992 were easily available at the onset of this study. Prior to conducting analysis, key features of vertical profiles that could explain variations of extreme precipitation as a function of elevation were identified. Based upon these preliminary determinations, climatological analyses of the following variable were performed:

- Denver and Grand Junction 0000 and 1200 UTC temperature, humidity, and winds at three levels above the surface: 700 millibars (approximately 10,000 feet above sea level), 500 millibars (approximately 18,000 feet above sea level) and 300 millibars (approximately 30,000 feet above sea level).
- Precipitable water in the atmosphere from the ground surface up to 700 mb and 500 mb.
- Freezing level (height above sea level).
- Height above sea level and the temperature of the Lifted Condensation Level (the level
 in the atmosphere where clouds will form if air at ground level is lifted vertically until
 it becomes saturated).

For each of these variables, data for each sounding for 35 years were grouped in 10-day increments from March 1 through November 30 (when nearly all extremely heavy precipitation events in Colorado have occurred). Values were sorted, ranked and assigned probabilities of non-exceedance. Figures 3-6 show examples of the resulting probability distributions for Denver and Grand Junction, respectively, for each of several variables. These analyses provide a valuable climatological perspective from which extreme precipitation characteristics can be investigated. For example, typically temperatures aloft are warmest from late June into mid August. However, maximum precipitable water is limited to late July into August, but upper level winds at that time of year are normally quite light. Lifted Condensation Levels (LCL) are more complex since they relate to



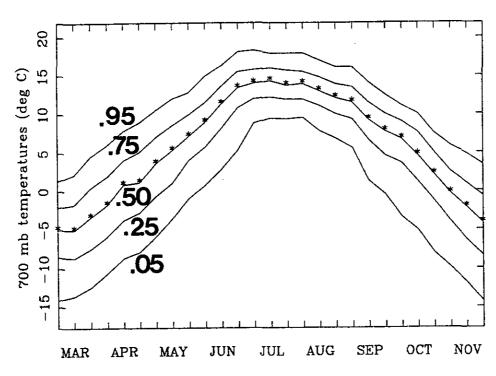
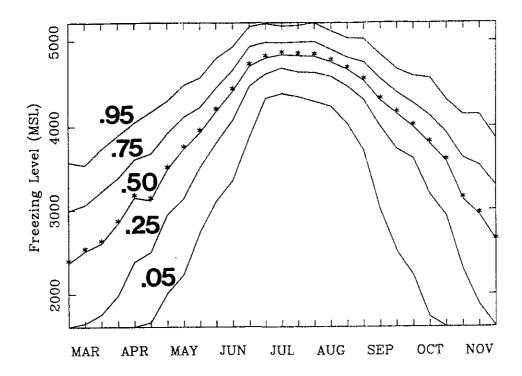


Figure 3. Non-exceedance probability distributions for 700 millibar temperatures (°C) at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



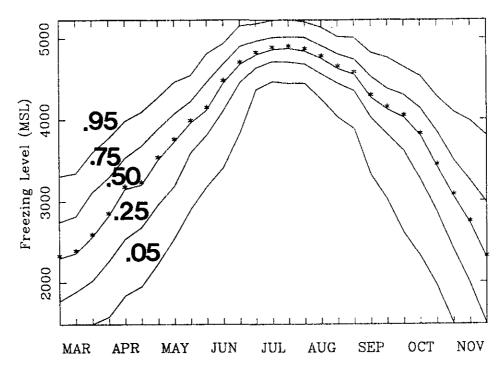
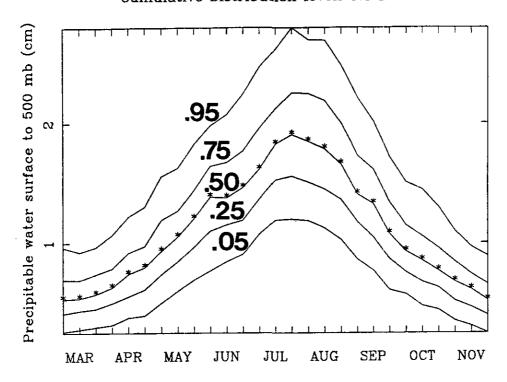


Figure 4. Non-exceedance probability distributions for the height in meters above sea level of the atmospheric freezing level at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.



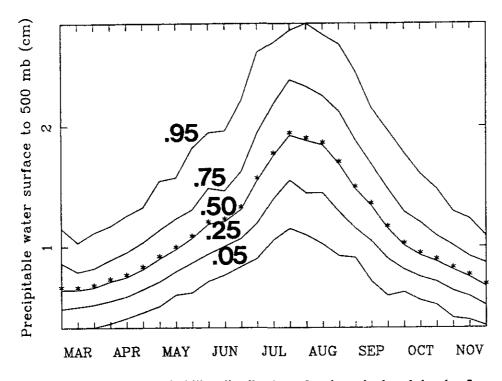
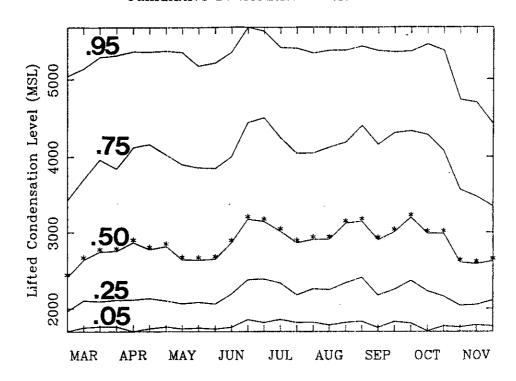


Figure 5. Non-exceedance probability distributions for the calculated depth of precipitable water (in centimeters) between the ground surface and 500 millibars at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

Cumulative Distribution levels for Denver



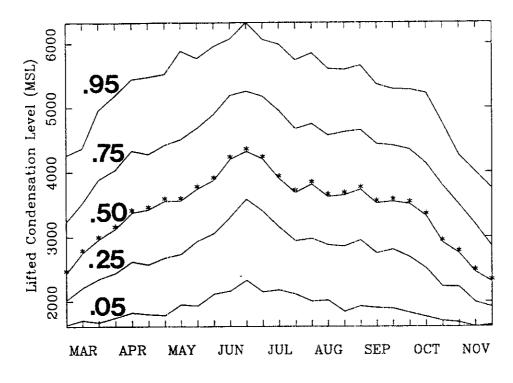


Figure 6. Non-exceedance probability distributions for the height in meters above mean sea level of the Lifted Condensation Level at Grand Junction and Denver, Colorado, for the period March through November based on 1958 through 1992 upper air soundings.

temperatures and humidity near the surface and the rate of cooling of the atmosphere with height. The height of the bases of convective clouds can be estimated using the LCL. It is interesting the cloud bases are typically highest in late June – a time when the frequency of extreme precipitation events in Colorado is low.

For each of the storms assembled on the final list of most extreme storms affecting Colorado that have occurred since 1958, soundings were extracted and examined both for Grand Junction and Denver and also for upper air sounding sites in adjacent states – Albuquerque, New Mexico; North Platte, Nebraska and Salt Lake City, Utah.

An item of particular interest in this study was determining how unusual upper atmospheric conditions were during extreme precipitation events with respect to the "normal" range of conditions shown in Figures 3-6. Soundings taken at Grand Junction and Denver near or during the time of several of the extremely heavy storms were analyzed and the results compared to the normal climatological ranges to see if those days stood out as extremely unusual in terms of any of these variables. What we discovered was that for nearly all of the storm events tested, sounding conditions for any single variable were not extreme. Precipitable water was usually more than the 50th percentile and often more than the 75th percentile but did not exceed the 95th percentile. Upper level temperatures varied widely. Freezing levels also were highly variable but were typically higher than the median, especially for summertime Local Convective storms. Lifted Condensation Levels were usually lower than normal, but not necessarily extremely low.

There are a number of reasons why these results are not surprising. First, the soundings were usually taken some distance away (both in time and space) from the extreme storm events in question. Therefore, these soundings did not truly indicate the atmospheric conditions in the immediate vicinity of each heavy rain storm. Secondly, a two-dimensional sounding, while informative, certainly does not describe all features of the three-dimensional atmosphere in which a storm develops and exists. For example, important features of surface convergence and upper air divergence will not be identifiable from a single sounding.

The environment of the storms have two critically important characteristics. One is the thermodynamic structure of the atmosphere and the second is the dynamic features of the atmosphere. The upper air sounding describes primarily the thermodynamic features. The dynamic features are equally important, but each individual sounding contains little information to define the dynamic environment. Consequently, the soundings produce useful but not definitive information about the storm environment.

4) USGS Streamflow Analysis

Streamflow data provide an alternative approach for investigating extreme storms. Through the integration of rainfall magnitudes (depth), storm area and duration, streamflow provides important evidence of both the existence and the extent of heavy precipitation.

Streamflow data available from the U.S. Geological Survey were utilized in this study to examine large storm events by identifying the magnitude and extent of observed high flows. Streamflow data were used in this study in two different ways. First, streamflow records from all portions of Colorado were examined to identify possible extreme storms that had not been detected by precipitation reports. Secondly, streamflow records were used in conjunction with extreme precipitation reports to help identify potentially suspect and erroneous precipitation reports. It is known and understood that extreme rainfall does not equate directly to extreme high flows so that rainfall may not be strictly inferred or verified solely from records of peak streamflow events. The storm area and duration along with basin geology, vegetation and land use all influence the amount of streamflow resulting from a specified magnitude of rainfall. For the purposes of this study, however, storms producing high streamflow were given greater weight than storms with similar maximum reported precipitation but yielding much lower streamflows.

Analyses of streamflow records, including both direct (gauged) and indirect (manually surveyed) observations, were conducted by John England, a graduate student in Civil Engineering at Colorado State University at the time of the project. Dr. Robert Jarrett originally developed this set of peak flow measurements. Dr. Jarrett of the U.S. Geological Survey in Denver, Colorado, along with Dr. Thomas McKee and Nolan Doesken of the Colorado Climate Center offered guidance and review. The results of this work are included in Appendix C.

This investigation of streamflow records produced several results and conclusions. The magnitude of observed peak flows associated with storms on this storm list were highly variable ranging from extreme peak flows of record for events such as the Big Thompson flood of 1976 and Plum Creek and related storms in June 1965 to relatively minor peaks associated with other large storms. For the purpose of selecting a final list of most extreme storms for future consideration, priority was given to storms that included both very heavy rainfall reports and large peak flows.

Not enough work was done in this project to fully utilize streamflow records to help identify very intense and usually quite localized convective storms that were not previously identified based on precipitation records. Several large unit discharges that could be associated with local storms of two to four inches of rainfall in short time periods (30 minutes to two hours) were observed from very small basins but were not looked at closely since streamflow volumes farther downstream on larger rivers were not significantly affected. Had there been more time and resources allotted for streamflow analyses, undoubtedly many more candidate Local Convective storms could have been identified and added to the list. This was not pursued, however, due to the relatively short

amount of time allocated to this project and also due to the fact that these storms did not appear to greatly exceed others already documented with both precipitation observations and streamflow information.

5) Site Specific Studies and Data From Other States

Evaluations of extreme precipitation are ongoing in other states outside of Colorado. Montana, Wyoming and Utah are or have been conducting studies pertaining to uncertainties in estimates of probable maximum precipitation affecting spillway design in the Rocky Mountain region. The National Weather Service Office of Hydrology has been completing an update of precipitation-frequency statistics including estimates of return period precipitation amounts for 100 to 1,000 years for the neighboring states of New Mexico, Arizona and Utah. Also during recent years there have been a small number of site specific analyses of probable maximum precipitation performed by meteorological consultants in support of water storage projects being designed and built. These reports could contain information about extreme local storms that may not have otherwise been included.

An effort to collect and assemble information on site specific studies and data from nearby states was undertaken with the help of Alan Pearson of the Colorado State Engineer's Office. A set of formal reports as well as informal data tabulations were assembled from surrounding states along with reports containing site specific evaluations of probable maximum precipitation for locations in Colorado. All reports were read, some were saved as a part of the hardcopy Extreme Precipitation Data Study archive at the Colorado Climate Center and other reports were returned as requested Several additional storms from both in and outside of Colorado were identified as a result of this activity.

The following is a list of some of the reports and data sources assembled:

- A Centennial Survey of American Floods. Fifteen Significant Events in the United States 1890-1990. NOAA Technical Memorandum NWS SR-133. Fort Worth, TX. October 1990.
- Characteristics of Extreme Precipitation Events in Washington State. Washington State Department of Ecology, Water Resources Program. Melvin G. Schaefer. Olympia, WA October 1989.
- Estimating Bounds on Extreme Precipitation Events. National Research Council, National Academy Press. Washington D.C. 1994.
- Greatest Known Areal Storm Rainfall Depths for the Contiguous United States.
 NOAA Technical Memorandum NWS HYDRO-33, Silver Spring, MD, December 1976.

- Probable Maximum Precipitation over South Platte River, Colorado and the Minnesota River, Minnesota. Hydrometeorological Report No. 44, Washington, D.C., January 1969.
- Probable Maximum Precipitation Estimates, Colorado River and Great Basin Drainages. U.S. Dept. of Commerce, U.S. Department of Army, Hydrometeorological Report No. 49. Silver Spring, MD, September 1977.
- Probable Maximum Precipitation Estimates United States Between the Continental Divide and the 103rd Meridian. U.S. Dept. of Commerce, U.S. Department of Army, U.S. Dept. of Interior, Hydrometeorological Report No. 55. Silver Spring, MD, March 1984, and No. 55 A (revised), 1987.
- Probable Maximum Precipitation Estimates for Short Duration, Small Area Storms in Utah. Presented at the May 1995 American Association of Dam Safety Officials Western Regional Conference, Red Lodge, MT, May, 1995.
- Statistical Analysis of Extreme Precipitation in Wyoming (Master's Thesis), Daniel C. Eastwood, Dept. of Statistics, Univ. of Wyoming, Laramie, WY, August 1995.
- Evaluation of Design Criteria for Hazardous Dams (Master's Thesis), Jerry L. Buckley, Dept. of Civil Engineering, Univ. of Wyoming, Laramie, WY, August 1995.
- Paleoflood Reconstructions within the Animas River Basin Upstream from Durango, Colorado (Master's Thesis), Jonathan William Pruess, Earth Resources Department, Colorado State University, Fort Collins, CO, Spring 1996.
- Paleoflood and Streamflow Data to Describe the Spatial Occurrence of Rainfall and Snowmelt Floods in Wyoming (Master's Thesis), Dianne L. Brien, Department of Geology and Geophysics, University of Wyoming, Laramie, WY, May 1996.
- Interdisciplinary Paleoflood Investigation of the Muddy Creek Basin for Retschard Dam near Kremmling, Colorado. Dr. Robert D. Jarrett, U.S. Geological Survey Water Resources Division, Denver, Colorado, in cooperation with the Colorado River Water Conservation District, Glenwood Springs, CO 1996.
- Unique Meteorological Aspects of the Williams Fork Drainage Basin in Colorado. Loren Crow, CCM, Denver, CO, 1995.
- Site-Specific Probable Maximum Precipitation (PMP) Study of the Muddy Creek
 Drainage Basin in Colorado. Dr. Edward M. Tomlinson and Mark Solak. NAWC
 Report AR 94-4, North American Weather Consultants, Salt Lake City, UT, October
 1994.

 Hydrologic Design Data Acquisition, Determination of an Upper Limit Design Rainfall for the Colorado River above Hoover Dam. Prepared for the U.S. Dept. of Interior Bureau of Reclamation by Morrison-Knudsen Engineers, Inc. March, 1989.

Several other site-specific studies of probable maximum precipitation have been done during the past several years for high-elevation watersheds in Colorado. These reports can be obtained from the Colorado State Engineer's Office in Denver.

6) Reports and Presentations

During the course of this project, there were several opportunities to present preliminary results at conferences and workshops. Three written papers were submitted and additional oral presentations were given, all prior to the completion of a final storm list. The opportunities to speak to a variety of audiences during preliminary phases of this project offered excellent opportunities to share the goals of this project with other storm experts and to encourage assistance in learning about extreme storms that have occurred throughout Colorado. The written papers are included in this final report in Appendix D. It is likely that presentations will continue to be given utilizing final lists and compilations contained in or discussed in this report, since there is considerable public interest in heavy precipitation in Colorado.

7) Workshop on Potential to Model Extreme Precipitation Events

a. Introduction

A workshop to discuss and evaluate the potential of mesoscale numerical models to simulate large convective storms at various elevations and to understand the variation of precipitation with elevation was held at CSU on April 19, 1996. The agenda for the workshop is given in Table 3 and the list of attendees is given in Table 4. The clear intent of the workshop was to explore the potential application of large state-of-the-art mesoscale numerical models with three-dimensional capability. Three models were included in the workshop. They are the Colorado State University Region Atmosphere Model System (RAMS), the National Center for Atmospheric Research (NCAR) MM5 model, and the model developed by Terry Clark at NCAR. These three models encompass most of the capabilities of present-day numerical meso-scale simulations.

One of the purposes of the workshop was to help reduce the uncertainty of the present understanding of the variation of extreme rainfall as a function of elevation. Two separate perspectives exist in the literature regarding the variation of extreme precipitation with elevation on the Front Range of Colorado. Firstly, the estimates of Probable Maximum Precipitation (the maximum rainfall that nature can produce) including 24-hour

precipitation amounts of at least 15 inches above 10,000 feet (see Hansen et al., 1988). Secondly, the analysis of streamflow by Jarrett and Costa (1982) shows the peak streamflow on many streams in the Front Range above approximately 7,500 feet are due to snowmelt and not extreme rainfall events. The paleohydrologic work by Jarrett and Costa (1988) to estimate past floods would suggest that the stream channels above 7,500 feet have not experienced large rain produced floods in the past 10,000 years. These two perspectives are not necessarily in conflict, but they do raise a significant scientific question of what level of probability of a storm event should dams be expected to provide protection from floods. If the numerical models could simulate large rainstorms at higher elevations, the controlling physical processes could be identified and used to improve our understanding of this phenomena.

The format of the workshop was to start with a series of presentations by individuals with experience developing and/or using large models. They included Bill Cotton (CSU), Terry Clark (NCAR), John Snook (NOAA) and Harry Orville (SDSMT). Lou Schreiner also gave a brief discussion of the plans of the USBR to use models to contribute to the PMP work.

b. Presentation summary

Bill Cotton's presentation included a series of experiences with the CSU-RAMS model and some speculation of the use of RAMS to simulate storms at higher elevations with heavy rain. He indicated that a spatial resolution of 1-2 km would be required to simulate large storms. He anticipated the environment of the large storms includes:

- synoptic ridge
- shortwave trough
- low level jet
- stationary front
- weak winds aloft
- weak vertical shear

Initialization of the model is very important and information of soil moisture and vegetation is really needed. He hypothesized that dry soil at higher elevations could lead to stronger upslope winds in developing convection.

In regards to the idea that there might be an elevation limitation on heavy rain, he thought high mixing ratio air might be used by storms before it gets to high elevations and that much of the high elevation precipitation could fall as hail. He talked about the complexity of the cloud microphysics and indicated that the newest version was not running in the model at this time.

Terry Clark discussed the use of the Clark model in several areas which included wind storms, forest fires, and a project specifically related to precipitation in Arizona for both summer flash floods and winter precipitation. He showed comparisons of model simulations with observations of precipitation. Results of the comparisons indicated the

model can produce quantitatively good precipitation estimates both in magnitude and spatial location. These results include mesoscale phenomena with considerable spatial variation. He indicated a 2.7 km grid had been used and increased resolution would be desirable for convection. He thought increased spatial resolution would also increase precipitation in some locations. He would like to see the model simulate rain and then include the simulation of run-off.

Lou Schreiner presented an outline of how he saw the Bureau of Reclamation using large models. He is primarily interested in estimates of Probable Maximum Precipitation which is the maximum storm that nature can produce. He would like the models to be able to help with estimates of PMP on the plains and in the mountains, in regard to the transposition of storms from one location to another, and in variations with elevation. He plans to utilize the existing models.

John Snook has been running the CSU-RAMS and the NCAR-MM5 model in essentially an operational mode at a horizontal resolution of 10 km for Colorado starting each 12 hours. He used a special NOAA system to obtain data analyzed on a 10 km grid for initialization. At present the system is constrained by computer resources and real-time operational requirements. His evaluation is that the mesoscale models are capable of providing reliable answers to large convective storms. He agreed that the grid spacing must be smaller than 10 km.

Harry Orville (South Dakota School of Mines and Technology) spoke primarily about the Black Hills of North Dakota which are dimensionally approximately 200 km in the north-south direction and 100 km in the east-west direction with elevations much lower than the Rocky Mountains. He showed a series of very detailed simulation results for the 1972 flood event in the Black Hills. This event had up to 15 inches of rain. He talked about 2D and 3D simulations. He thinks quite a lot can be learned from the 2D simulations, but the 3D model results are needed to locate the storm relative to the topography.

c. Discussion

The discussion following the presentation included all of the participants and was orientated to four topics which included:

- · capability to simulate events,
- capability to verify events,
- time and cost.

Most of the time was spent on the first of these topics but a summary of each is given here.

Each group using the models (Clark, RAMS, MM5) thought the models could be used to simulate large convective storms successfully. Everyone agreed the grid spacing had to be near 1 km. More discussion emerged regarding initialization, cloud microphysics, surface vegetation and soil moisture, and use of 2D versus 3D models.

Two views emerged in regards to initialization. One was that past storms could be simulated with a moderate effort. The second was that the initialization was a significant problem and that more progress could be made by watching for good cases in the future and then perturbing the conditions to make the storm rain more than it actually did or to move the storm from one location to another. Both views have merit and both should be considered worthwhile. A caution was raised that some of the past storms may not have enough information available for simulations.

The discussion of cloud microphysics had two thrusts. If higher elevations are involved and some of the precipitation could fall as ice, then the more sophisticated microphysics versions will be required. If temperatures are warm enough that all precipitation will be rain, then the group had more diversity in their opinions about the need for sophisticated microphysics. The need to understand how the storms change as they occur at different elevations led to more agreement about the need to use advanced cloud microphysics.

The importance of surface vegetation and soil moisture was raised as a concern but no uniformity of opinion was reached. Several participants thought the sensitivity of the models to variations in these parameters should be explored. The main idea is that dry soil could lead to warmer surface temperatures and could lead to larger inflow wind speeds and perhaps a way to give preferential locations for storm development. Everyone was concerned and uncertain how information about soil moisture could be obtained.

Experience in the Black Hills area indicates that 2D and 3D model simulations can be important to understand large storm characteristics. Due to cost and time involved in the simulations, many more 2D simulations can be done for given resources but the 3D is needed to get the most information about storm structure and the three necessary storm properties of depth, area, and duration. A critical reminder that the Black Hills do not extend above 7,500 feet is always needed. One conclusion is that 2D simulations may have utility when applied to Colorado's high elevation topography.

The capability to verify large storm events is related to the current system of radars, surface and upper air observations, and analysis of these data. The new WSR-88D radars (Cheyenne, WY; Denver, Pueblo, and Grand Junction, CO) have a high probability of capturing most storms and will observe storm area and duration well with total precipitation somewhat less accurate due primarily to effects of ice and hail. The radar will also provide observation of wind in the storms that can be compared with model simulations. The conclusion of this discussion was that a major effort should be made to capture all data related to future large storms.

The discussion of time and cost were not as definitive as the other topics. The discussion centered on ideas put forward by CSU and NCAR. Much of the discussion centered on the time and cost to simulate storms from the past. This dealt with the question of initializing the models. Each group agreed that once one of the large storms had been simulated well then others would be easier and quicker. Each group agreed that

simulating a storm with current information for initialization would be quicker and less costly. Another interesting part of the discussion was related to the question – once a large storm has been simulated, how do we move the storm in the mountain areas to another location at higher or lower elevation? This will not be known until several methods are tried to learn what is successful. It was clearly recognized that the ability to move storms to slightly different areas was important to future planning and decision-making in Colorado. The estimates of cost and time while not precise, were targeted near a total of \$300,000 and 2 years. A final comment is that the confidence in the results of the model simulations would be much higher if two different models produced similar results.

Table 3. Meeting Agenda for Workshop on the Potential to Model Large Convective Storms in Complex Terrain

Friday, April 19, 1996

Tom McKee, Coordinator

Room 113, H. Riehl Conference Room Department of Atmospheric Science Colorado State University Fort Collins, Colorado

8:30 am	Light breakfast
9:00	Welcome and Introduction - Tom McKee, CSU
9:15	Historical Storms and Scientific Uncertainty
9:45	Model Perspective - Bill Cotton, CSU
10:15	Break
10:30	Model Perspective - Terry Clark, NCAR
11:00	New Project Lou Schreiner, USBR
11:30	Model Perspective - John Snook, NOAA
noon	Catered Lunch
1:00 pm	Experience in the Black Hills - Harry Orville, SDSMT
1:00 pm 1:30	Experience in the Black Hills - Harry Orville, SDSMT Discussion of Current Status and Plans
•	
1:30	Discussion of Current Status and Plans
1:30 2:30	Discussion of Current Status and Plans Break
1:30 2:30	Discussion of Current Status and Plans Break Definition 1) Capability to simulate events 2) Capability to verify events 3) Time and effort

Table 4. List of Attendees

Workshop on the Potential to Model Large Convective **Storms in Complex Terrain**

Friday, April 19, 1996 Department of Atmospheric Science Colorado State University, Fort Collins, Colorado 80523

Dr. Terry Clark NCAR, MMM P.O. Box 3000 Boulder, CO 80307 phone: (303) 497-8978 fax: (303) 497-8181

Dr. William Cotton Atmospheric Science Department Colorado State University Fort Collins, CO 80523-1371 phone: (970) 491-8593 fax: (970) 491-8449

Mr. Loren Crow Loren Crow Consultants, Inc. 3064 Monroe Denver, CO 80210 phone: (303) 753-6500

Mr. Nolan Doesken Colorado Climate Center Atmospheric Science Department Colorado State University Fort Collins, CO 80523-1371 phone: (970) 491-8545 fax: (970) 491-8449

Mr. John England Civil Engineering Department Colorado State University **Engineering Research Center** Fort Collins, CO 80523 phone:

Mr. Paul Gaard National Weather Service 10230 Smith Road Denver, CO 80239 phone: (303) 361-0661 fax: (303) 371-5508

Ms. Karolette Greene Denver Water Board 1600 West 12th Avenue Denver, CO 80254 phone: (303) 628-6000 fax: (303) 628-6851

Mr. Chuck Haines Wright Water Engineers 2490 West 26th Avenue, #100A Denver, CO 80211 phone: (303) 480-1700 fax: (303) 480-1020

Mr. Larry Lang Department of Water Resources Colorado Water Conservation Board 1313 Sherman Street, Room 721 Denver, CO 80203 phone: (303) 866-3441 fax: (303) 866-4474

Dr. Dave Matthews U.S. Bureau of Reclamation PO Box 25007 Denver Federal Center Denver, CO 80225 phone: (303) 263-0123 X221 fax: (303) 236-0199

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8) Recommended Final Storm List and Associated Data Resources

The culmination of the Extreme Precipitation Data Study was the selection of a subset of extreme storms that represent the heaviest rains that have been documented in Colorado in the various regions of the state during the period of instrumental record. A recommended set of storms was presented at an all-day meeting of the Extreme Precipitation Committee convened by the State Engineer's Office on October 24, 1996. Based on recommendations of the committee, a few minor changes were made to the proposed list with the final results appearing in Table 5. Approximately 10 percent of all storms on the overall storm list were included in this final set. Note that the majority of storms on this list have occurred since 1950. For storms with relatively similar rainfall amounts and peak flows, more recent storms were selected due to greater availability of supporting meteorological data (radar, satellite, soundings, surface observations, etc.) that could be essential for numerical modeling applications.

Table 5. Recommended final list of storms for consideration in investigating extreme rainfall potential in the Rocky Mountain region of Colorado. Locations of climatic regions are shown on Figure 2, page 7.

No.	Storm Name	Date	Maximum Precipitation	Climatic Region
15	Western Colorado	Oct. 10-15, 1899	5" widespread	6
23	Livermore/ Boxelder	May 20-21, 1904	8 "	2 3
40	San Juans/ Gladstone	Oct. 4-6, 1911	4-8"	
61	Penrose/ Pueblo	Jun. 2-6, 1921	6-12"	2
63	Steamboat Springs	Jun. 14, 1921	3"	4 and 6
76	Mesa Verde	Aug. 3, 1924	3.5"/ 45 minutes	3 and 5
74	Savageton, WY	Sep. 27-29, 1923	17" in two days	I and 2
79	Palisade Lake	Jun. 26-29, 1927	4-7"	3
99	Cherry Creek/ Hale	May 30-31, 1935	12-24" local centers	1 and 2
113	Front Range	Sep. 2-3, 1938	6-10"	2
114	Masonville	Sep. 10, 1938	5-7" in 1 hr.	2
135	Lake George	Jul. 31, 1945	3.45"/ 1 hr. elev. 8,500 ft.	2
157	Western Colorado	Dec. 29-31, 1951	9" snow water equivalent	3,4,5,6
164	Rye	May 18-20, 1955	6-13"	2
173	San Luis	Aug. 12, 1957	2.9"/ hr. at 8,000 ft.	3
174	Gateway	Aug. 21, 1957	3"/ 1.5 hr.	5
175	Morgan, UT	Aug. 16, 1958	6-8 "	6
181	Pyramid	Sep. 20-24, 1961	3-5"	4 and 6
200	Plum Creek/ Holly	Jun. 16-17, 1965	14-16"	1 and 2
195	Gibson Dam, MT	Jun. 6-8, 1964	16"	2 and 4
215	Blanding, UT	Aug. 1, 1968	4-6"	5
217	Paonia	Aug. 8, 1968	4-5"	5
220	Big Elk Meadows	May 4-8, 1969	6-14"	2 and 4
231	SW CO/ Dove Creek	Sep. 4-6, 1970	6"	3 and 5
234	Rapid City, SD	Jun. 9, 1972	15"	2
237	SW CO/ Durango	Oct. 19-20, 1972	5"	3 and 5

Table 5. Recommended final list of storms for consideration in investigating extreme rainfall potential in the Rocky Mountain region of Colorado. Locations of climatic regions are shown on Figure 2, page 7.

No.	Storm Name	Storm Name Date Maximum Prec		Climatic Region
242	Sweetwater	Jul. 12, 1976	6"	4 and 6
243	Big Thompson	Jul. 31, 1976	12"	2
256	Frijole Creek	Jul. 2-3, 1981	8- 16"	2
270	Jim Creek	Jul. 20, 1983	2" in brief period/ high elev.	4
277	Redstone	Jun. 5-8, 1984	3"	3 and 4
304	Deadman Hill	Aug. 1, 1989	2.8" at high elev.	4
306	Opal, WY	Aug. 16, 1990	7"/ 2 hrs.	6
312	Rifle/ Govnmt, Creek	May 15, 1993	4"/ 2 hrs.	6
313	Delta/ Roubideau	Aug. 10, 1993	4"/ 2 hrs.	5
315	SW CO/ Wolf Creek	Aug. 27-30, 1993	3-6"	3

It is worth noting that the list of storms includes a subset of 11 storms that produced more than 10 inches of rainfall that stand out as by far the greatest rains reported in Colorado this century. No storms of this magnitude appear in the observed data in the high mountains or over western Colorado. By far the greatest propensity for such storms is along the eastern base of the Rocky Mountain foothills. Numerous other Front Range storms were not included on the final storm list even though their precipitation amounts may have significantly exceeded reported extremes for other areas of Colorado. Specific attention was given to include the most extreme observed General and Local Convective Storms for higher mountain and Western Slope locations even though rainfall amounts for these storms may be significantly less than Front Range storms.

Two consulting meteorological firms already familiar with extreme precipitation characteristics and the application of the probable maximum precipitation concept in the Rocky Mountain Region were hired as consultants to the Extreme Precipitation Data Study during the summer of 1996 to expand project expertise. The result of this participation was more detailed information on extreme storms that influence probable maximum precipitation estimates at higher elevations in Colorado. A portion of this consulting work was completed after the October 24, 1996 storm list review meeting. Written information about individual storms provided by the consultants; Henz Meteorological Services of Denver, Colorado and Dr. Ed Tomlinson working through North American Weather Consultants of Salt Lake City, Utah; were filed in the appropriate storm files and will be retained at the Colorado Climate Center.

Recommendations – Data collection needed to improve future estimates of extreme precipitation in the Colorado mountains.

Despite this intensive study of observed extreme precipitation in Colorado, there will continue to be debate and uncertainty concerning just how heavy high elevation rains could conceivably be. Some of this uncertainty is well justified considering the sparsity of long-term precipitation records at elevations above about 9,000 feet in Colorado. Figure 7 shows the maximum observed one-day precipitation amounts for Colorado weather stations as a function of elevation. This figure is intended to give a visual perspective of the variation of rain with elevation although some data points in Fig. 7 could be snow. A set of large one-day amounts which may be in other reports but are not included in Fig. 7 are given in Table 6 with the appropriate explanation of the occurrence of snow or an error of including two-day precipitation totals. The 8.05" at Gladstone on October 5, 1911 is questionable but it was a large rainstorm and has not been rejected for this figure. Except for the SNOTEL data, very little long-term data have existed at high elevations. Only a few of the SNOTEL data points include 15 years of data, and no SNOTEL sites in Colorado include daily observations prior to 1978. Due to this lack of observations in critical high-elevation locations, it is imperative that ongoing efforts be made to detect and describe extreme rainfall events at high elevations. Streamflow records exist for high elevation watersheds, and these records along with paleoflood evidence continue to point to a lack of extreme events, or more accurately, lower magnitude extreme events at high elevations above 7,500-8,000 feet in Colorado. However, with little corroborative meteorological evidence, uncertainty remains. Therefore, it is imperative that additional data be collected now and into the future if we wish to improve the confidence and widespread acceptance in the estimates of probable maximum precipitation in the Rocky Mountains.

A set of recommendations follow which suggest a variety of strategies and data collection activities that, if followed, would result in data that would greatly enhance and provide more confidence in future estimates and analysis of extreme precipitation.

1) Recently deployed National Weather Service WSR-88D meteorological radar installations near Denver, Pueblo, Grand Junction and Cheyenne, Wyoming offer better coverage of Colorado including most mountain areas and better remote rainfall estimation potential than at any time in history. Quantitative precipitation estimates may still be problematic, but radar reflectivity patterns will permit much improved analysis of storm areas and durations. These variables may hold the key to understanding high elevation storm characteristics. Therefore, NWS radar data should be collected and archived, and research efforts should be initiated to investigate storm characteristics over the mountains and how storm properties vary as a function of ground elevation near the storm areas. Particular emphasis should be made to assure radar data collection for the true extreme storm events comparable to those listed on Table 5.

Maximum 1 day Precipitation vs. Elevation

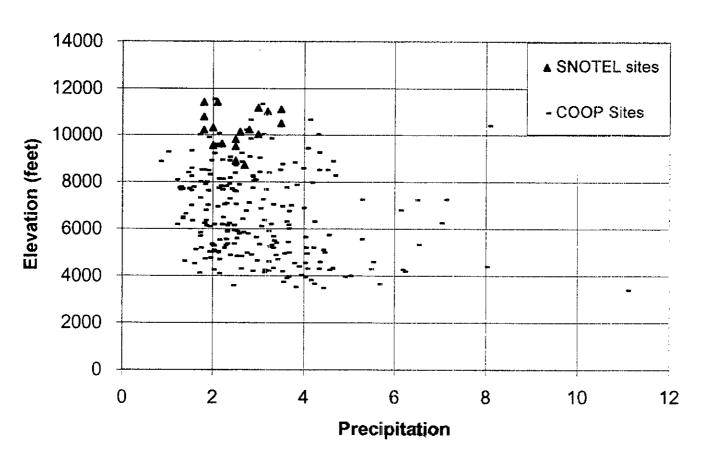


Figure 7. Maximum observed one-day precipitation amounts (in inches) as a function of elevation for Colorado weather stations and SNOTEL sites.

Table 6. One-day precipitation amounts not included in Figure 7.

Precipitation (inches)	Station	Elevation (feet)	Date	Comment
5.77	Pikes Peak	14,111	12/6/1892	Likely snow.
5.06	Lake Morain	10,265	5/18/1955	Snow.
5.60	Silver Lake	10,200	4/15/1921	Snow.
4.28	Cabin Creek	10,018	5/7/1969	Snow, elevation not 13,020 feet.
4.90	Wolf Creek Pass	9,430	12/30/1951	Snow.
4.91	La Veta Pass	9,242	6/18/1947	Two-day total listed; 4.30" is one-day total.
4.80	Longs Peak	9,000	4/15/1921	Snow.
5.14	Fremont Exp. Sta.	8,836	6/3/1921	Two-day total listed; 2.61" is one-day total.

- 2) Expansion of surface precipitation/rainfall measurements is needed in the mountains to support improved calibration of the NWS WSR-88D precipitation estimation algorithms and to improve the detection potential for extreme rains at high elevations. This must include some number of real-time reporting recording precipitation gauges.
- 3) A low-cost approach to increasing high-elevation data collection would be to recruit many more summertime volunteer weather observers in the Rocky Mountain region. Four-inch diameter plastic rain gauges could be purchased in quantity and distributed to interested summer residents in exchange for taking and recording daily rainfall measurements.
- 4) The value and utility of daily precipitation measurements from the USDA Natural Resources Conservation Service SNOTEL network is proving to be significant since this is the only existing network concentrated at higher elevations. The value of this data resource could be enhanced if the data were more fully quality controlled to improve accuracy and reliability of warm-season measurements. Also, providing more frequent reports from selected stations at intervals of one hour, three hours or at least six hours would allow this existing and well-maintained network to serve more hydrological applications.
- 5) Organizations currently involved in real-time or research-related precipitation data collection should be informed about the Extreme Precipitation Data Study and results. These groups should be encouraged to archive their precipitation data and provide it for future extreme precipitation studies and updates. When very heavy rainfall totals or rainfall rates are observed, these groups should be encouraged to bring these storms

promptly to the attention of the National Weather Service, the State Engineer, the Colorado Climate Center, or other members of the Colorado Extreme Precipitation Task Committee.

- 6) The list of large storms prepared during this project should be routinely updated so that each new qualifying extreme storm is included. It would also serve many useful purposes long into the future to routinely document significant floods each year as a part of an annual water resources publication series. Brief, descriptive flood reports containing stream gauge readings, indirect measurements, precipitation reports, discussions of antecedent conditions along with local photographs and discussions of damage (similar to those published by Follansbee and Sawyer of the U.S. Geological Survey back in 1948) would be heavily referenced. Flood documentation is easiest to do and most accurate when completed promptly after each event while memories and flood evidence are still intact.
- 7) Results from this study show that exceptionally heavy precipitation events similar to the Big Thompson flood, although rare in a specific sense, can actually be expected to occur somewhere in the state about once in any 10-20 year period. It is imperative that there be a plan in place to promptly and thoroughly investigate these storms in the future, documenting as well as possible rainfall intensities, magnitudes, areas and durations and publishing and archiving results. This cooperative effort needs to be strongly encouraged, since no one agency is currently responsible or funded to perform such investigations. Agencies concerned about this matter should meet to begin developing a cooperative interagency plan for conducting post analyses and reconstructions of future "extreme storms." Plans must include a clear definition of what constitutes an extreme storm so that ambiguity and confusion does not exist among cooperators.

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- Extreme Precipitation Committee Members.
- Loren Crow Consultants.
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Appendix A. Colorado Extreme Storm Precipitation Data Study — Complete Storm List

The following paragraphs describe the content of the extreme precipitation reports.

Each storm was given a brief descriptive name, usually based on the town, river or other landmark nearest the center of heaviest precipitation. A state name was assigned to each storm based on the state in which the heaviest precipitation fell. (Note: with large general storms, several states may receive heavy precipitation at the same time.) The date listed for each storm was the date on which the heaviest precipitation fell or the period of consecutive days when a larger storm system or episode first began and finally ended. Each storm was assigned one or more geographical regions based on a simple 6-region system as shown on Figure 2. Storms were categorized using a highly simplified meteorological typing scheme: 1) General (G) storms which were large multi-state storm systems accompanied by a clearly defined low pressure system and/or frontal boundaries, 2) Local Convective (LC) storms which were localized thunderstorms or thunderstorm complexes not clearly associated with large-scale atmospheric lifting mechanisms, and 3) Local Convective Storms embedded within General storm systems (GLC). Storms with air masses of tropical origin were not treated or categorized separately. A single latitude and longitude was assigned to most storms based on an estimate of the coordinates where the heaviest precipitation fell.

Two columns, "Maximum Precipitation" and "Remarks," were used to cryptically describe the heaviest rains associated with each listed storm. This was very inadequate for providing detailed storms descriptions, but was intended to provide sufficient information to a reader to allow a quick assessment as to the significance of the storm without additional research. For most storms, the "Maximum Precipitation" column listed the largest observed or estimated precipitation amount for each storm, if known. The "Remarks" column added supplemental reports or a very brief description of impacts. The storm list ends with two additional columns that indicate if information about the storm is on file at the U.S. Bureau of Reclamation Flood Hydrology Section at the Denver Federal Center and if a Depth-Area-Duration analysis has been performed.

			<u> </u>								USBR
Storm]					USBR	Depth Area
No.	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks	Storm File	Dur. Study
1	Cherry Creek	CO	May 20, 1864	2		39 39	104 51	Unknown			
				<u> </u>	1				Big flood thru Colorado Springs and E.		·
2	Fountain Creek	co	June 9-10, 1864	2	LC	38 50	104 44	Unknown	CO?	1	
		-		 					Snow storm at Pikes Peak, 3.19" 1		
3	Denver	co	May 22, 1876	2	G	39 45	105 00	6.50" 1 day, Denver	day, Front Range wide storm		
4	Cherry Creek	co	May 22, 1878		<u> </u>			Unknown			
١				 	1		1		Extensive snowmelt flooding, high		
5	Colorado River	co	June-July 1884	3-6	1	39 07	108 21	Unknown	water]	
-	00,010,000				 	-	1111				
			1	1	1	ļ	ł		Caused major but localized flooding,	!	
6	Templeton Gap	co	July 25, 1885	2	LC	39 00	104.39	Estimated 16" rain in few hours	floods on Cherry Creek and Bear Creek		
<u> </u>	Templeton Gap	-	Cary 20, 1000		 	00 00	104 00	Lowner To Territ Torribato	Localized rain caused major		
7	Clear Creek	co	August 1, 1888	2	LC	30 48	105 24	Walden - 1.03", Home - 1.37"	flooding	1	
<u> </u>	Clear Creek	00	August 1, 1000	-	1 20	100 70	1100 2.4	**************************************	>4" several Ft. Range locations,		
8	Ward District	СО	May 29-31, 1894	2	G	an na	105 32	5.50" 24 hrs, Lake Moraine, CO	Boulder Creek flood	x	
9	Ruby	co	January 16-17, 1895	3				4.72" - Ruby (storm total) ,47" snow	Heavy snows in mtns and SW CO		
3	Ruby	CO	January 10-17, 1055		-	30 31	107 00	4.12 - Ruby (Storiff total) ,47 - Show	Heavy snow in mountains, rains in		
10	Climax	co	May 29-30, 1895	4	G	30.22	106 10	4.20" storm total, 42" snow	eastern Colorado	l	
10	Cliniax	00	Way 29-30, 1093	 	 	39 22	100 10	Cloud burst reported 8 miles SW of	eastern Colorado		
۱	Dans Creek at Marriage	co	July 24 1906	2	10	30 35	105 21	Evergreen	No extreme precip, reports found in CO		
11	Bear Creek at Morrison	<u> </u>	July 24, 1896	-	10	39 33	103 21	Evergreen	Floods in Louisville, Marshall, Boulder		
l			11 20 . 4000		ł	40.40	105.04	4.000 1			
12	Longmont	co	May 30, 1896	2	 	40 10	105 04	4.62" Longmont - 1.5 hrs	Cty, large hall - locally heavy T-storms	ļ	
1			100	1	١.,	00 40	100.00	4.50" at Kit Carson in 3 hrs with	3.50" First View from 4:50 - 8:30 pm,		
13	Cheyenne County	co	August 21, 1896	1	LU_	38 49	102 32	heavy wind	hall		
1.	Adel (Central MT, Great Falls			١ .	1	47 00	144 40	0.00% 8.4-1.847	N		
14	area)	MT	June 29-July 1, 1898	2	 	47 00	1111 40	3.80" Adel, MT	No extreme precip, reported in CO		
1			l		_		1		Heavy rains up to 5" in western CO,		[
15	Western Colorado	CO	October 10-15, 1899	5	G	39 27	108 03	5.64" 132 hrs - Parachute, CO	changed to snow at high elevations	X	X
					_	l	l		4-5" rains throughout CO, mix of		
16	Springfield	CO	April 4-5, 1900	1				8.40" Springfield - from April 4-6	rain/snow in areas		
17	Big Timber	MT	April 22-24, 1900	2	G	45 50	109 57	6.60" Big Timber, MT	No extreme precip, reported in CO	X	Х
18	Canyon Ferry	MT	May 11-13, 1900	4	G	46 38	111 42	4.20" Canyon Ferry, MT	No extreme precip. reported in CO.	X	Х
1		1		1	1	l	1	5.02" 1 day, Alford, 5.60" at Fort	Widespread Front Range system,		
19	Larimer County	CO	May 19-21, 1901	2				Collins in 30 hrs	probably also Eastern CO.		
20	Kipp	MT	May 19-20, 1902	4	G	48 30	112 45	3.10" Kipp, MT	No extreme precip, reported in CO		
					1			6.22" storm total - Fort Collins (26	Heavy rain and sleet over north-central		
21	North Central	CO	September 20-21, 1902	2	G	40 35	105 09	hrs)	CO	L	
					1		1		Rain across north central and central		
1		1		}	1		1	6.40"- storm total - Boxelder	CO, rain changing to snow at high		
22	Boxelder	co	May 1-3, 1904	2	G	40 59	105 11	5.17"- storm total - Victor	elevations]	
<u> </u>		1		1	1		1	i	Huge flood on North Fork and Poudre		
23	Livermore-Boxelder	co	May 20-21, 1904	2	LC	40 59	105 11	8.00" at Boxelder	River		
			<u> </u>					5.50" at Spearfish, SD,			
24	Spearfish	SD	June 2-5, 1904	2	G	44 29	103 47	2.21" 24 hrs, Platte Canyon, CO	Heaviest rains in Black Hills	<u> </u>	
F	Hogan's Gulch (SE of	Ť		1	†	1	1				
25	Colorado Springs)	co	August 7, 1904	2	LC	38 49	104 42	Unknown	Localized intense rains E of mtns		
1	Tanana akunda.	<u> </u>				,				لب	

		T		r -	T		T				
Storm				ĺ	ĺ	ĺ	1	ĺ		USBR	USBR Depth Area
No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks		Dur. Study
26	Trinidad	co	September 3, 1904	2	LC			6.00" near Trinidad, upstream	Flooding on Purgatory River	Storm File	Dui. Study
		1		 	 	 • • • • • • • • • • • • • • • • • • •	10,00	7.92" at Rociada, NM,	T ROOMING ON F digatory rever	 	
27	Rociada	NM	September 26-30, 1904	2	l G	35 52	105 20	5.15" 48 hrs, Hoehne, CO	Flooding at Trinidad	x	x
		1.3,7,	Copicinist 20 00, 1004		 	00 02	100 20	5:10 40 fills, floering, CO	Flooding at Tillidad	 ^ 	
		Į		1			ļ		Widespread 5" totals across northern	l l	
28	Warrick	Імт	June 6-8, 1906	1 1	G	48 04	100 30	13.31" Warrick, MT (3 days)	MT, no extreme precip, reported in CO		x
29	Fort Meade	SD	June 12-13, 1907	1				6.60" Ft. Meade, SD	No extreme precip, reported in CO	X	^
		-	100110 12 10, 1001	 	O.C.	177 00	100 20	0.00 Tt. Neade, SD	3-5" across MT, no extreme precip.		
30	Choteau	МТ	June 21-23, 1907	2	GIC	47 49	112 10	6.40" Choteau, MT	reported in CO	ŀ	
-	 	1	04.10 21 25, 1007		1 020	77 70	112 10	O.40 Onoteau, WT	1-2" totals over Front Range and	 	
31	Fort Morgan	lco	July 26, 1907	1	10	40 15	103 48	4.04" 1 day, Fort Morgan	leastern CO	1 1	
32	Evans	MT	June 3-6, 1908	2	G	47 11	111 08	8.00" Evans, MT	No extreme precip, reported in CO	 	
33	May Valley	co	October 18-19, 1908	1-1-	G	38 03	102 39	5.95" 24 hrs, Eads, CO	Large flood Holly and SE CO	X	X
33	Ivilly Valley	100	October 10-19, 1900	 ' -	 	30 03	102 30	5.95 24 ms, Eads, CO		ļ	
34	Dolores	co	December 14-17, 1908	5	G	27 20	100 20	E 60" 70 hrs. Deleves. CO	Heavy rains in AZ and SW CO - 2-5"		
35	Norris (SW MT)	MT	May 22-24, 1909	2	G	31 ZO	100 30	5.60" 72 hrs, Dolores, CO 5.04" 1 day, Norris, MT	totals, snow at high elevations	 	
36	Utah	UT	Aug. 28 - Sep. 1, 1909	5		30 00	440 00	Up to 5" in Utah	No extreme precip. reported in CO	X	X
30	Otan	101	Aug. 26 - Sep. 1, 1909	3	GLC	139 00	1112 00	Op to 5 in Otan	Floods, property damage in Utah	X	Х
37	SW Colorado - Cascade	co	S-mto-mb 2 7 4000	١ ,	مما	107 40	407 40	0.001.04 has 0.000.00	4.49" 108 hrs, Cascade, heavy Ft.	ļ I	
38	Half Moon Pass	MT	September 3-7, 1909	3 2				2.90" 24 hrs, Cascade, CO	Range rains, flood on San Juan River	Х	X
38	Hair Woon Pass	IM1	June 7-8, 1910	<u> </u>	G	46 39	109 18	6.00" Half Moon Pass, MT	No extreme precip, reported in CO		
	Mahlaa Basah		D t t 0 0 4044						2-6" over north-central MT, no extreme	1 1	
39	Knobles Ranch	MT	September 3-6, 1911	2_	G	48 55	111 33	7.60" Knobles Ranch, MT	precip. reported in CO	<u> </u>	
1		l			1			8.05" 24 hrs, Gladstone, CO. Storm			
l.,	Com Lucus Double	امما	10 416 1114 0 4044		ا ا			real but max precip. values is	Large flood Durango and Animas River,	'1	
40	San Juan Range	CO	October 4-6, 1911	3	G_			suspect.	many 3-4" totals	X	Х
41	Bowen	MT	October 10-11, 1911	3,4	G	45 45	113 27	2.12" Bowen, MT - storm total	No extreme precip. reported in CO	X	Х
1	lan ii a	1		١ _		l			2-3" totals over west-central CO, rain		
42	Columbine Ranch	со	March 19-21, 1912	6_	G	39 02	107 31	2.60" 24 hrs, Columbine Ranch, CO		X	X
				ļ <u> </u>	_	_ _		[2-6" totals from Las Vegas to Raton,	1	
43	Fort Union	NM	June 6-12, 1913	2	G	35 56	105 05	7.90" - storm total, Fort Union	NM, few 1-2" in southern CO	X	Х
ŀ	1	l	1						Huge snow storm over north-central		
ł	Front Range, east of		}	}	,	}	ļ	5.80" - storm total, Frances - 66"	CO, up to 70" snow in mins with large		
44	continental divide	co	December 4-5, 1913	2	G	39 42	105 35	snow	water content.	<u> </u>	
Į.	l	l	ł		l				1-3" totals over SW Colorado, mostly		
45	Rico	co	January 25-27, 1914	3	G	37 41	108 02	5.37" 3 days, Rico 42" snow	snow		
ł	ł	l	1					9.60"- storm total, Clayton, NM	3-9" in NE New Mexico, up to 7" in SE		
46	Clayton	NM	April 29-May 2,1914	1	G	36 20	103 06	6.49" - storm total, Campo, CO	Colorado	(x (Х
		1	ł		["			3.90" - storm total, Malta, UT	2-3" totals over eastern and central MT,		
47	Malta	MT	June 12-14, 1914	1	GLC	48 21	107 53	3.45" 24 hours, Kersey, CO	1-3" totals over CO	1 1	
Ì		1	l		l	l		3.50" 1 day, Telluride, 6.95" over 3	Mudslide buried Telluride 7/27/14 but	j	
48	Telluride	CO	July 27, 1914	3	LC	37 57	107 49	days (reported in August)	precip reported on 8/26/14] [
	Adel (Central MT, Great Fails					1			2-5" totals over central MT, no extreme		
49	area)	MT	June 1-5, 1915	2	G	47 00	111 40	6.70" 108 hrs, Adel	precip. reported in CO	x	X
		1			I				Many 2-4" totals across NM, 2-3" totals		
50	Tajlque	NM	July 19-28, 1915	2		34 46	106 20	9.90" 240 hrs, Tajique	over southern CO	x	Х
51	Columbine	CO_	September 9-10, 1915	4	G	40 52	106 57	2.57" Columbine		X	

					1		I			<u> </u>	USBR
Storm					ĺ	1	1			USBR	Depth Area
No.	Storm Name	State	Storm Date	Region	Туре	Lat		Maximum Precipitation	Remarks	Storm File	Dur. Study
52	Sun River Canyon	MT	June 19-22, 1916	2,4	GLC	47 37	112 45	8.80" Sun River Canyon, MT	No extreme precip, reported in CO	Х	X
53	Hoyt	co	July 29-31, 1916	1	LC	39 57	104 05	6.36" - storm total, Hoyt	3-5" totals over CO		1
									Small area in west-central CO affected,		
54	Taylor Park Basin	co	March 4-9, 1918	3	G	38 50	106 55	3.37" - storm total, Savage Basin	mostly snow	Х	X
					T			5.90" - storm total, Pine Grove, MT		1	1
55	Pine Grove	MT	July 14-15, 1918	1	LC	46 50	109 05	3.36" 24 hours LeRoy, CO	2-4" totals in MT and in eastern CO	1	i
					T	1	T		Heavy storm W. of Drake, major flood		
	Drake/Big Thompson	co	July 31, 1919	2	LC	40 26	105 20	4.80" 1 day Boulder	surge	1	
57	Browning	MT	September 27-28, 1919	4	G	48 34	113 01	3.30" Browning, MT	No extreme precip, reported in CO		1
								5.45" - storm total, Palisade Lakes,	Centered in 4-corners area, 3-5" totals		1
58	Palisade Lakes	co	November 26-27, 1919	3	G	37 29	107 10	43" snow	over SW CO	Х	1
					1				2-5" totals over most of SD, no extreme]
59	Vale	SD	May 9-12, 1920	2	G	44 37	103 24	6.40" Vale, SD	precip. reported in CO	X	i x
						1			Storm affected Front Range/mtns,		
60	Fry's Ranch	co	April 14-16, 1921	2	G	40 43	105 43	7.60" - storm total, Fry's Ranch	heavy rain changing to snow	Х	X
									Huge flood thru Pueblo but flooding		
61	Penrose	co	June 2-6, 1921	2				9.00" 72 hrs, Silver Lake, CO	throughout E. CO	Х	×
62	Snowmass	CO	June 14, 1921	3	LC	39 12	106 55	.57" 1 day, Nast	Cloudburst, mudslide		
					1			Steamboat heavy rain on 14th, No	Floods on CO and Animas River, hot	· · · · · · · · · · · · · · · · · · ·	
63	Western Colorado	CO	June 11-13, 1921	4,5)	37 48	107 40	extreme precip, found in CD	temps, snowmelt	J	j .
							1				i
l	}	ł		}	1	l		1	Heavy rains, >12" in eastern Montana,		
64	Montana	MT	June 15-21, 1921	1	GLC	47 00	106 00	Unknown	no extreme precip, reported in CO	Х	
		i i			T]	3.10" - storm total, Denver, 4.6"			i
65	Denver	co	August 17-25, 1921	2	LC	39 45	105 01	LaVeta Pass	1-3" over most of CO	Ì	
									Heaviest July 28, flood on Cherry		
66	Grover	co	July 27-August 3, 1922	1	LC	39 45	105 32	3.00" 24 hrs, Grover, CO	Creek, widespread rains	Х	
		1			1	{			Cloudburst, no extreme precip. reported		
67	Versylia	NM	August 17, 1922	2	LC	36 47	105 38	7.50"- 4 hrs, Versylia, NM	in CO	X	
	Missouri Canyon near			[
68	Masonviile	co	June 15, 1923	2				2.50" in 30 minutes	Flood at Buckhorn Creek		1
69	Hays	MT	June 16-21, 1923	1,2				Unknown	2.96" 24 hrs, Holly, CO		
70	Florence	co	July 16, 1923	2	LC	38 23	105 08	.76" Canon City			
				1		l	1		2-4" totals in northern WY, 3.25" 48		
71	Sheridan	WY	July 22-26, 1923	2				5.60" - storm total, Sheridan, WY	hrs, Silver Lake, CO		
72	Colorado	co	August 11-17, 1923	2-5	LC	37 00	105 00	2.88" 1 day, Cucharas Camp	Several 2" - 24 hrs, widespread	Χ	X
					l	1	1		Severe flooding, train derailed, 5 dead,		
73	NE Arizona	AZ	September 16-18, 1923	3,5	GLC	33 58	112 44	4.50" Wickenburg - Sept 17-18	1-2" totals SW CO		
	1				ļ _		1		Many areas in WY >5", no extreme		
74	Savageton	WY	Sep. 27-Oct. 1, 1923	1,2	G	43 52	105 47	17.10" Savageton, WY (48 hrs)	precip. reported in CO	X	X
L					_	l		5.77" storm total - Lander, most in 2			
75	Lander	WY	May 27-30, 1924	6	<u>G</u>	42 50	108 44		No extreme precip, reported in CO	Х	X
l								3.50" at Mesa Verde NP in 45		}	j
76	Mesa Verde NP	co	August 3, 1924	3,5	LC	37 12	108 30	minutes	Cloudburst, elevation - 6,930 ft		
l				_	,_						
77	Trinidad	CO	July 19-22, 1925	2	LC	3/ 10	1104 30	Estimated 5" in 40 min VV of Trinidad	Major flood came down Purgatory River		L

		T		-	<u> </u>						USBR
Storm			l	L .	<u> </u>	l		.	. Damanda	USBR	Depth Area
No.	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks 4.04" total storm, Ignacio, CO, flooding	Storm File	Dur. Study
		l					407.00	0.041.04 has \$4551551.00			
78	Ignacio	co	August 17-25, 1925	5	GLC	37 08	107 38	3.24" 24 hrs, Meeker, CO	on St. Charles River		ļ
		1		l _					Widespread heavy high elevation rain	1 .,	١ ,
79	Palisade Lake	co	June 26-29, 1927	3				5.90" 84 hrs, Palisade Lakes	over SW CO	X	X
	S. of Hesperus	co	August 24, 1927	5				Unknown	Brief but major flooding on LaPlata		
81	Southwest CO	CO	September 3-14, 1927	3				7.49" 7 days, Crested Butte	3-5" totals over SW CO	X	
82	Cheesman	CO	July 19-24, 1929	2				3.82" 138 hrs, Cheesman, CO	1-3" totals over central CO	Х	X
83	Southwest CO	CO	July 27-August 7, 1929	1,2,3	LC	37 33	107 49	6.50" storm total, Terminal Dam	Monsoon rains, 2-5" totals in SW CO	Х	X
							i	6.50" - storm total, Des Moines, NM	Northern NM and southern CO, 2-4" in	1	1
84	Valmora	NM	August 6-11, 1929	1	LC	35 49	104 56	3.59" Bloom, CO	CO	<u> </u>	<u> </u>
85	Gallinas Pit, St.	NM	September 20-23, 1929	1,2	GLC	35 09	105 39	4.90" Gallinas Pit St., NM	No extreme precip, reported in CO	X	
				1	T			7.00" 3 hrs, Cope		1	
86	Rifle	co	August 9, 1930	1,6	LC	39 31	107 47	2.15" 160 minutes at Rifle	Cloudburst, local flooding		l
				1		1		2.50" 2 days, La Veta Pass - 3.00" 2	Widespread heavy storms up against		
87	Apishapa River	co	August 11, 1930	2	LC	37 20	104 45	days Victor	Spanish Peaks	X	I
88	Waterdale	CO	August 14, 1930	2	LC	40 25	105 12	3.54" in 24 hrs - Waterdale	Rains across northern CO		
-	77444	+	, , , , , , , , , , , , , , , , , , , ,					12.36" - storm total at Meeker, OK	Rain across OK, TX, KS, and		
89	Meeker	ок	June 2-6, 1932	1	GLC	38 28	101 46		southeastern CO	X	l x
90	Julesburg	co	August 13, 1932	1				3.15" 1 hr - Julesburg	unofficial greater amounts reported	1	İ
91	Silverton	co	August 25-29, 1932	3	LC	37 48	107 40	2.75" - storm total at Silverton	1-2" in southwest CO	Х	X
31	Ollverton	+	7 (agust 20 20; 1002	<u>-</u>	 -==- -	1	1	5.04" - storm total at Westcliffe, 46.3"			
92	Westcliffe	co	April 19-22, 1933	2	l G	38 08	105 28	snow	Heavy snow in mtns	Х	l x
32	VVestollite	100	7,011 10 22, 1000	 -	 	10000	· · · · · · · · · · · · · · · · · · ·		"Cloudburst" near Idledale, significant		1
93	Bear Creek	co	July 7, 1933	2	LC	39 38	105 15	Unknown	flooding		1
90	Deal Cleek	100	July 1, 1000		1	100 00	1,00		intense rains of 3-9" overnight, upper	1	
94	Cherry Creek	co	August 2-3, 1933	1,2	LC	39 39	104 51	3.90" 1 day, Calhan	basin 6500-7500 ft		1
95	Kassler	co	September 9-11, 1933	2	G			4.24" - storm total, Kassler	Flooding in Denver	X	X
90	Bear Creek/Mount Vernon	 00 	September 9-11, 1905	 	 ~	00 00	1.00 00	7.2.1			1 · · · · ·
		co	August 9, 1934	2	LC	30 38	105 15	Unknown	Floods killed 6 people, heavy hall	ļ.	
96	Canyon	100	August 9, 1934	 	1	133 30	100 10	Officion	Sheets of water caused flooding in	 	
l	D	100	Cantomber 45, 4024	1	LC	37 40	103 53	Unknown	Purgatory basin		ŀ
97	Purgatory River	co	September 15, 1934	 	1 20	37 10	103 32	4.29" 2 days, Fremont Exp St., 20.5"	rusgatory basin	 	
		امما	1005	2	G	20 54	104 57		Snow in mtns	1	1
98	Fremont Exp. Station	co	May 17, 1935		1 - 6 -	30 31	104 3/	snow	Officer at titues	 	
1	Ì		1		1	1	1	Down and a Coll for O hours at O allhouse houses	CALL in Chan (constitute) many titule	1	1
i			l	1			400 00	Report of 9" in 2 hrs at Seibert, huge	24" in 6 hrs (unofficial) near Hale		,
99	Cherry Creek - Hale	CO	May 30-31, 1935	1	GLC	39 36	102 08	floods Bijou Creek and Republican	USBR report, 3.00" at Rush	X	X
	1		1		1			>6-9" in a couple of hrs - SE of			
100	SE of Lamar	CO	July 11-12, 1935	1	LC	<u> 38 04</u>	102 37	Lamar		 	
	Horse Creek (north of				1	l				1	
101	Holly)	CO	August 28-29, 1935	1	LC_			>7-11" in several hrs - Horse Creek	Destroyed new reservoir	 	ļ
102	Las Cruces	NM	August 29-30, 1935			32 30	106 77	10.00" in 9 hrs - Las Cruces	No extreme precip, reported in CO		ļ
		1						3.30" 72 hrs Silver Lake, UT, mostly			
103	Silver Lake	lυτ	February 1-3, 1936	4	G		111 35		2.20" 24 hrs, Telluride - 22" snow	X	X
104	Alta	co	February 19-24, 1936	4	G			6.50" 132 hrs, Alta, UT	3.19" 48 hrs, Crested Butte - 29" snow	Х	X
105	Pitkin	lco	July 17, 1936	3	LC	38 36	106 32	1.80" 75 minutes, Pitkin, CO	Cement Creek Flood on July 16th		1

		I			Ι		(·			ľ	USBR
Storm					1						Depth Area
	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks	Storm File	Dur. Study
									Local "cloudburst" caused flooding on		
106	West of Gardner	co	July 27, 1936	2				Unknown	Huerfano Creek		
107	Leadville	CO	July 27, 1937	3	LC	39 15	106 18		Data very suspicious		
								8.40" - storm total - Junipine, AZ	Heaviest rains across central AZ and		
108	Junipine	AZ	Feb. 28-March 5, 1938	3,5	G	37 00	112 30	3.32" 48 hrs, Silverton, CO	SW UT	Х	X
					1				2-5" in southern MT, no extreme precip.		
109	Big Timber	MT	May 17-20, 1938	2	G	45 50	109 57	5.70" Big Timber, MT - storm total	reported in CO	Х	X
								10.00" 8N Sharon Springs, KS -	Heavy rains in Kansas, extreme eastern		
110	Sharon Springs 8N	KS	May 30-31, 1938	1	G			storm total, 2.10" at Burlington, CO	CO also affected.	<u> </u>	
111	Crested Butte	CO	June 20-23, 1938	3				2.40" 72 hrs, Crested Butte, CO	1-2" in central and SW CO	X	X
112	San isabel	CO	July 13, 1938	2	LC	37 59	105 03	4.48" 1 day, San Isabel			
		1			1				7" in 6 hrs near Morrison, severe	İ	
		ļ			1				flooding of several Front Range		
113	West Slope/Front Range	CO	Aug. 31-Sep. 4, 1938	2,5	GLC	39 57	105 21	8.57" 48 hrs, Waterdale, CO	streams, mostly on Sep. 2	X	Х
								Local reports in SW Fort Collins of 5-	l		
114	Masonville	co	September 10, 1938	2	LC	40 26	105 13	7" <1 hr, reports suspect.	No extreme precip, reports found in CO	X	
									Heavy rains over AZ, NM and CA from	ļ	ŀ
		1					l		tropical disturbance, no extreme precip.		
115	Arizona/California	AZ/CA	September 3-8, 1939	5	GLC	33 00	115 50	6-7" near Imperial Valley	reported in CO		
		<u> </u>		_					Heavy rains from tropical disturbance,	1	•
116	Arizona/California/Nevada	AZ.	September 8-13, 1939	5	GLC	35 00	114 00	4-5" in AZ, NV and CA	no extreme precip, reported in CO		
l				_	١		100 50	7511 0-1	Local "cloudburst" caused flooding at	,	<u> </u>
117	Near Gateway	CO	July 16, 1940	5	LC	38 42	108 56	.75" - Colorado Ntl Mon 1.08" 1 day, Wolf Creek Pass - 3.63"	West Creek	Х	
]							100 47		2" Antoin aver 0144 CO	l x	х
118	Southwest CO	CO	April 10-15, 1941	3,5	G	37 28	105 47	storm total 1.46" - 1.5 hrs at Ordway	3" totals over SW CO Observer noted very destructive hall		
1 .				١.,		00.40	400 45		between Ordway and Olney Springs		
119	Pueblo - LaJunta area	co	August 26-27, 1941	1 1	LC	33 13	103 45	1.15" at Two Buttes	2-3" totals over eastern MT and ND, no	 	ļ
1			0 1 0 0 4044		010	45 05	107 55	2 90" 42 hrs. Comphell Form Comp	extreme precip reported in CO	l	ł
120	Campbell Farm Camp	MT	September 6-8, 1941	1	GLC	45 25	107 33	3.80" 42 hrs, Campbell Farm Camp	Steady rains in SW CO and eastern	 	
l			0 4 10 40 -00 -40 44	3	G	27 44	100 00	3.85" Rico, CO - storm total	plains, snow at high elevations	х	ĺχ
121	Rico	co	September 18-23, 1941	3	۳-	37 41	100 02	8.50" storm total, Kenton, OK	Widespread soaking rains and	 ^	 ^
		014	A	1,2	G	26 55	102 59	6.00" 48 hrs, San Isabel, CO	moderate flooding in SE CO		ļ
122	Kenton	ОК	April 17-21, 1942	1,2	6	30 33	102.30	3.70" Hawthorne - 2 days, many 1-3"	Heavy rains SE and Front Range, flood	1	
[1			1	1	1		conditions on Purgatoire and Arkansas		
1400	OF IT	00	April 23 24 4042	1,2	G	30 56	105 17	in area on April 18-20.	Rivers		
123	SE/Front Range	СО	April 23-24, 1942	1,4	 	133 30	100 17	2.15" Penrose - 1 day, 2.95" Tyrone -	13149	ļ	
1	lu de Gerrie		August 44 45 4040	2	1.0	20 27	105 04		1-3" totals over parts of SE CO	İ	
124	Huerfano/Pueblo Counties	со	August 14-15, 1942		1 5	130 21	1103 04	6.00" Rancho Grande, NM	Continuous, heavy rainfall over E CO, 2		
1	Samuel Samuel		Aug 00 0g 4 4040	2	LC	34 56	105 06	5.84" 1 day, Branson	6" totals mainly Sep 1-2	×	×
125	Rancho Grande	NM .	Aug. 29-Sep. 1, 1942	-	1 20	34 30	100 00	3,80" 1 day - 9,11" 3 days - Wolf	to totale mainty dep 1-2	· · · · · · · · · · · · · · · · · · ·	 ^ -
1,00	NA/olf Ornals Book	co	January 24, 4042	3	l _G	37 20	106 47	Creek Pass, 94.5" snow for period	Heavy snow in mountains		
126	Wolf Creek Pass	100	January 24, 1943	1 3	 "	31 29	1100 4/	Oreen rass, serio show for period	1-3" totals over CO, snow at high	 	
1.0-	Dakkii Fara Dasa	00	May 4 0 4042	4	G	140 22	106 42	(2.65" 132 hrs, Rabbit Ears Pass	elevations	х	x
127	Rabbit Ears Pass	co	May 4-9, 1943	+	+ 5	140 22	1100 40	6.40" 126 hrs, Silver Lake, UT	1-3" totals over western CO, mostly on	 ^-	 ^- -
	Shared stee	lu+	May 24 June 5 4042	4,6	G	30 31	107 19	2.33" 24 hrs, Ferndale Ranch	June 1-2, snow at high elevations	х	l x
128	Silver Lake	UT	May 31-June 5, 1943	1 4,0	_ 	122 21	1107 19	12.00 24 ms, remudie ramon	Todilo 1.7 Silon at High elevations		

Storm	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
140.	Storm Name	0.0.0	Otom Date	1	1		1	1	Heavy snowstorm between Floyd Hill		
129	Lake Moraine	co	April 9-10, 1944	2	G	38 49	104 59	4.53" 1 day, Lake Moraine	and Berthoud/Loveland area		
					1			2.78" 48 hrs, near Steamboat Spgs,			ĺ
130	near Steamboat Spgs	co	May 17-18, 1944	4,6	G	40 30	106 50	14" snow	6.00" isohyet	X	X
							1		2-4" over SE MT and NE WY. no		ĺ
131	Colony	WY	June 2-5, 1944	1	G	44 56	104 12	4.26" 72 hrs, Colony, WY	extreme precip, reported in CO		<u></u>
132	Dovetail	MT	June 14-18, 1944	1,2				Unknown	No extreme precip. reported in CO	Х	
	NW of Canon City	co	July 4, 1944	2				2-6" <1 hr on Wilson Creek			
134	Tennessee Pass	co	July 20, 1945	4	LC	39 20	106 20	1.20" 45 minutes, Tennessee Pass	2.06" 24 hrs, Wiggins, CO		Ĺ
				1]	3.45" 1 hr, 6.27 storm total (8 hrs),	Highest measured 1 hour precipitation		ł
135	Lake George	co	July 31, 1945	2,3	LÇ	38 55	105 29	elevation - 8,500 ft	in mountains.		
	Farmington	UT	August 19, 1945	5	LC	41 00	111 30	Unknown, 3.21" Eads, CO	2-3" over eastern CO		
 	9								2-6" totals over parts of Nevada,		
i		j			1		1		Wyoming and Arizona, light precip.	1	1
137	Beaver Dam State Park	NV	October 27-29, 1946	}		1	1	Beaver Dam State Park, 10.0" - total	over CO.		l
1				1				3.20" 1 day - Red Feather Lakes, 40"	Huge snowstorm over E CO, \$10		
138	Eastern Colorado	co	November 2-5, 1946	1 1	l G	38 46	102 49	snow	million damage, 13 deaths		L
1.00					1		 		Crops, buildings damaged, \$100,000		
139	Wray	co	April 27, 1947	1 1	GLC	40 04	102 13	6.60" at Wray	total damage	İ	
	Manitou Springs	co	May 10, 1947	2	GLC	38 52	104 56	5.43" 19 hrs, Manitou Springs	Bridges, homes washed out, 1 death	X	
	tetamen opingo		111111111111111111111111111111111111111		1	1			2.20" 1 day, Longmont, CO, 1-3" over	1	
141	Uintah	UΤ	June 8-12, 1947		GLC	40 30	110 00	Unknown	CO, mainly on June 11-12	×	X
1:31	Olition		Carlo C 12, 10 ii		1	<u> </u>		10.0" near Gering, NE in 8 hrs	T-storms across CO, cloudburst		
142	near Gering	NE	June 17-18, 1947	1	GLC	41 49	103 41	4.30" 1 day, LaVeta Pass	reported near Rye, flooding	İ	
172	near Cenny	1110		1	+	1	1	9.00" near Fort Collins (8 hrs), mostly	Cloudburst west of Fort Collins, floods,		
143	Fort Collins	co	May 30, 1948	1 2	GLC	40 35	105 05		>10" in area	X	!
1-2	T OR COMMIS		11107 557 15 15		1	<u> </u>		6.00" less than 2 hrs near Golden		1	
144	near Golden	co	June 7, 1948	2	1 LC	39 44	105 14	from 12pm - 2 am	1.61" 1 day, Hawthorne	1	1
145	Dupuyer	MT	June 16-17, 1948	2				Unknown	2-3" over eastern CO on June 19-20	X	X
146	Leadville	co	June 3, 1949	4				1.26" 24 hrs, Leadville		1	
140	Leadville	- 00	04110 0, 1040		1	100 /0	1,42,12	4,70" 1 day, Lamar - 7.28" - storm	Flash floods and hail over E CO, 3-7"		
147	Eastern Colorado	co	June 4-7, 1949	1 1	GLC	38 06	102 39		totals		
148	Prospect Valley	co	June 12-14, 1949	1				1.80" 1 day, 2.76 2 days - Hoyt	Local 14" center	X	
149	Southeast CO	co	July 26, 1950	1	LC	37 44	104 36	1.68" Bloom and Cucharas Dam	Widespread 1-2" rains		
149	Southeast CO	- • •	04,7 20, 1000		+	1	+		4-7" in area with severe hall, high wind,	1	
150	Southeast CO	co	May 14-15, 1951	1 1	GIC	37 17	102 37	7.05" night of 14-15th, Springfield 8S		1	
		NE NE	July 27-28, 1951	1	T LC	42 36	103.06	7.00" near Marsland, NE	No extreme precip, reported in CO	X	<u> </u>
151	Marsland	NE.	July 21-20, 1931	- 	1 20	172 00	1.00 00	1.00 Fical Marciallo, 142	THE OWN OFFICE AND ADDRESS OF THE OWN OF THE	 	
1,00	District Design	co	July 30, 1951	1 1	LC	Jan 10	104.31	5.50" - Platteville/Roggen area	No extreme precip, reports found in CD	il .	1
152	Platteville/Roggen area		July 50, 1501	 	+ ==	170 10	1,54.01	Ties Martine Codd of Mark	Flash flood at Redwing from storm at	†	
1.50	Manag Door	00	August 2, 1951	2,3	110	37 43	105 10	Unknown	Mosca Pass	1]
153	Mosca Pass	co_	Mugust Z, 1901	2,3	+	10, 40	100 19	12" 48 hrs at Redstone Creek and		 	
1	D. 4-4-4 0-1		August 2 2 4054	3	100	40.29	105 12	near Belvue	6.06" 48 hrs, Fort Collins, local flooding	x	
154	Redstone Creek	co	August 2-3, 1951	 3	+ 🖰	170 20	100 10	isedi Delfac	Heavy rains and flooding from tropical	' ^`	t
					1]		hurricane, no extreme precip. reported		[
1		, -,	August 26 20 4054	3,5	100	34 42	112 20	13.55" Crown King, AZ, storm total	in CO		1
155	Central Arizona	AZ	August 26-29, 1951	3,3	1 Gro	107 12	. 114 40	110.00 Oromi rang, 72, storii total	101.44		

Storm										USBR	USBR Depth Area
No.	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks		Dur. Study
156	New Raymer	со	September 7, 1951	1	LC	40 04	102 13	Reports of 9" in 8 hrs near New Raymer	>6" west and south of Wray		
157	Western CO	co	December 29-31, 1951	3-6	G	37 29	106 47	4.90" 1 day - 8.83" 3 days - Wolf Creek Pass	Huge widespread snow, 6 deaths		
158	Cimmaron	co	June 3, 1952	3,5	GLC	38 24	107 31	5.25" 1 day, Cimmaron	Did it really happen?		~~
159	Belt	мт	June 1-4, 1953	1,2			110 50	10.40" 48 hrs, 8.60" 24 hrs, Bett, MT	No extreme precip, reported in CO	х	х
160	Cucharas Dam	со	July 11, 1953	2	LC	47 44	104 36	3.40" 1 hr, 4.03 storm total - Cucharas Dam	3.20" 1 day, Doherty Ranch		
161	Southwestern CO	со	July 29-August 1, 1953	3,5	LC	37 27	107 11	1.50" Palisade Lakes, 1.42" Rangely on Aug 1	Locally heavy T-storms in SW CO		
162	San Francisco Creek near Alfaifa	со	July 22, 1954	1	ıc	37.05	103 12	2.23" Troy 7SE, 2.00" Branson	Heavy rains in Arkansas Drainage area, river rose rapidly, some local flooding		
· · · · ·	Elbert, Douglas, El Paso	+	100.1 22, 100-1	 	 	10, 00	1.00 12	12.20 110) 13L, 2.00 Blanson	Invertose rapidly, some local modeling	[
163	Counties	co	August 5, 1954	1,2	LC	39 12	103 44	2.40" Limon 8SSW 6.10" 1 day, Rye, 9.92" - storm total	Heavy rains in area - millions in damage Many other stations 2-5"totals.		
164	Rye	co	May 18-20, 1955	2	G	37 55	104 56	(13" in New Mexico)	Arkansas River flooding, 2 deaths	l x l	
165	Near Fort Laramie	wy	June 26-27, 1955	2	LC				No extreme precip reported in CO	- ^	
166	Wolf Creek Pass	со	January 26-28, 1956	3	G			3.20" 1 day - 6.54" 3 days- Wolf Creek Pass, 104" snow			
167	Englewood	со	July 30-August 3, 1956	2	LC	39 39	104 54	12" in 5 days, \$5 million in flood damage	Lots of rain Denver area and W. Slope, local damaging floods		
168	Lake Moraine	со	April 1-2, 1957	2	G	38 49	104 59		Record snowfall on and east of the divide, 5 deaths		
169	Colorado	со	May 8-12, 1957	2,3,4	G	40 10	105 04		\$2 million in flood damage, snow in mtns, 1.36" Aspen, 8" snow, 3 deaths		
	Steamboat Springs	co	June 12-17, 1957	4,6	GLC	40 30	106 50	3.33" storm total - Steamboat Springs			
171 172	Akron Kiowa Creek	co	July 26, 1957 July 30, 1957	1 2				5.50" in 3 hrs, Akron .5-4.5" in 45 minutes - Kiowa Creek	Hail, major damage in area	X	X
172	Nowa Creek	100	July 30, 1937	-	10	39 21	104 20	2.90" 1 hr, official estimate 2.25" - 45	Minor road/bridge damage		
173	San Luis	со	August 12, 1957	3,5	LC	37 12	105 27		Lots of flooding and hail, crop damage		
174	Gateway	со	August 21, 1957	5	LC	38 41	108 59	2.82" 1 day, Gateway	3.00" in 1.5 hrs near Gateway, flash floods		
	Morgan	UT	August 16, 1958	6				>6" 24 hrs, Morgan, UT, flash floods, est >5" from 4-5 pm	No extreme precip, reported in CO	х	х
	Durango	CO	August 5, 1959	5				1.93" Durango	2" - 30 minutes, flash flooding		
·	NW of Glendo	WY	June 7, 1960	1 1	LC	42 47	105 05	1-6" in 1.5 hrs NW of Glendo	No extreme precip reported in CO		
	Salida/Canon City area Front Range	co	July 27, 1961 July 31, 1961	2	<u></u>			1.40" Canon City 1.51" Cheesman, 1.25" Denver City	Heavy rains, rock and mud slides Locally heavy rains along Front Range, minor flooding		
	Western Slope/Mtn Areas	со	September 2-5, 1961	3,4				1.60" 24 hrs, Sugarloaf	1.33" Climax, snowstorm, many 1-2" totals, heavy snows in mtns, 2-3 ft in some locations		

Storm	Storm Name	State	Storm Date	Baria.	.			Marrian una Por alathatian		USBR	USBR Depth Area
NO.	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks 3.64" 2 days Marvine, heavy mtn	Storm File	Dur. Study
		l	1]	l			<u> </u>			
404	5	100	0		1		407.00	0.008 4 days 55	snows, 30" of snow at Climax and		ļ
181	Pyramid	co	September 20-24, 1961	4,6	G	40 14	107 00	2.90" 1 day, Pyramid	Yampa Valley		ļ
400	NI Discussion		1 45 40 4000	١ .	ماما		400 40	Unofficial reports of 10-12" near	l	'	1
	N Black Hills	SD	June 15-16, 1962	2				Whitewood causing flash floods.	No extreme precip reported in CO		<u> </u>
183	Wray	co	June 30-July 1, 1962	1	FC	40 04	102 13	4.68" at Wray	>5" reported west of Wray		
		l	I	١.	l				Flash floods, no extreme precip reported	'	1
184	W Rapid City	SD	July 13, 1962	2	LC_	44 05	103 07	6.00" in 2 hrs - W Rapid City	in CO		
				1 .	1.		l	7.00" rain and severe hall at	!		
185	Springfield 15NE	CO	July 15, 1962	1	LC	37 24	102 36	Springfield 15NE	T-storm's across eastern CO]
			ļ.	Į	į.	1		6-6.5" from 7-8 pm at Wray/Vernon,	1		
186	Wray	CO	July 17, 1962	1	LC			flash flooding	No extreme precip reports found in CD		J
187	NE Walsenburg	CO	July 23, 1962	2	LC	37 38	104 47	6.00" NE Waisenburg	1.14" Trinidad		
				[F		}		Local cloudburst, flash flood, high river]
188	Near Boone	CO	July 13, 1963	1	LC			.52" Fowler	levels observed	,	1
189	South Front Range	CO	July 27, 1963	2	LC	38 14	104 38	5-6* Pueblo-Las Animas Cty	1.30" North Lake, local flooding		
								1.36" at Castle Rock, 1.15" at			
		1	}	ļ	ļ	1	1	Cheesman, observer noted 1.10" in	Local severe T-storms, heavy rains		ł
190	Parker area	co	August 3, 1963	2	LC	39 22	104 52	15 min.	causing Cherry Creek to overflow		ĺ
									Severe flooding, 2 separate		
			ļ		ļ	İ	1	ĺ	storms, no extreme precip, reported in		
191	Prescott	AZ.	August 16, 1963	5	I LC	34 65	112 43	5-6" rain in hills west of town	co		l .
			<u> </u>						Severe flooding, storm occurred from		 -
			<u> </u>		Į.	i	ł	i	6:30 - 8:45 pm, \$400,000 in damage,		
192	Prescott	laz.	August 19, 1963	5	LC	34 65	112 43	3-5" rain near Prescott	no extreme precip, reported in CO		
	Ruby Canyon (west of Grand	 		 	 	 	 -		Severe flooding Ruby canyon, train		
193	Junction)	lco	August 31, 1963	5	LC	38 52	106 58	No extreme precip, found in CD	derailed		í
			1 1000		 		1.00 ==		3-5" in Kiowa, Bent, Prowers and Baca		····
194	Lamar	co	May 29-30, 1964	1	GIC	38 04	102 37	5.64 1 day, Lamar	Counties, local flooding		
134	Carried	100	100 25 00, 1004	 	1	100 04	102 0	16.20" (Gibson Dam), flooding, 36	Counties, local ricoding		
195	Gibson Dam	MT	June 6-8, 1964	2,4	GIC	48 32	113 33	deed	No extreme precip. reported in CO	x	l x
196	Ruby Mtn (6S Buena Vista)	co	July 24, 1964	2,3	100	38 52	106 58	No extreme precip found in CD	Flash flood on Ruby Mtn	_ ^ _	 -
150	INDY WITH (OS DUBLIA VISIA)	 ~~	July 24, 1504	2,0	1	30 32	100 00	No extreme precip round in CD	Heavy T-storms, flooding - Durango,		
107	l listostern Stone	co	August 12 1064	5	LC	98 45	108 04	2.00" Ignacio, 1.42 Delta	Delta, Grand Junction		1
197	Western Slope	100	August 12, 1964	 	1 20	30 43	1,00 04	6" < 2 days - Laramie Mtn, flash	Lona, Stand Juniction		
100	Laramie Mtn	WY	May 13-14 1005	2,4	GIC.	44 27	105 22	floods, heavy rains in central mtns	No autromo procio reported in CC		ļ
198	Caramie Mu	IVVT	May 13-14, 1965	2,4	GLU	41 21	100 20	7" 1 day - N Black Hills	No extreme precip reported in CO		 -
) N CI - 1. 100-	00	34 4.4 4E 40CE	1 2	100	44 24	102 40	L The state of the	Floods, \$5 million in damage, no		j
199	N Black Hills	SD	May 14-15, 1965	2	1 GEG	44 21	103 40	6.93" Lead - 24 hrs	extreme precip reported in CO		
	i e	1				l	1	45 477 40 1 41 44 4	Massive and widespread flooding east of		l
]	<u></u>			1	ء.ء		104.00	15.17" 48 hrs, Holly. Many storm	the mins. Also, local storm near		
200	Plum Creek	co	June 13-20, 1965	1,2,4	1 GLC	39 05	104 20	centers - E. Plains and Ft. Range	Breckenridge	X	X
201	Eagle	co	July 18, 1965	6	FC	39 38	106 55	Unknown	Heavy rain and flooding		
						i	1	2.95" <2 hrs, Evergreen,			I
202	Evergreen	co	July 19, 1965	2	LC	39 38	105 19	cloudburst	Local flooding		
]	ļ	1	1	ļ			>2" rain in Montrose/San Miguel Cty,		
203	Montrose/San Miguel Cty	co	July 19, 1965	5	LC	38 29	107 53	2.09" 24 hrs, Placerville	flash flooding		
								2.54" 1 hr, 4.20" storm total at Big	Mudslides, road damage at Georgetown		
204	Georgetown	lco	July 23, 1965	2,4	l LC	39 42	105 42	Spring Ranch	and Breckenridge		I

Storm										USBR	USBR Depth Area
,	Storm Name	State	Storm Date	Region	Type	t at	Long	Maximum Precipitation	Remarks	Storm File	Dur, Study
	Security (S of COS)	co	July 24, 1965	2				Unknown	Heavy rains, flooding, 1/2 million in damage at COS - high river levels observed		
	Denver	co	July 25, 1965	2	LC			2.05" Denver AP, 1.99" - 30 min	Denver flooding, 3.30" 30-40 mln in Aurora		
207	Rye	co	July 30-31, 1965	2	LC	37 55	104 56		2.50-4" Beulah, flooding		
	Front Range	со	August 18-19, 1965	1-3	LC	39 46	104 53	5.45" LaJunta, 3.76" Salida	2-4"/hr, many reports of flooding in Front Range and Clear Creek		
	Westcliffe	co	August 1-2, 1966	2					Heavy rains, flooding at Westcliffe		
210	Phillips County	CO	August 19, 1966	1	LC	40 35	10218		6-8" reported in Phillips County		
211	Byers	CO	September 1, 1966	1	LC	39 42	104 13	4.01" 1 day, Byers	8-9" E of Byers, hall, roads flooded		
212	SW Colorado	co	December 4-7, 1966	3	G	37 28	106 47	1E, 59" snow	Heavy rain/snow in SW CO, many 3-5" totals		
213	Denver	СО	May 30, 1967	2	LC	39 46	104 53	1.51" Denver AP	4" rains 15-52nd St and Sheridan to Kipling, local flooding		
214	Garfield City	со	July 16, 1967	6	LC	39 31	107 19		No extreme precip found in CD		
215	Blanding	UT	August 1, 1968	5		37 30	109 30		1.62" at Northdale, CO	x	х
216	near Levan	UT	August 2, 1968	6	LC	39 30	111 30	Unknown, floods, crop loss	No extreme precip, reported in CO	X	
217	Paonia	ço	August 8, 1968	5	LC	38 52	107 35	1.93" 1 day, Colorado Ntl Mon	4-5" rains Mesa and Delta Ctys extensive damage at CO Ntl Mon.		
218	Sargents	со	August 11, 1968	3	LC	38 24	106 26	.74" Sargents	Cloudburst flooding in Rio Grande Valley, 10NW DeBeque		
219	Eads	co	August 14-15, 1968	1	LC	38 29	102 47	6.15" 1 day, Eads	7.5-9" N and W of Sterling, 8" Kiowa and Prowers Cty	х	
220	Big Elk Meadow	со	May 4-8, 1969	2,4	G	40 16	105 25	5.35" 24 hrs, Jones Pass 2E, 13.05" 96 hrs near Boulder 5-6" S. Denver and Englewood, hail,	11.27" Morrison, continuous rains, local flooding, road/building damage	X	X
221	Denver	со	June 8, 1969	2	LC	39 46	104 53	severe flooding 3.97" - 3 days Glenwood Springs	1.66" 24 hrs, Denver AP		
222	Glenwood Springs	CO	June 22-24, 1969	4-6	i -		1	6-7" <30 minutes, N. Fork Smoky Hill River, Kit Carson Cty			
223	N. Fork Smoky Hill River	co	July 5, 1969 July 31, 1969	3		T		.03" Telluride, .65 Silverton - Biggest official reports	Flash flooding and mud slides, severe damage from localized storm.		
224	Stratton 2NE	co	August 22, 1969	1			1	8.00" at Stratton 3NE, 11-1:30 aftn, damaging wind and hail	2 people drowned, flash flood		
226	Eagle	co	September 23, 1969	6		1	1	1.54" 24 hrs, Eagle	No precip. reported at Eagle (FAA), incorrect?		
227	Crested Butte	со	September 25, 1969	3		38 52	106 58	2.30" 24 hrs, Crested Butte	No precip, reported at Crested Butte (NWS), incorrect?		
228	Dinosaur Ntl Mon	CO	June 4 - 12, 1970	6				3.55" 4 days, Dinosaur Nti Mon	6.5	ļ	
229	Craig	co	August 7, 1970	6	 	7		2.04" 1 hour at Craig	Official gauge 9-11" Rock Creek Canyon (10 S COS),		
230	Rock Creek Canyon	co	August 20, 1970	2	LC	38 49	104 42	2.98" 1 day, Colorado Springs	extreme flash flood	<u> </u>	<u> </u>

Storm No.	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks		USBR Depth Area Dur. Study
231	Southwest CO	co	September 4-6, 1970	3	G	37 48	107 40	5.00" 48 hrs, Palisade Lakes	4-6" < 12 hrs, some locations, widespread flooding	х	
232	Gunnison	со	September 12, 1970	3,5	GLC	38 33	106 55	1.45" 24 hrs, Gunnison	Many 1-2" totals over SW CO, snow on high mtn peaks		
233	Cochetopa Creek	CO	August 24, 1971	3	LC	38 26	106 46	1.70" 4 hrs, Cochetopa Creek	Flooding, minor damage		
234	Rapid City	SD	June 9, 1972	2	LC	44 12	103 31	15" in 6 hrs near Nemo, SD (16NW of Rapid City) 1.75" at Bonham Reservoir, 0.99" at	Devastating flash flood, 237 dead, thousands injured, \$100 million in damage, no extreme precip. reported in CO	×	х
235	Mesa County	co	September 19, 1972	1 5	l G	39 06	107 54	Cedaredge	1-2" totals mainly over W CO		1 1
236	SW Colorado	co	October 3-7, 1972	3,5				2.10" Fort Lewis	Many 1-2" totals, from T.S. Joanne		
237	SW Colorado	CO	October 19-20, 1972	3.5	Ğ			5.00" 48 hrs, Durango, CO	Heavy rains, flooding	х	
238	Front Range	со	May 5-6, 1973	2	G		1	5.31" near Broomfield, 31 hrs, many 1-5" totals along F.R.	6" est near Kiowa, S.Platte River flooding, flash flood in Denver	X	х
239	Lincoln/Yuma Cty	со	July 18, 1973	1	LC	38 48	103 31	1.50" 1 day, Karval 5.93" 3 days	7" (unofficial) rain between Joes-Kirk- Karval	•	
240	Grand Junction	со	July 16, 1974	5	LC	39 07	108 32	1.39" Grand Junction - 1.38" 1 hr (highest observed 1 hr value)	Heavy, severe T-storms GJT area, road washout - minor damage		
241	Wheatridge	co	July 16, 1975	2_	LC	39 48	105 03	1.51" 1 hr, Wheatridge - 1.58", storm total (from hourly precipitation)	No extreme precip, reports found in ICO.	Х	x
242	Sweetwater (NW of Eagle)	со	July 12, 1976	4,6	LC	39 38	106 55		No extreme precip, reports found in CD	Х	
243	Big Thompson Canyon	со	July 31-August 1, 1976	2_	LC	40 25	105 26	12" 24 hrs, Big Thompson Canyon near Drake	Ferocious flash flood - most rain in 3-6 hours, 145 dead	X	×
244 245	Near Dove Creek Fort Collins	co	July 24, 1977 July 25, 1977	5,6 2	LC LC	39 31	107 19	1.08" Glenwood Springs	Flooding at Glenwood Springs and near Dove Creek - high river levels observed		
246		UT		3,5	10	40 35	100 00	4.43" 1 day, Fort Collins	Also SW Colorado - LaPlata River	Х	
	Logan	1	August 18, 1977					4.32" 12 hrs, Logan, UT	2.12" at Rocky Ford Millions in damage, flash floods in AZ,	Х	
247	Maricopa Cty	AZ	Feb. 28-March 6, 1978	5	G	33 49	110 55	16.15" Workman Creek, AZ (est) 7" S. Montana and North Central	many 1-3" totals over SW CO		
248	Ashiand	МТ	May 16-19, 1978	2	G	46 00	114 00	Wyoming	No extreme precip, reported in CO	х	
249	Otero County	со	July 9-10, 1978	1	LC	37 40	103 55		3-6" of rainfall, flash flooding, high river and creek levels		
250	Grand Junction	СО	September 7, 1978	3,5	LC	39 07	108 32	Est 2-4" rain - localized near Grand Junction	Flash flood, road swept away		
厂	Southwest CO and western				1			4.10" 1 day, 6.19" 3 days at Wolf	Heavy mtn snows - 2 ft in San Juan		
251	valleys	CO	December 17-19,1978	3				Creek Pass, 68" snow	Mins, 3 deaths		
252	Lamar	co	May 29, 1979	1	LC	38 05	102 37	4.85" 1 day Lamar	Reports of 5.50" - 2.5 hrs, flooding		
253	Arizona	AZ	February 13-22, 1980	5	G	34 12	112 20	16.63" 10 days Crown King (NW of Phoenix), 3-12" Central Basin, White Basins	Heavy snows, rains in western CO especially in San Juan Mins, 4-9" totals for 10 days		
254	Cripple Creek	co	August 8, 1980	2				5.00" 3 hrs, Cripple Creek	2" < 1 hr, Lake George		

·····				l	1	T	[1	USBR
Storm					1	1	1			USBR	Depth Area
No.	Storm Name	State	Storm Date	Region	Type	Lat	Long	Maximum Precipitation	Remarks		Dur. Study
	J.G. T. T. G	O.G.O	Otomi Bato	i togion	1,750		1-07.9		3.63" storm total < few hours, local	Otomin i no	Dui. Olday
255	Wheatridge	co	June 2, 1981	2	LC	39 45	105 05	2.33" in 20 minutes, Wheatridge	flooding, hail]
				 -		1			4.52" 1 day Trinidad AP, caused train		
256	Frijole Creek	co	July 3, 1981	1,2	LC	37 15	104 20	Est 16" in Frijole Creek, about 4 hrs	wreck, severe flooding	х	
								.92" 12th, .83" 13th - Glenwood			i
257	Glenwood Springs	co	July 12, 1981	4 or 6	LC	39 31	107 19		2"<1 hr, mudslides, homes damaged		
201	Oldinious Opinigo	-	0, 1	10.0			1	7-111-54	Z - 7 m maconoco montos acinicas		
258	Rico/Dolores	lco	July 16-18, 1981	4	GLC	37 41	108 02	3.15 " 3 days Rico/Dolores	6.12" 10 days Rico, mudslides, flooding		
		-	1	 			1		Local flooding - high river levels		
259	Black Forest (El Paso Cty)	lco	August 5, 1981	2	LC	38 51	104 50	2.78" Black Forest	observed		İ
260	Trinidad	co	August 11, 1981	2				4.20" 1 day Trinidad, CO	Heavy rains, minor flooding		· · · · · · · · · · · · · · · · · · ·
	7							,,	6" rain Logan/Phillips Cty - \$12 million		
261	Logan/Phillips Cty	lco	July 25, 1981	l 1	LC	40 35	102 18	2.20" Holyoke	damage		
262	Selbert	co	July 11, 1982	1				8" rain in Seibert, crop damage	Heavy T-storms over E CO		
		-		 		-	1		3.50" 24 hrs, Rye, heavy rains along		
263	Deer Creek	co	July 28, 1982	2	LC	39 32	105 08	2.20" 30 minutes, Deer Creek	foothills		
			55.7 =51.35.5=				 		2.66" 15 min, North Turkey Creek area,		
264	Evergreen	co	August 17, 1982	2	LC	39 38	105 19	4.00" 90 minutes, Evergreen	local flooding	х	
	Rollinsville	co	August 20, 1982	2,4	LC	39 55	105 30	2.10" 1 hr at Rollinsville	Large amount for high elevation.	X	
				 			1	3.70" - Whiskey Creek (Snotel site)	Measurement suspect, heavy precip in		
266	Whiskey Creek	co	August 24, 1982	5	LC	37 13	105 07	elevation - 10,220 ft	SW CO - some local flooding		
								4.73" Pinewood Lake (14W Loveland)	Many 1-2" totals across foothills and	i	
267	Pinewood Lake	lco	September 13, 1982	2	GLC	39 40	105 50	2.54" at Waterdale	plains, 3-4" totals in Larimer Cty		
		<u> </u>					Ì	> 4.4" near Wasatch, UT, heavy			
	Wasatch (canyon east of Salt				1	1		precip northern Utah, floods, from	!		
268	Lake City)	UT	September 26, 1982	3-6	G	40 46	111 58	Hurricane Olivia	No extreme precip, reported in CO		
	Floyd Hill (foothills west of								Heavy Front Range/foothills T-storms,		
269	Denver)	co	July 10, 1983	2	LC	39 46	104 53	1.25"- 30 minutes at Floyd Hill	many 1-2" amounts.		
	Jim Creek (east of Winter								1.90" fell in 10 minutes at Mill Creek		
270	Park)	CO	July 20, 1983	4	LC	39 45	105 46	1.85" 24 hrs, Jim Creek	near Idaho Springs		
				i	i				2.20" 24 hrs, Parker 6E, 3" 1 hr,		
271	Kitteridge	CO	July 22, 1983	2	LC	39 38	105 16	3.00" 45 minutes, Kitteridge, flooding		Х	
						i		5.50" 30 minutes Kit Carson with hail			
272	Kit Carson	CO	July 23, 1983	1	LC	38 46	102 47	crop damage	No extreme precip, reports found in CD	<u> </u>	
	East Pti-lke (east end of							2.25" 25 minutes, East Ptl-Ike (Clear			
273	Eisenhower Tunnel)	CO	August 4, 1983	4	LC	39 38	106 00	Creek Cty)	Hail, minor flooding		
		1		1	1	ļ			Heavy rains west of Denver, mudsildes		
274	Empire (Clear Creek County)	CO	August 14, 1983	2,4	LC	39 42	105 42	hr, Golden	closed highways		
] 	Flash flooding, dams overflowed, hail,		
1						1.	1		millions in damage in AZ, 1-3" in San		
275	Prescott	AZ	September 23-24, 1983	3,5	GLC	34 65	112 43	Up to 13" rain near Prescott area	Juan Mtns on Sep 29-30		
						!	j		3-11" rain in SE Arizona from tropical		
1		1			1			11.30" in Blue River basin (USGS	storm Octave, 13 deaths, \$178 million		
276	San Francisco River Basin	AZ	Sep. 28-Oct. 3, 1983	3,5	GLC	33 03	109 17	station)	in damage, 1-2" totals in western CO		
						1		1	2.80" 24 hrs, Aspen 1SW, heavy mtn		
277	Redstone	CO	June 5-8, 1984	3	G	39 11	1107 14	2.92" 24 hrs, Redstone, CO	snows 1-2' in locations	X	

Storm No.	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks	USBR Storm File	USBR Depth Area Dur. Study
110.					1		<u> </u>	2.50" Lakewood, reports of >4.75" in	2-4" of rain, inches of hail, \$300 million		
278	West of Denver	co	June 13, 1984	2	LC	39 45	105 08	Arvada.	in damage, 20 injured by hail		
								No extreme precip, reports found in	New Castle Flash flood, \$200,000 in		
279	Garfield County	lco	July 24, 1984	6	LC	39 31	107 30	CD	damage		
									2.18" 24 hrs, Antero Res., 1-2" rains		
280	Williams Fork Dam	co	July 28, 1984	4	LC	40 02	106 13	1" 1 hr, Williams Fork Dam	over eastern foothills		
								2.20" - Copper Mtn in 3 hrs (Snotel	Flood damage, mudslides - \$20,000		
281	Copper Mtn	lco	July 29, 1984	4	LC	39 29	106 10	site)	total in damage		
	Meeker	co	July 18, 1985	6	LC	40 02	107 55	1.50" 20 minutes - Meeker			
			1					6.50" <3 hrs, COS area, 2.5" 20	1.94" Colorado Springs WSO, minor		•
283	Colorado Springs area	co	July 19, 1985	2	LC	38 49	104 42	minutes Broadmoor area	flooding, \$700,000 in damage		
					}				12 dead, \$65 million in damage, severe		
1	·				ì	i	1	7.00" in 3 hrs, 6.06" at NWS in	flooding, no extreme precip. reported in		
284	Cheyenne	WY	August 1, 1985	1,2	LC	41 09	104 49	Cheyenne	co	Х	
									Minor flooding, 1-2" rains in Denver in a		
285	Indian Hills	co	August 1, 1985	2	LC	39 37	105 14	2.13" 25 minutes, Indian Hills	few hrs		
					\Box	T				i	
286	Grand Lake	co	September 28, 1985	4	G	40 16	105 50	3.20" 24 hrs, Grand Lake, mtn snows	Measurement suspect		
					T	1			29.5" snow in 20 hrs, Winter Park,		
287	Silver Lake	co	February 20, 1986	2,4	G	40 02	105 35	3.60" 24 hrs, Silver Lake	heavy mtn snows		
	1]]	7'''			3 deaths, high winds, heavy snow, 54"	j	J
				1	1			1	Echo Lake, 44" Buckhorn Mtn- 4.86"		1
288	Front Range	co	April 3, 1986	2	G	39 57	105 21	4.15" 1 day Gross Reservoir	water equivalent.		
289	North Denver	CO	August 2, 1986	2	LC	39 54	105 01	2.75" in 15 minutes, North of Denver	\$70 million in flood and hall damage		
					T		T	4.00" 1 day - 6.00" 2 days at Wolf			Ì
290	Colorado	CO	October 10-12, 1986	3	G	37 29	106 47	Creek Pass	Snow across CO except SE		
							-	1.75" 30 minutes, hail 6-8" deep at			ļ
291	Rand 2W	CO	July 28, 1987	4	LC	40 26	106 10	Rand 2W, elevation 8,600 ft	No extreme precip, reports found in CD		
<u> </u>								2.40" - Summit Ranch (Snotel site),	T-storms in mtns, some local flooding		
292	Summit Ranch	co	July 31, 1987	4	LC	39 43	106 10	elevation - 9,400 ft	and hail in areas.		
					1				Home, business flooding, \$3 million in		
)		1		ł		1		5.25" < 6 hrs (NWS site), Unofficially			ŀ
293	Albuquerque	NM	July 9, 1988	_i	LC	35 03	106 37	7.87"	reported in CO	<u> </u>	<u> </u>
	<u> </u>								4-6", 1 hr Julesburg, buildings flooded,		1
294	Julesburg	CO	July 17, 1988	1	<u> </u> LC	41 00	102 15	4.40" Julesburg	road washed out	ļ	<u> </u>
					T			4.10" - Scotch Creek (Snotel site),		i	
295	Scotch Creek	co	August 19, 1988	3	LC	37 39	108 01	elevation - 9,100 ft	Measurement suspect	<u> </u>	ļ
<u> </u>							1	3.00" Bison Lake, 2.60" Burro Mtn		1	
1			1	-		1	1	(Snotel sites) Marvine Ranch - 2.35"	Rains turning to snow in mtns, heavy in		
296	Northern Colorado	co	September 13, 1988	4	G	39 46	107 21	(2 day total)	central mtns	<u> </u>	
						[5.70" 2.5 hrs, Sterling 16NE, minor			1
297	Sterling 16NE	co	June 8, 1989	1	LC	40 37	103 12	flooding	1.15" Sterling. 3.87" Leroy 5WSW	<u> </u>	
						1	1		Huge storm over E. CO 4-5" rain 1 hr,		1
298	E. Colorado	co	June 28, 1989	11	LC	40 35	102 18	2.10" Holyoke	4" Goodland, KS, millions in damage		
					}			4.5" hail, heavy rain, property and	l	1	
299	Brush	co	June 30, 1989	1	1 LC	40 15	103 55	crop damage, up to 5" in areas	No extreme precip, reports found in CD	1	<u> </u>

Storm No. Storm Name			I	I	T	T	· · · · ·	T	1	1	· · · · ·	
No. Storm Name State Storm Date Region Type Lat Long Maximum Pracipitation Remarks Storm State Storm File Dur. S	Storm		į	į	İ		İ	İ	İ			USBR
Section Sect		Storm Name	State	Storm Date	Region	Type	l at	Long	Maximum Precipitation	Bamarka		Depth Area
300 Muddy Creek Darn Co July 25, 1989 4 LC 40 65 106 24 1.10" 3 hrs, Moddy Creek Darn 2.30" at Greeley 1.20" LC 40 29 104 41 50" at Luceme 2.30" at Greeley 1.20" LC 40 29 104 41 50" at Luceme 2.30" at Greeley 1.20" LC 40 29 104 41 50" at Luceme 2.30" at Greeley 1.20" LC 40 29 104 41 50" at Luceme 2.30" at Greeley 1.20" LC 40 20" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at Luceme 2.30" at Greeley 1.20" LC 40" at 1.20" 1.20" LC 40" at 1.20" 1.20" LC 40" at 1.20" 1.20" LC 40" at 1.20" 1.20" LC 40" at 1.20" 1.20" 1.20" LC 40" at 1.20" 1.20	710.	0.0	Olulo	Otomi Bate	rvegion	-396	Lat	Long	Waximum Frecipitation		Storm File	Dur. Study
December Co	300	Muddy Creek Dam	co	July 25, 1989	1	130	40.05	106 24	1 10" 3 hre Muddy Crook Dom	• •	}	
302 Cedaredge							40 20	104 41	8 00" at Lucarno			
Section Sect	-		-	04,720,1000	 ''*	 	70 23	104 41		2.30 at Greeley		
North Fork Frenchmen Creek Co July 30, 1989 1 LC 40 37 102 28 15 15 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site), least floods, high river and creek fevels 250" Deadman Hill (Shotel site),	302	Cedaredge	co	.luly 29 1989	5	l ic	38 54	107 56	Cedaredge	i		
303 Gy Holyvokey CO July 30, 1989 1 LC 40 37 102 28 15	-			20, 1000	 	1	100 07	107 30	Cedaredge			
303 Gey Holyoke CO July 30, 1999 1 LC 40 37 102 28 15		North Fork Frenchman Creek]			1		ļ	8 20"- 17hrs Paoli 3 12"- Floreina	3.5" < 2 hrs in gross ground Floreing		
304 Deadman Hill CO August 1, 1989 4 LC 40 48 105 46 260" Deadman Hill (Snotler site), Locally heavy T-storme in minus 105	303		co	July 30, 1989	1 1	Lic	40 37	102 28	15	fleeh fleeds high river and erect levels	1 1	
Deadman Hill				50.) 50, 1000	 '	 	1.0.0	102 20	2.80" Deadman Hill (Snote) site)	mastr floods, flight fiver and creek levels		
305 Fort Collins	304	Deadman Hill	lco	August 1, 1989	4	Lic	40 48	105 46	elevation = 10 200 ft	Locally heavy T storms in mine	İ 1	
305 Collins CO March 6, 1990 2 G 40, 35 105 05 105	·				<u> </u>	 ==	1.0 10	1.00 10	3 90" 24 hrs. Fort Collins, 4 16" storm	Locally fleavy 1-storitis in trains		
306 Opel	305	Fort Collins	co	March 6, 1990	2	l G	40 35	105 05			i i	
Syblile Creek (£8 SW WY August 20, 1990 1						LC	41 50	113 30	7.00" in 2 hrs. Onal, WV flash flood		├──	×
207 Wheatland) WY August 20, 1990 1 LC 41 30 105 00 to 4" rain < 3 hrs. Ne extreme precip. reported in CO X 233" 1 day Boulder, 2-3" in a few hours, 15-35" < 1 hr Lakewood/Golden Lak			<u> </u>	<u> </u>		 	 	1		The careine precip, reported in CO		
2.33" 1 day Boulder, 2-3" in a few hours, 1.5-3.5" < 1 hr.	307		WY	August 20, 1990	1	LC	41 30	105 00		No extreme precip, reported in CO	v	
308 Owl Canyon CO June 1-2, 1991 2 LC 40 44 105 10 4-8" near Owl Canyon, flash flood Lakewood/Golden Lakewood/Go		, , , , , , , , , , , , , , , , , , , ,					1	1			-	·
20 Cow Canyon CO June 1-2, 1991 2 LC 40 44 105 10 4-8" near CM Canyon, flash flood Latewood/Golden Henz study, up to 3" in 20 min, rock/mud sildes No extreme precip. reported in CO X			1		1	1	1	1			i 1	
22 17 5m inutes, near Idaho 16 18 19 10 11 10 10 10 10 10 10 10 10 10 10 10 10	308	Owl Canyon	co	June 1-2, 1991	2	LC	40 44	105 10	4-8" near Owl Canyon, flash flood		1 1	
309 Virginia Canyon CO August 18, 1991 2 LC 39 46 105 31 Springs Tookimud sildes NV,UT September 6-9, 1991 3,5 LC 40 00 114 00 8.40", N. Ogden, UT, flash flood No extreme precip: reported in CO X					 		1	100 10	2.25" in 75 minutes near Idaho			
Nevada-Utah NV,UT September 6-9, 1991 3,5 LC 40 00 114 00 8.40", N. Ogden, UT, flash flood No extreme precip. reported in CO X	309	Virginia Canyon	co	August 18, 1991	2	LC	39 46	105 31	Springs			
S & E Colorado	310	Nevada-Utah	NV,UT			LC	40 00	114 00	8.40", N. Ogden, U.T. flash flood		 	
S & E Colorado					 	1		1		From Hurricane Lester modest	├	
Rifle	311	S & E Colorado	co	August 23-25, 1992	2.3	G	38 00	104 00	Widespread 1-5" rains	flooding		
Section September 13, 1993 September 13, 1993 September 13, 1993 September 13, 1994 September 13, 1994 September 13, 1994 September 20, 1994				i	†	<u> </u>	 	1		Henz study flash flood \$100 000 in	 	
Delta	312	Rifle	co	May 15, 1993	6	LC	39 32	107 48	2-4" in 2 hrs. Government Creek			
Tenneco Mines (extreme SW Utah)	313	Delta				LC	38 45	108 04	2-4" in 2 hrs. Roubideau Creek		 	
1314 Utah Utah Utah Utah Utah August 25-26, 1993 5 LC 37 20 114 20 minor flooding 2.70" on 29th - Upper San Juan (5.60" storm total), 2.70" on 29th - Wolf Creek Summit (5.50" storm total), 2.70" on 29th - Wolf Creek Summit (5.50" storm total), snotei sites 1.76" Grand Lake, 1.88" Loch Vale (elevation - 10,000 ft) Widespread rains, snow in foothills and mins No precipitation reported but some of the biggest cumulonimbus clouds ever reported near Fairplay Virginia Dale CO June 20, 1994 4 LC 40 07 106 25 3.00" 1 hr, Muddy Creek Larimer Cty 2.36" 24 hrs, Loveland, CO, flooding, sever reported place in <4 hrs \$400,000 in damage \$1 million in damage, local flooding, leavy T-storms. 1.5 hrs - Pueblo Pueblo CO August 13, 1994 2 LC 38 17 104 39 3" in 35 min, 4.87" in 1.5 hrs - Pueblo heavy T-storms. Storm occurred but max St		Tenneco Mines (extreme SW							4.14" in 2 hrs, Tenneco Mines, UT.		-	
2.70" on 29th - Upper San Juan (5.60" storm total), 2.70" on 29th - Wolf Creek Pass 1E - 5.42" - 3 day Wolf Creek Summit (5.50" storm total), 2.70" on 29th - Wolf Creek Pass 1E - 5.42" - 3 day Wolf Creek Summit (5.50" storm total), snotel sites	314	Utah)	UΤ	August 25-26, 1993	5	LC	37 00	114 00	minor flooding	No extreme precip, reported in CO		
Southwestern CO									2.70" on 29th - Upper San Juan			*
Southwestern CO							į	ļ		Wolf Creek Pass 1E - 5 42" - 3 day	į	
315 Southwestern CO					l			1				
316 Colorado CO September 13, 1993 2,4 G 40 16 105 50 1.76" Grand Lake, 1.86" Loch Vale (elevation - 10,000 ft) Widespread rains, snow in foothills and mtns	315	Southwestern CO	CO	August 27-30, 1993	3,5	GLC	37 29	106 48	total), snotel sites			
316 Colorado CO September 13, 1993 2,4 G 40 16 105 50 (elevation - 10,000 ft) mtns							1			Widespread rains, snow in footbills and	-	• • • • • • • • • • • • • • • • • • • •
No precipitation reported but some of the biggest cumulonimbus clouds when the biggest cumulonimbus clouds the biggest cumulonimbus clouds when the biggest cumulonimbus clouds when the biggest cumulonimbus clouds when the biggest cumulonimbus clouds when the biggest cumulonimbus clouds file Reported by Charles Kuster, photos in the biggest cumulonimbus clouds when the biggest cumulonimbus clouds when the biggest cumulonimbus clouds when the biggest cumulonimbus clouds where the b	316	Colorado	co	September 13, 1993	2,4	G	40 16	105 50				
Second Second									No precipitation reported but some of			
317 Near Fairplay CO June 17, 1994 4 LC 39 14 106 00 ever reported near Fairplay fille 2.62" 24 hrs, Loveland, CO, flooding in		}			<u> </u>	Į		j	the biggest cumulonimbus clouds	Reported by Charles Kuster, photos in	İ	
318 Muddy Creek CO June 20, 1994 4 LC 40 07 106 25 3.00" 1 hr, Muddy Creek 2.62" 24 hrs, Loveland, CO, flooding in E. Larimer Cty 2.36" 24 hrs, Waterdale, CO, flooding, 2.36" 24 hrs, Waterdale, CO, flooding, 319 Virginia Dale CO August 10, 1994 2 LC 40 54 105 18 5.47" near Virginia Dale in <4 hrs \$400,000 in damage \$1 million in damage, local flooding, heavy T-storms. 5-8" between 9-10:30 pm with lots of Storm occurred but max Sto	317	Near Fairplay	co	June 17, 1994	4	LC	39 14	106 00	ever reported near Fairplay	file	l l	
318 Muddy Creek CO June 20, 1994 4 LC 40 07 106 25 3.00" 1 hr, Muddy Creek E. Larimer Cty 2.36" 24 hrs, Waterdale, CO, flooding,												
319 Virginia Dale CO August 10, 1994 2 LC 40 54 105 18 5.47" near Virginia Dale in <4 hrs \$400,000 In damage \$1 million in damage, local flooding, heavy T-storms. 5-8" between 9-10:30 pm with lots of Storm occurred but max Storm occurred but m	318	Muddy Creek	ÇO	June 20, 1994	4	LC	40 07	106 25	3.00" 1 hr, Muddy Creek	E. Larimer Ctv		
319 Virginia Dale CO August 10, 1994 2 LC 40 54 105 18 5.47" near Virginia Dale in <4 hrs \$400,000 In damage \$1 million in damage, local flooding,	******				Ţ		<u> </u>			2.36" 24 hrs. Waterdale CO flooding		
Pueblo CO August 13, 1994 2 LC 38 17 104 39 3" in 35 min, 4.87" in 1.5 hrs - Pueblo heavy T-storms. \$1 million in damage, local flooding, heavy T-storms. 5-8" between 9-10:30 pm with lots of Storm occurred but max	319	Virginia Dale	CO	August 10, 1994	2	LC	40 54	105 18				
320 Pueblo CO August 13, 1994 2 LC 38 17 104 39 3" in 35 min, 4.87" in 1.5 hrs - Pueblo heavy T-storms.										\$1 million in damage, local flooding.		
5-8" between 9-10:30 pm with lots of Storm occurred but max	320	Pueblo	CO	August 13, 1994	2	LC	38 17	104 39	3" in 35 min, 4.87" in 1.5 hrs - Pueblo	heavy T-storms.		
						!			5-8" between 9-10:30 pm with lots of	Storm occurred but max		
Fig. 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	321	Colorado Springs	CO	September 2, 1994	2	LC.	38 49	104 42		precip.measurement suspect.		

Storm											USBR Depth Area
No.	Storm Name	State	Storm Date	Region	Type	Lat	Long		Remarks	Storm File	Dur. Study
			1						2.90" - storm total, extensive street and	[ĺĺ
322	Canon City	ico	May 17, 1995	2	G	38 25	105 13		property damage.		
-									up to 2-4" in 45-90 minutes over SW		
323	SW Denver County	co	June 4, 1995	2	LC	39 38	105 04	3.20 < 1 hr at Pinehurst (SW Denver)	Denver County		i
1020		1							4" gauge, volunteer observer,	Ĭ	
324	Willard 3W	co	June 7, 1995	1					documented on radar		
	Wolf Creek Pass	CO	August 20, 1995	3	LC	37 29	106 47	4.03" in 1 day at Wolf Creek Pass	Measurement appears suspect	<u> </u>	<u> </u>
								1.75" 40 minutes, 2.36 storm total (3		ĺ	
326	Pagosa Springs	co	August 22, 1995	3,5	LC	37 16		hrs), hail		<u> </u>	<u> </u>
1		 	 		1			2-4.5" in 90 minutes in eastern	Widespread flooding, roofs collapse,	1	1 1
327	Pueblo	co	July 9 ,1996	2	GLC	38 17	104 39	Pueblo	crops destroyed.	1	
1	1	† 		1	T	<u> </u>			Reports of 5-10" in area of		
328	Fleming	co	September 17, 1996	1	GLC	40 40	102 50	4.22" night of 17th - Fleming	Fleming/Paoli		

Appendix B. Colorado Extreme Storm Precipitation Data Study — List of questionable storms from the comprehensive Storm List in Appendix A

Questionable Storm Precipitation Reports

		l	Ĭ .				1	I		1	USBR
Storm		1						1		USBR	Depth Area
No.	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precipitation	Remarks		Dur. Study
		1					·	8.05" 24 hrs, Gladstone, CO Definitely a			
							İ	big storm, but Gladstone precip in	Large flood Durango and Animas River,]	
40	Gladstone - San Juan Range	CO	October 4-6, 1911	3	G	37 53	107 39	question	many 3-4" totals	X	Х
								A storm definitely happened but date of			· · · · · · · · · · · · · · · · · · ·
						ŀ	1	reported heavy rain does not match with	İ		
						ŀ	ļ	date of reported mudslide 3.50" 1 day	Mudslide 7/27/1914 buried Telluride,		
48	Telluride	CO	July 27, 1914	3	LC	37 57	107 49	Telluride	precip reported on 8/26/14.		
									Nothing noted on forms, precip		
	Leadville	CO	August 18, 1932	3,4	LC	39 15	106 18	2.96" 1 day, Leadville	occurred in 2 storms		1
	Leadville	CO	July 23, 1934	3,4	LC	39 15	106 18	5.33" in 3 days - Leadville	2.01" on 21st		· · · · · · · · · · · · · · · · · · ·
107	Leadville	CO	July 27, 1937	3	FC	39 15	106 18	4.25", 45 minutes, Leadville	Data very suspicious		
					[Local reports in SW Fort Collins of 5-7"			
	Masonville	co	September 10, 1938	2				<1 hr, reports suspect.	No extreme precip, reports found in CO	Х	ŀ
	Cimmaron	co	June 3, 1952	3,5	GLC	38 24	107 31	5.25" 1 day, Cimmaron	Did it really happen?		İ
	Cimmaron	CO	September 21, 1952	3,5				3.60" 1 day	forms not found		
	Cimmaron	CO	January 20, 1962	3,5				6.00" 1 day, Cimmaron	CD notes 10" total precip for month		
226	Eagle	CO	September 23, 1969	6		39 38	106 55	1.54" 24 hrs Eagle	No precip at Eagle (FAA), Incorrect?		
			İ						No precip Crested Butte (NWS) or in		
227	Crested Butte	CO	September 25, 1969	3		38 52	106 58	2.30" 24 hrs, Crested Butte	state on 25th, Incorrect?		
		!		1	Ī	1		3.70" - Whiskey Creek (Snotel site)	Measurement suspect, heavy precip in		
	Whiskey Creek	CO	August 24, 1982	5				elevation - 10,220 ft	SW CO - some local flooding		
286	Grand Lake	co	September 28, 1985	4	G	40 16	105 50	3.20" 24 hrs, Grand Lake	Measurement suspect		
		l	.			ĺ		4.10" - Scotch Creek (Snotel site),			
295	Scotch Creek	co	August 19, 1988	3	LC	37 39	108 01	elevation - 9,100 ft	Measurement suspect		
		[l		Storm occurred but max values of		
		co	September 2, 1994	2	I LC	38 49	104 42	5-8" between 9-10:30 pm with lots of hail			
325	Wolf Creek Pass	CO	August 20, 1995	3	<u>LC</u>	37 29	106 47	4.03" In 1 day	Measurement appears suspect		1

Questionable Storm Precipitation Reports

This set of storms was presented as having suspect precipitation observations to the October 1996 meeting of the Extreme Precipitation Task Committee.

- The committee acknowledged that the Gladstone storm of October 1911 (Storm #40)
 was an extreme event for that region, but the majority of the committee believed the
 specific local rainfall report at Gladstone was most likely in error although the
 magnitude of the error is not known and cannot be inferred easily from other
 information.
- The Telluride storm was not discussed.
- The Leadville storm of 1937 (Storm #107) has been investigated previously and there
 was full agreement that this observation was exaggerated most likely by the presence
 of a Marvin snowshield.
- The Cimarron storm of 1952 (Storm #158) has been thoroughly investigated by several committee members. There was total agreement within the review committee that the reported value of 5.25 inches was in error and most likely should have been 0.53 inches.
- The Eagle and Crested Butte storms were not investigated since the rainfall magnitudes were not exceptional.
- The committee accepted the Colorado Climate Center's recommendation to consider the Whiskey Creek and Scotch Creek (Storm #295) SNOTEL measurements as inaccurate. These were most likely accumulated values resulting from SNOTEL communications problems.
- The Grand Lake storm (Storm #286) is also assured to be an error most likely a decimal placement error. A report of 0.32" would have been most consistent with the amount of snowfall reported.
- The Colorado Springs report (#321) was not closely evaluated, but large accumulations and drifts of hail may have accounted for the extreme rainfall reports.
- The Wolf Creek Pass observation of 4.03" in August 1995 has been carefully evaluated. No evidence of such heavy rain could be found although moderate rain was widespread over the region. Most likely 0.40" was a more accurate reading.
- Peak rainfall totals (observed or estimated) are also questionable for other storms on the list. For example, reports of 5-7" of rain in less than 1 hour from ranchers near Masonville (SW of Fort Collins) on September 10, 1938 were investigated, but there is insufficient evidence to either confirm or refute the reports.

It was impossible within the scope of this project to investigate all precipitation reports.

Appendix C. Project summary of special analysis of streamflow data

MEMORANDUM

TO: Dr. Thomas McKee, Dr. Nolan Doesken (Colorado Climate Center, CSU)

FROM: John F. England, Jr. M.S. Candidate, Civil Engineering Department

DATE: 02-15-96

SUBJECT: Extreme Streamflow Task Status

In accordance with Task 4 of the Draft Proposal to the Colorado State Engineer's Office, I am currently developing an Extreme Streamflow Data Base to complement the Extreme Precipitation Storm List.

I have attached a brief summary report which presents the work in greater detail.

The following work has been completed:

- obtained the USGS Indirect Measurement File;
- manipulated the Indirect File for import into Microsoft Excel:
- sorted the data by date, discharge (ranking), and by river basin/county/gage;
- manually compared the indirect and storm lists by date;
- amended the indirect file and added Storm List Numbers and comments;
- developed an indirect "short list" that matches discharges to storms, sorted by Storm Number;
- developed a storm "short list" that matches storms to discharges;
- noted the types of storms that had indirect measurements (and number of measurements);
- noted storm coverage of maximum indirect discharges greater than 5,000 cfs (arbitrary criterion)
- noted dates and numbers of indirect measurements that possibly indicate extreme floods not covered by the storm list.

Work to be completed includes:

- checking the existing indirect file for completeness of historic and relatively recent data (discussed in the attached summary report);
- successfully obtaining the maximum discharge and date from the USGS peak flow files for each stream gage, possibly gathering the top 3 or 5 peaks as we discussed (in process);
- comparing the storm list to the peak flows.

COLORADO EXTREME STREAMFLOW DATA BASE INDIRECT MEASUREMENT FILE

Introduction

An extreme streamflow data base is being compiled as part of an extreme precipitation data study. The study is being conducted by the Colorado Climate Center, Department of Atmospheric Science at Colorado State University for the State of Colorado, Department of Natural Resources Division of Water Resources. The purpose of the study is to gather and prepare a data set composed of precipitation records and supporting meteorological information necessary for undertaking studies of extreme precipitation over the higher elevations (above 7,500 feet) of Colorado. The data gathered for the study will be used to assess previous estimates of Probable Maximum Precipitation in and near the mountains of Colorado.

Three objectives are proposed for the extreme streamflow data study:

- (1) assemble a data set of "large" (historic or maximum) observed, recorded, or calculated streamflows (flood discharges) for the State of Colorado;
- (2) merge/compare the two data bases, and assist in identifying events with good precipitation and streamflow data, including spatial and temporal resolution; and
- (3) identify "questionable" precipitation and/or streamflow observations for further study.

An overall goal of the study is to develop an understanding of the relationships/interactions between extreme precipitation and streamflow in Colorado.

Several key questions or areas will be addressed in meeting the above objectives.

a) Identification of geographic areas or locations where extreme precipitation has been documented but no flood flows/extreme streamflows have been recorded.

An example of this phenomenon is the San Juan Range (Gladstone, CO) 1911 storm, where a purported 8 inches of rain was measured and little streamflow was noted.

b) Identification of geographic areas or locations where flood flows/extreme streamflows have been documented but extreme precipitation has not been recorded.

A discharge of 12,000 cfs (annual peak) was recorded at the Cache La Poudre gage at the canyon mouth in 1901. However, no record of a flood occurring or extreme rainfall was noted in U.S.

Geological Survey Water Supply Papers. This is the highest recorded discharge in the USGS files (excluding the 1891 Chambers Lake dam failure and the May, 1904 flood) for this gage. For comparison, the May 31, 1930 storm occurrence was recorded in Water Supply Papers; the flood discharge (estimated) for this event was 10,200 cfs and wiped out the gage. Two questions arise: did a significant rainfall occur (extreme precipitation), and is the 1901 discharge accurate (suspect) as it exceeds the 1930 event.

c) Identification of areas in Colorado where little to no extreme precipitation data exist and very few instances of flooding have been noted.

One area targeted by the Colorado Climate Center for investigation is Region 6, the Northern Rocky Mountain interior valleys and plateaus, which includes Craig, Meeker, Rifle, and vicinity. An examination of the extreme streamflows may identify snowmelt as the primary (if not only) mechanism for flood discharge. The results from this investigation may have significant ramifications on the future development of Probable Maximum Precipitation estimates for this region.

Indirect File Documentation

The Indirect File list is a modified version of the U.S. Geological Survey Indirect Discharge Measurement file. The file has been slightly altered to Microsoft Excel spreadsheet format; the original data has not been altered except for presentation in a column format.

The list includes all known indirect discharge measurements made by the U.S. Geological Survey Colorado District, thus it is not inclusive to extreme events (for example, greater than a 100-year event). Due to the dangers and destructive nature of floods, accurate measurements at the time of the peak discharge are very difficult and seldom attempted. Indirect measurements are made at a location after the flood has passed. Typical site selection is: a gaging station destroyed by a flood; a flood discharge which is much higher than the existing rating curve (stage-discharge relation); or where loss of life, significant property damage, or road/bridge damage has occurred. The file is the primary source for flood discharge measurements for Colorado, and encompasses the major drainage basins and counties in Colorado.

The list contains locations, dates, discharge estimates, type of measurement, and brief quality descriptor.

Location: Gage locations are noted by Colorado County, USGS Gaging Station number, latitude/longitude, and brief description/location.

<u>Type of Measurement:</u> the indirect measurement method used is indicated by the following measurement type codes:

- 1 Slope area; 2 weir; 3 culvert; 4 contracted opening;
- 5 float; 6 critical depth.

File code: indicates where the data file and supporting documentation (if available) is located,

by:

R-Denver; L-Lakewood; G-Grand Junction; P-Pueblo; M-Meeker;

D - Durango

Note code: indicates notes on the location, computations, or peak discharge, by:

1 - coordinates are only to the nearest minute;

2 - computations and x-sections are not included;

3 - peak discharge due to dam failure

Part code: indicates the major river basin where the measurement was made, and is the first digit

(other than zero) of the stream gage station number for Colorado:

Part 6 - Platte River Basin

Part 7 - Arkansas River Basin

Part 8 - Rio Grande River Basin

Part 9 - Colorado River Basin

Rating: a quality descriptor assigned by the person making the discharge estimate, it is a

relative gage of the quality of the accuracy of the discharge measurement:

Good - within 10 percent (ideal conditions)

Fair - within a 15 percent possible error

Poor - where error might possibly be 25 percent or greater

Unknown - quality is not known, determined, or is absent from computations

Comparison With Extreme Precipitation Data Base

The indirect data base was compared to the extreme storm list by date. A total of 690 measurements are contained in the indirect data base. I discovered several limitations to the indirect measurement file as compared to the Storm List dates of coverage. The indirect file I was able to obtain consists of measurements from 1867 to 1983. Thus, storm numbers 218-254 (37 events) from years 1983 to 1995, are not covered by this method. In addition, little historic information is available for the period 1867 to 1930; nine measurements have been made for this period. One measurement (June 2, 1867 at Morrison) does not have any discharge estimate; the one measurement in 1904 (May 20, Cache La Poudre) is highly suspect. Several indirect measurements made during the historic period may be missing (e.g. May 31, 1930 Cache La Poudre at mouth of canyon), others are of questionable quality. The storm list contains 83 measurements during this period. Thus, the indirect measurement data base is insufficient to match flood discharges to precipitation events during the early (historic) period and new measurements (later than 1983). A reasonable comparison is for the period 1930 to 1983, and includes 681 indirect measurements and 77 precipitation events (subtracting 83 events during historic period, 37 events after 1983, and about 57 storms outside Colorado).

The two lists were compared by date of event. Flood events were selected from the indirect list

which did not have a precipitation match, to discuss and briefly investigate. The selected floods may represent extreme precipitation events which were not recorded or documented. Further work is needed to shorten the list. Floods were selected based on two simple criteria: (1) the number of indirect measurements made on a particular date; and (2) a significant peak discharge (based on ranking by location).

A chronological list of observations/questions/comments between the two data sets follows. The abbreviation Co. is used for county. Refer to the attached indirect data table (sorted by date).

Check August 26-27, 1941 Pueblo/Otero Co. (Large Q)

No storms were documented for 1942 in Colorado Check April 23-24, 1942 Las Animas/Bent/Otero Co. (Large Q) August 14-15, 1942 Huerfano/Pueblo/Otero Co.

Check July 31, 1945 Gunnison Co. Location of Cucharas Dam, CO?

For Storm No. 129 June 4-7, 1949 Eastern CO 7 measurements, possibly 13 total were made. Check June 1949 indirects in Prowers Co.

July 26, 1950 Pueblo Co. Huerfano River greatest indirect Q 16,700 cfs

check July 29-Aug 1, 1953 San Miguel/Montezuma Co. SW CO

Check 1954 no precip. in CO July 22, 1954 Las Animas Co.

For Storm No. 133 Redstone Creek Bellevue, CO 12 definite, possibly 15 measurements were made. For Storm No. 138 May 18-20, 1955 34 indirect measurements were made.

Storm No. 140 ONE indirect MADE!!

Check July 19, 1956 Bent/Prowers Co. 4 measurements made

Year 1958 - No CO precip 8 misc. measurements Year 1960 - No CO precip 4 misc. measurements

July 27, 1961 Fremont Co. Arkansas R. Trib at Parkdale, 3 measurements July 31, 1961 Douglas Co. Franktown, CO 2 measurements

July 13, 1963 Pueblo Co. Kramer Creek August 3, 1963 Arapahoe/Douglas Co. Parker/Cherry Creek Storm No. 159 Plum Creek: appears to be 91 indirect measurement made, which is 13 percent of total number of indirect measurements!

Location of Storm No. 164 Big Sky Ranch? (Date?) July 24, 1965 two measurements at Fountain Creek El Paso Co.

One indirect measurement made in 1966

Check Storm No. 183: August 22, 1969 appears to be 5 indirect measurements

Storm No. 188 - September 4-6, 1970 27 measurements made, 3 are questionable on date

Check September 19, 1972 - Mesa Co. 3 measurements made. Storm No. 193 October 19-20, 1972 SW CO, 5 measurements

Storm No. 194 May 5-6, 1973 include May 7th? 13 measurements made.

Check July 18, 1974 Mesa/Dolores Co.

Storm No. 198 Big Thompson - 32 measurements made Check Aug 1-2, 1976 Pueblo Co., 3 measurements.

Check July 24, 1977 Delta Co. 2 measurements August 25, 1977 Rio Blanco/Garfield Co. 2 measurements. Location of La Plata River ??

CHECK JULY 23-24, 1977 Rio Blanco 7 measurements September 11, 1977 3 measurements Rio Blanco Co.

June 27, 1978 3 measurements Las Animas Co.

March 17, 1979 3 measurements Jefferson Co. July 31, 1979 3 measurements Las Animas Co.

August 26, 1980 3 measurements Denver/Adams Co.

June 2, 1981 El Paso Co CO Springs area 4 measurements
June 3, 1981 Jefferson/Denver/Adams Co. 3 measurements
August 5, 1981 3 measurements El Paso Co.
August 10, 1981 3 measurements Las Animas Co. - Trinidad Storm (No. 210?)

August 13, 1982 W. Salt Creek Garfield Co. 2 measurements (same site as Aug. 30-31, 1981 w/4 measurements) larger Q

August 24, 1982 Cortez Montezuma Co. 2 measurements.

To summarize the date comparison, 283 possible matching indirect measurements out of a total of 690 were made that match 45 storms out of a possible 160 storms (subtracted from 254 total, 37 storms after 1983 and about 57 out of state). This appears to be a 28 percent matching rate (45/160). An indirect rating quality or record shift was noted about year 1956. Prior to this date, most of the indirects were rated as unknown quality, with a known rating listed for most measurements after 1956.

The indirect file was sorted by discharge after including the Colorado Climate Center (CCC) Storm Numbers and including a comments column. A table was created of discharges greater than 5,000 cfs (arbitrary criterion) to cross check the coverage of the CCC Storm list (see attached table). Fortunately, most of the large indirect discharge measurements (greater than 9,500 cfs) correspond to a CCC Storm Number. Maximum discharges need to be identified at a particular location to check for correspondence with a CCC storm number and possible flood occurrence without precipitation data.

Two matching lists were created, an indirect short list and a precipitation short list, to merge the indirect measurements that match a precipitation event (see attached tables). The indirect list was sorted by CCC storm number. A count of indirect measurements corresponding to a storm number may be made, for example 13 percent (91) of the measurements were made for the Plum Creek event (storm No. 159); however many of the measurement locations or dates need to be reviewed for all matching indirect measurements.

For the storms that were recorded or matched with indirect files, the storm type was examined for trends. Out of 45 matching storms (see list) over 50 percent (25) were local convective (LC) storms, 8 were general (G), 8 were general local convective (GLC) and 4 were unnamed. The matching indirect measurement drainage basin locations were reviewed; the indirect file sorted by discharge (ranked) was also examined. The majority of the indirect measurements that match a storm event are from Parts 6 and 7. Similarly, the largest ranked discharges (greater than 9,000 cfs) were measured in Parts 6 and 7. Thus, the majority of floods in Colorado as indicated by the indirect measurement file occur in the Platte and Arkansas River Basins and result from Local Convective storms, in general.

The indirect measurement data base was also sorted by river basin, county, and stream gage. Few discharge measurements were made in the Northwest portion of Colorado. While many measurements (23) were made in Rio Blanco Co., 26 measurements were made in Mesa Co., several were made in Garfield Co., and no measurements were made in Routt Co. No measurements were made in Summit Co., one in Grand Co., and 7 in Eagle Co.

Continued Work and Development

The data base is still in the development stage. The indirect data base is being reviewed. Peak discharges at a gage/location need to be reviewed for coverage. A list of peak flows from USGS gaging stations is currently being compiled for comparison to the extreme storm list. One file (peak flow file short list) was generated and lists the maximum instantaneous peak discharge and gage height for all Colorado stations; it unfortunately does not list the complete date or even water year of the maximum discharge. This is being worked on at the present time. The peak flow data has been gathered for every gaging station; the data need to be sorted and ranked in discharge order.

If you have questions, comments, or additional information to add, please contact me at any time regarding this project summary or data base.

Sincerely,

John F. England, Jr. M.S. Candidate

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ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394605 394707 394735 394350 395041 39503 394006 394904 392904 392904 392904 392130 392130 392130 392130	1045300 1045413 1050020 1050120 1045818 1045702 1045710 1050059 1050007 1050007 1050007 1044550 1044550 1044550	JUN MAY MAY JUL JUL JUL JUL JUL JUN AUG JUN JUN JUN JUN JUL JUL JUL JUL JUL JUL JUL JUL JUL JUL	5 26 3 8	1965 1973 1973 1973 1975 1975 1979 1979 1981 1945 1965 1941	18900 5630 920 430 856 1128 6655 672 870 720 7700 2700 154000	4	187 187 7 8	FAIR UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN FOOR FAIR					SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO SANDERSON GUICH AT ARKANSAS AVE. AT DENVER, COLORADO WEIR GUICH AT DECATUR AT DENVER, COLORADO NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO NIVER CREEK AT STEELE ST. AT DENVER, COLORADO HARVARD GUICH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394707 364 129 394304 395041 395030 394006 394004 394914 392904 392904 392904 392130 392130 392130 392130	1045413 1050020 1050120 1045702 1045818 1045702 1045825 104570 1050030 1050037 1050037 1044550 1044550 1044550	MAY MAY JUL JUL JUL JUL JUL AUG JUL JUL JUL JUL JUL JUL JUL JUL JUL JUL	5 26 3 8	1973 1973 1973 1975 1975 1979 1979 1980 1981 1945 1953 1965	5630 320 430 656 1126 685 672 870 720 7700 2700 15400	4	167 7 8	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN POOR FAIR					SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO SANDERSON GUICH AT ARKANSAS AVE AT DENVER, COLORADO WEIR GUICH AT DECATUR AT DENVER, COLORADO NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO NIVER CREEK AT STEELE ST. AT DENVER, COLORADO HARVARD GUICH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394129 3943561 395011 395030 394006 394006 394914 394914 392904 392904 392904 392903 392130 392130 392130 392130	105020 1050120 1045702 1045702 1045702 1045703 1050059 1050007 1050007 1050007 1044550 1044550 1044550	MAY MAY JUL JUL JUL AUG JUL JUL AUG JUL AUG JUL AUG AUG AUG AUG AUG AUG	5 26 3 8	1973 1973 1975 1975 1979 1980 1981 1945 1953 1985	920 430 856 1128 685 672 870 7700 2700 154000	3 3 3 3 1 1	7 8 8	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN POOR FAIR					SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO WEIR GULCH AT DECATUR AT DENVER, COLORADO NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO NIVER CREEK AT STEELE ST. AT DENVER, COLORADO HARVARD GULCH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394350 395031 395030 394004 394914 394918 392904 392904 392130 392130 392130 392130	1050120 1045812 1045702 1045702 1045701 1050059 10500305 1050007 1050007 1044550 1044550 1044550	MAY JUL JUL JUL JUL AUG JUN JUL JUL AUG JUL AUG AUG	5 26 3 8	1973 1975 1975 1979 1979 1980 1981 1945 1953 1965	439 856 1128 685 672 870 7700 7700 2700 154000	3 1 1 1 1 3 3 3 1 1 1 1 1 1 1 1 1 1 1 1	274	UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN POOR FAIR				6 6 8	WEIR GUICH AT DECATUR AT DENVER, COLORADO NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO NIVER CREEK AT STEELE ST. AT DENVER, COLORADO HARVARD GUICH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	395041 395030 394004 394914 394958 392904 392904 392130 392130 392130 392130	1045810 1045702 1045702 1045710 1050059 1050305 1050007 1050007 1044550 1044550 1044550	JUL JUL JUL JUL AUG JUN AUG JUL JUN JUL AUG AUG	5 26 3 8	1975 1975 1979 1979 1980 1981 1945 1953 1965	856 1128 685 672 870 720 7700 2700 154000	1 1 3 3 3 1 1 1	274	UNKNOWN UNKNOWN UNKNOWN UNKNOWN POOR FAIR	L L L			6 8 8	NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO NIVER CREEK AT STEELE ST. AT DENVER, COLORADO HARVARD GUILCH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	395030 394006 394004 394914 3949158 392904 392904 392130 392130 392130 392130 392130	1045702 1045710 1045710 1050059 1050007 1050007 1050007 1044550 1044550 1044550	JUL JUL JUL AUG JUN AUG JUL JUN JUL AUG AUG	5 26 3 8	1975 1979 1979 1980 1981 1945 1953 1965	1128 685 672 870 720 7700 2700 154000	1 1 3 3 1		UNKNOWN UNKNOWN UNKNOWN POOR FAIR				8 8	NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO NIVER CREEK AT STEELE ST. AT DENVER, COLORADO HARVARD GUILCH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	395030 394006 394004 394914 3949158 392904 392904 392130 392130 392130 392130 392130	1045702 1045710 1045710 1050059 1050007 1050007 1050007 1044550 1044550 1044550	JUL JUL JUL AUG JUN AUG JUL JUN JUL AUG AUG	5 26 3 8	1975 1979 1979 1980 1981 1945 1953 1965	1128 685 672 870 720 7700 2700 154000	1 1 3 3 1		UNKNOWN UNKNOWN UNKNOWN POOR FAIR				8	NIVER CREEK AT STEELE ST. AT DENVER, COLORADO HARVARD GUICH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394006 39404 394914 394958 392904 392904 392130 392130 392130 392130 392130	1045625 1045710 1050059 1050050 1050007 1050007 1044550 1044550 1044550	JUL JUL JUN AUG JUL JUN JUL AUG AUG	5 26 3 8	1979 1979 1980 1981 1945 1953 1965	685 672 870 720 7700 2700 154000	3 3 1		UNKNOWN UNKNOWN POOR FAIR				<u>8</u>	HARVARD GULCH AT COLORADO BLVD. AT DENVER, COLORADO	
ENVER ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394004 394914 394958 392904 392904 392130 392130 392130 392130 392130	1045710 1050059 1050305 1050007 1050007 1050007 1044550 1044550 1044550	JUL JUN AUG JUL JUN JUL AUG AUG	3 8 29	1979 1980 1981 1945 1953 1965	672 870 720 7700 2700 154000	3 3 1		UNKNOWN POOR FAIR	L			6		
ENVER ENVER OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394914 394958 392904 392904 392130 392130 392130 392130 392130 392130	1050059 1050305 1050007 1050007 1050007 1044550 1044550 1044550	AUG JUN AUG JUL JUN JUL AUG AUG	3 8 29	1980 1981 1945 1953 1965	870 720 7700 2700 154000	1 3 3		POOR FAIR	<u>L</u>		2			
ENVER OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	394958 392904 392904 392904 392130 392130 392130 392130	1050305 1050007 1050007 1050007 1044550 1044550 1044550	JUN AUG JUL JUN JUL AUG AUG	3 8 29	1981 1945 1953 1965 1941	720 7700 2700 154000	3 3 1		FAIR			- 1	8	HARVARD GULCH AT HARVARD PARK, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	392904 392904 392904 392130 392130 392130 392130 392130	1050305 1050007 1050007 1050007 1044550 1044550 1044550	JUN AUG JUL JUN JUL AUG AUG		1981 1945 1953 1965	720 7700 2700 154000	3 1		FAIR	-			6	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	392904 392904 392904 392130 392130 392130 392130 392130	1050007 1050007 1050007 1044550 1044550 1044550 1044550	AUG JUL JUN JUL AUG AUG		1945 1953 1965 1941	7700 2700 154000	1						<u></u>	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6709500 6709500 6712000 6712000 6712000 6712000 6712000	392904 392904 392130 392130 392130 392130 392130	1050007 1050007 1044550 1044550 1044550 1044550	JUL JUL JUL AUG AUG		1953 1965 1941	2700 154000				∤ ≛					
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6709500 6712000 6712000 6712000 6712000 6712000	392904 392130 392130 392130 392130 392130	1050007 1044550 1044550 1044550 1044550	JUN JUL AUG AUG		1965 1941	154000				<u>R</u>		2	<u> </u>	PLUM CREEK NR. LOUVIERS, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6712000 6712000 6712000 6712000 6712000	392130 392130 392130 392130 392130	1044550 1044550 1044550 1044550	AUG AUG	16 13	1941				FAIR	LR.	l		6	PLUM CREEK NR. LOUVIERS, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6712000 6712000 6712000 6712000	392130 392130 392130 392130	1044550 1044550 1044650	AUG AUG	13			,	302	UNKNOWN	R			6	PLUM CREEK NR. LOUVIERS, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6712000 6712000 6712000 6712000	392130 392130 392130 392130	1044550 1044550 1044650	AUG AUG	5		4700	5	169	UNKNOWN	R	1	2	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6712000 6712000 6712000	392130 392130 392130	1044550 1044550	AUG	- ~- š		9170	·		UNKNOWN			2	<u>~</u>	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6712000 6712000	392130 392130	1044550								ļ <u>.</u> 2		- - .			
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS		6712000	392130				1954	2620	1:		FAIR	¤-			в	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS				::: :::::::::::::::::::::::::::		30	1957	5380	1		GOOD	R		[6	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS OUGLAS				1044550	JUL	31	1961	3410	1	169	FAIR	R			8	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
OUGLĀS OUGLĀS OUGLĀS OUGLĀS OUGLĀS				1044550		30 31 21	1965	1730	- i		UNKNOWN	T 7			Ā	CHERRY CREEK NEAR FRANKTOWN, COLORADO	
OUGLĀS OUGLĀS OUGLĀS OUGLĀS		:		1044500								<u> -</u> -		, -	·		
OUGLĀS OUGLĀS OUGLĀS			392000			3	1933	30000	_		UNKNOWN	<u>R</u>		12		CHERRY CREEK AT CASTLEWOOD DAM, COLORADO	
OUGLAS OUGLAS			392217	1044454		31	1961	2900	1		POOR	R			6	RUSSELLVILLE GULCH NR. FRANKTOWN, COLORADO	
OUGLAS		[393157	1044735		3	1963	7620	1	13.6	FAIR	R	}	· - [6	NEWLIN CREEK NR. PARKER, COLORADO	
OUGLAS			392417	1045225	JUN	18	1965	126000	1	108	POOR	R	·	·	6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	
	1		392230	1045735		16		36800			POOR	 			6	WEST PLUM CREEK NR. SEDALIA, COLORADO	
OUGLAS	· }	.	390806	1050941		···'ši	1973	78			GOOD	···}} ·	-		· ž ·		
		:				<u>.</u>			3			<u>H</u>	[2	TRAIL CREEK NR. WESTCREEK, COLORADO	
OUGLAS		·	390922	1050945		7	1973	2020			FAIR	R.		3	8	WEST CREEK AT WESTCREEK, COLORADO	
OUGLAS		.	391032	1050958	MAY	7	1973	3080	1	62.3	FAIR	R		3	6	WEST CREEK BELOW WESTCREEK, COLORADO	
L PASO	'	8757600	390400	1043455	Liui	30	1957	5250	1	3.2	GOOD	R			Ā	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	
I PASO		8757600		1043455		17	1965	2370	· ·		GOOD	R-	∮~		-	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	
PASO	1	6757700		1043331										.	2		
			390618			17		2600	<u></u>		GOOD	R			6	KIOWA CREEK SUB WATERSHED NO. J-33 NR. EASTONVILLE, CO.	
LBERT	- !	6757750	390920	1043118		17	1965	2010	1		GOOD	l B		1	. 6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. ELBERT, COLORADO	
LBERT	l	8757800	391003	1043114	JUN	17	1965	1270	. 1	0.59	FAIR	Ŕ				KIOWA CREEK SUBWATERSHED NO. Q-51 NR ELBERT, COLORADO	
I.BERT		6758000	381235	1043200	JUN	17	1985	41500		28 6	GOOD	ÌÈ	1		8	KIOWA CREEK AT ELBERT, COLORADO	
LBERT	1	6758100	391238	1043218	Litin	17	1965	20000	·-· i		FÄIR	🖁	- [ă	WEST KIOWA CREEK AT ELBERT, COLORADO	
IBERT	- 1	6758200	392000	1042900		. "		15230				· 🛱	. .	2	ž		
							1954		1		UNKNOWN	1 16		1.	. 8	KIOWA CREEK AT KIOWA, COLORADO	,
LBERT		6758200	392000	1042900		25		2870	. 4	111	FAIR	I. R		1	6	KIOWA CREEK AT KIOWA, COLORADO	
LBERT		6758200	392000	1042900	JUN	17	1965	19700	4	[111	UNKNOWN	R	1	1	6	KIOWA CREEK AT KIOWA, COLORADO	
LOERT	~ 1	6758700	392933	1040948	JUN	19	1977	500	· i ·		UNKNOWN	··· i	- 1		Ä	MIDDLE BIJOU CREEK TRIB. NR. DEER TRAIL, COLORADO	
LBERT	- 1		391600	1042000		17		67200	1.11		POOR	Ř	- 1	4	ž	WEST BIJOU CREEK NR. KIOWA, COLORADO	
LBERT	- 1					1 7 4 1	1						.	. ' -	- 5		
			392855	1041126		25		355	6		FAIR	, Ŗ			ē	SOUTH FORK WILLOW GULCH NR. DEER TRAIL, COLORADO	,
ILPIN	. 1		394548	1052708		8	1981	727	. 1.	8 17	FAIR	R			6	RUSSELL GULCH NR. BLACKHAWK, COLORADO	
ACKSON	ļ	6619420	404418	1060649	APR	21	1980	22	2	3.95	GOOD	ľĽ		1	6	WILLIAMS DRAW NR.WALDEN, COLORADO	
EFFERSON	· 1	6710500	*** /		JUN		1887				UNKNOWN	·····~		2	<u>ē</u>	BEAR CREEK AT MORRISON, COLORADO	
EFFERSON	- }	6710500	393911	1051142		\$		أمنية	•		UNKNOWN	1 2	- 1	3			
	- i					(1933	8110	!			1 12	.	4	0	BEAR CREEK AT MORRISON, COLORADO	
EFFERSON		6710500	393911	1051142		2	1938	8200	1		UNKNOWN	I <u>R</u>		2	8	BEAR CREEK AT MORRISON, COLORADO	
EFFERSON	!	6711000	393808	1051005		24	1946	1200	1	50.1	UNKNOWN	Ř	1	2	6	TURKEY CREEK NEAR MORRISON, COLORADO	
EFFERSON	- 1	6711000	393122	1051113	MAY	7	1969	2730	1		FAIR	Ŕ		1	6	TURKEY CREEK NR. MORRISON, COLORADO	
EFFERSON		8711842	394253	1050744		20		403			GOOD	R		· † ·		MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO	
EFFERSON		6711642	394253	1050744		ř	1977	361	- i		FAIR	R			<u>-</u>	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO	
EFFERSON		6711842										<u>`</u>	 		<u>\$</u>		
	1		394253	1050744		20		590	!		FAIR	<u>K</u>			<u>6</u>	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO	
EFFERSON	1	6719500	394505	1051455		. 9	1933	5890	1		UNKNOWN	R		2	8	CLEAR CREEK NR. GOLDEN, COLORADO	
EFFERSON	Ī	6719630	394428	1050845	JÜL	20	1975	641	1	9	UNKNOWN	i i	7	F	6	LENA GULCH AT LAKEWOOD, COLORADO	
EFFERSON		6730300	395240	1051638		16	1963	195	<u>i</u>		GOOD	Ř			<u>-</u>	COAL CREEK NR. PLAINVIEW, COLORADO	
EFFERSON			394545	1051320		اچا ا	1948	11600	-					- -			
	}					·			1		UNKNOWN	4		2	6	TUCKER GULCH AT GOLDEN, COLORADO	
EFFERSON		 1	394256	1050848		15	1963	968	3		FAIR	R		l	. 6	MCINTYRE GULCH AT DENVER FEDERAL CENTER, COLORADO	
EFFERSON	I		394553	1050749	MAY		1973	820		11	UNKNOWN	L. L			6	LENA GULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO	
EFFERSON		,	394544	1050808	MAR	17	1979	720	1		POOR	R		3	6	LENA GULCH AT 32ND AVE., LAKEWOOD, COLORADO	
EFFERSON	· t		394620			17	******			f		 -	1		6	LENA GULCH AT KIPLING ST. AT WHEATRIDGE, COLORADO	
EFFERSON			394608	1050703		17				· · · · · · · · · · · · · · · · · · ·							
	, j					1		380 113		i		ļ <u>.</u>		. <u>.</u> .	6	LENA GULCH AT NELSON STR AT WHEATRIDGE, COLORADO	·
EFFERSON		h	394119	1050454		4	1979		1	0.38	UNKNOWN	1		2	6	SANDERSON GULCH TRIB. AT LAKEWOOD, COLORADO	····
EFFERSON	[, ·	394451	1050807	MAY	5	1980	400	3].	FAIR	R	1	- 1	6	LENA GULCH AT 20TH AVE., LAKEWOOD, COLORADO	
EFFERSON			394543	1050810		-	1980	540	1	1:	POOR	R			8	LENA GULCH AT 32ND AVE, LAKEWOOD, COLORADO	
EFFERSON			394958	1050305		j š	1981	770	3	f' - · - · · · · ·	FAIR				<u>-</u>	LITTLE DRY CR AT 75TH AND SHERIDAN AT WHEATRIDGE, CO	···
	·· [<u>! '0</u>	3	·		∤		.	<u> </u>		
EFFERSON	[393917	1051821		18		<u> </u>	L!		UNKNOWN	R.		2	<u> </u>	TROUBLESOME CREEK AT KITTEREDGE, COLORADO	
ARIMER	i	6710400	402508	1051553		30		1590	!		FAIR	R		!	6	CEDAR CREEK AT CEDAR COVE, COLORADO	
ARIMER	Γ	6733000	402242	1053048	JUL	15	1982	5500	2	137	POOR	1 " L	71 ***	1	6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	
ÁRIMER	1	6734500			MAY	25		1480	i		POOR	۾ ا	- [· ·	å	FISH CREEK NR ESTES PARK, COLORADO	
ARIMER		6738000		1051334		31	1976	31200			POOR	∤~~ · · · · }}		· · - ·	٠٠٠٠ - ا	BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO	
	[{ <u></u> `			2		
ARIMER	l	6738500		1051150		15		10500	1		UNKNOWN	<u>R</u> .,		. 2		BUCKHORN CREEK NEAR MASONVILLE, COLORADO	
ARIMER	I	6739500	402715	1051150	MAY '	30	1948	5750	1	131	UNKNOWN	Ř		- "	6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	

											Extreme St					
COUNTY		STATION	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST
		NUMBER			1	1				AREA						NUMBER
					1	li		(FT3/S)		(SO MI)		1			BUCKHORN CREEK NEAR MASONVILLE, COLORADO	
LARIMER		6739500	402715	1051150		3	1051	14000	!		POOR	R			CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	·
LARIMER		8740000	402220	1051335		3	1951	420	4		UNKNOWN	R		<u>8</u>	RATTLESNAKE CREEK NR. PINEWOOD, COLORADO	
LARIMER		8740500	402210	1051715		3	1951	350	2		POOR	<u>K</u>			COTTONWOOD CREEK NR. PINEWOOD, COLORADO	· t
LARIMER		8741000	402300	1051430		4	1949		1		POOR	R		<u> </u>	COTTONWOOD CREEK NR. PINEWOOD, COLORADO	
LARIMER		6741000	402300	1051430		3	1951	2260			GOOD	R			BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	·
LARIMER		6741500	402355	1050610		3	1951	19000			UNKNOWN	R			CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	·
LARIMER		6752000	403955	1051310		20	1904	57200 7340			FAIR	R	2		CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	
LARIMER		6752000	403052	1051328]!	1976	5700			FAIR	<u>R</u>		ĕ	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	
LARIMER		6752260	403517	1050408			1976	6800			UNKNOWN	<u> </u>		· V	NO. FK. CACHE LA POUDRE RIVER AT LIVERMORE, COLORADO	† ————————————————————————————————————
LARIMER		} . }	404600	1051400		31	1930	11400		- 541	UNKNOWN	Ř		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	
LARIMER			402300	1050148		1 3	1951	12000	··		UNKNOWN	- R	1 2	¥	CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	
LARIMER			403800	1051045		1 - 3	1951	8000			UNKNOWN	<u>R</u>	'		DRY CREEK ABV. BELLVIEW, COLORADO	
LARIMER		l·	402539	1052037		31	1976	28200		189	POOR	R		8	BIG THOMPSON ABV. DRAKE, COLORADO	
LARIMER			402552			31		30100	···		POOR	Ř		6	BIG THOMPSON RIVER BELOW DRAKE, COLORADO	
LARIMER LARIMER			402259	1052811		1 31	1978	4330	i '		GOOD	R		···ě -	BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO	
LARIMER		· ··	402505	1051202		31 31	1978	27000			POOR	Ŕ		8	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO	I
LARIMER			402433	1052507		1 31	1978		1		POOR	R		В	BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	<u></u>
LARIMER		· ···	402344	1052734		31	1978		1		POOR	R		6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	
LARIMER		(`~	402704	1052528		-{- š i	1978		1		POOR	R	·	6	BLACK CREEK NEAR GLEN HAVEN, COLORADO	
LARIMER			405736	1052138		31 31 31	1978		3		GOOD	R		6	DALE CREEK TRIB. AT VIRGINIA DALE, COLORADO	
LARIMER		[:-···	402344	1052617		1 · 3i	1978		1	1	POOR	R		ß	DARK GULCH AT GLEN COMFORT, COLORADO	
LARIMER			405550	1052057		31	1978	7400	1		POOR	į R]	8	DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	
LARIMER		[402824	1052731		31	1976				POOR	į R	ļ	8	DEVILS GULCH NR. GLEN HAVEN, COLORADO	-{
LARIMER		i	402242						1		POOR	R	L	8	DRY GULCH AT ESTES PARK, COLORADO	· · · · · · · · · · · · · · · · · · ·
LARIMER		 ;	402422			31 31 31 31	1976		1		POOR	R	1	6	DRY GULCH NR. ESTES PARK, COLORADO	
LARIMER			402717	1052713	JUL	31	1976		1		POOR	R	1	<u>6</u>	FOX CREEK AT GLEN HAVEN, COLORADO	
LARIMER			402006			31	1976		1		FAIR	R		ļ <u>6</u>	LITTLE THOMPSON RIVER NR. ESTES PARK, COLORADO	·
LÁRIMÉR			404744			31	1976		1		FAIR	R	ļ	<u></u>	LONE PINE CREEK NR. LIVERMORE, COLORADO	·
LARIMER			402348			31	1976		1		POOR	. <u>R</u>	ļ	<u>B</u>	LONG GULCH NR. DRAKE, COLORADO	
LARIMER			402747			31	1978		1		POOR	<u>R</u>	ļ	<u>.</u>	MILLER FORK NR. GLEN HAVEN, COLORADO NO. FK. BIG THOMPSON RIVER ABV. DRAKE, COLORADO	
LARIMER			402620			31 31	1976		. 1		FAIR	<u>F</u>		<u>x</u>	NO. FK. BIG THOMPSON RIVER AT GLEN HAVEN, COLORADO	· • · · • · · · · · · · · · · · · · · ·
LARIMER			402717			31	1976		1		POOR	<u>k</u>			NO. FK. BIG THOMPSON RIVER TRIB. NR. DRAKE, COLORADO	.
LARIMER			402655			31			1		POOR		ļ	ļ <u>ģ</u>	NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	-
LARIMER		l:	404715			31					POOR	. 2		6	NOELS DRAW AT GLEN COMFORT, COLORADO	·
LARIMER			402325			31					POOR	· 🖺 – -		6	NORTH FORK BIG THOMPSON TRIB. NR. GLEN HAVEN, COLORADO	†
LARIMER		J	402714			31			}		POOR			8	RABBIT GULCH NR. DRAKE, COLORADO	
LARIMER			402423			31			ļ <u>_</u>		POOR	· [REDSTONE CREEK NR. MASONVILLE, COLORADO	
LARIMER			403019			31			ļ		POOR	- 			RIST CANYON NR. BELLVIEW, COLORADO	
LARIMER		į	403743			31					GOOD			<u>ĕ</u>	STONEWALL CREEK NR. LIVERMORE, COLORADO	
LARIMER		} '	404837			31	1976		├ · ··¦		POOR	- R	· ·	ĕ	WEST CREEK NR. GLEN HAVEN, COLORADO	1
LARIMER			402632 402405			15					POOR			- š	FALL CREEK ABV. CASCADE DAM ABV. ESTES PARK, COLORADO	1
LARIMER				· · · · · · · · · · · · · · · · · · ·		15				· · · · · · · · · · · · · · · · · · · ·	POOR		 	6	FALL RIVER ABV. ESTES PARK, COLORADO	
LARIMER			402301			15			 		POOR	+	·	6	FALL RIVER AT CASCADE DAM ABV. ESTES PARK, COLORADO	I
LARIMER		· · · · · · · · · · · · · · · · · · ·	402403 402359			15				-	POOR		= 1202	6	FALL RIVER BLW. CASCADE DAM ABV. ESTES PARK, COLORADO	
LARIMER		6821300	393112			23				5.27	·):	· } 	}	6	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO	
LINCOLN		6821300	393112			10					UNKNOWN	T	1	Ē	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO	.
LOGAN	· - · -	8760000	402424			18					FAIR	R	1	6	SOUTH PLATTE RIVER AT BALZAC, COLORADO	.
LOGAN		6760300	405246			30					UNKNOWN	T	1	6	DARBY CREEK NR. BUCHANAN, COLORADO	
LOGAN		8760430	405812				197			22 3	UNKNOWN	T]	6	SPRING CANYON NR. PEETZ, COLORADO	.4
LOGAN		8822600	402950			22		-1			UNKNOWN	LLL]	- 6	PATENT CREEK NR. ST. PETERSBURG, COLORADO	
LOGAN			403424			7	195				POOR	R	2	6	PAWNEE CREEK NEAR LOGAN, COLORADO	
LOGAN		· · ·	403700			15			4		FAIR	R	1 1	6	PAWNEE CREEK NR. STERLING, COLORADO	
MORGAN		6758500	401920			15					UNKNOWN	R	2	6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	
MORGAN		6759000	401453			17			1		UNKNOWN	R	.l	6	BIJOU CREEK NEAR WIGGINS, COLORADO	
MORGAN		6759000				27	195				NKNOWN	R	.,	6	BIJOU CREEK NEAR WIGGINS, COLORADO	1
MORGAN		8759100	40165			26	8 197	7 2200	1 3	150	UNKNOWN	Į <u>Ļ</u> .		6	BIJOU CREEK NR. FORT MORGAN, COLORADO	
MORGAN		1	402240			" "	7 195 7 195			1	UNKNOWN	R.		Ü	ANTELOPE CREEK NEAR SNYDER, COLORADO	
MORGAN		1	40223	103373	ë SËP						POOR	R		6	DEADHORSE CREEK NEAR SNYDER, COLORADO	_
MORGAN			40080	103350	O JUN	14					GOOD		· · · ī	8	BEAVER CREEK NEAR BRUSH, COLORADO	
MORGAN		1	40151	7 103580	ō JUN	18					4 POOR	R		8	BUOU CREEK NEAR WIGGINS, COLORADO	-
PARK		6698500					7 197		3		3 NKNOWN	<u>R</u>	<u>.</u>	<u>6</u>	TARRYALL CREEK NR. JEFFERSON, COLORADO	-
SEDGEW	ICK	8764000				20					BUNKNOWN		2	<u>B</u>	SOUTH PLATTE RIVER AT JULESBURG, COLORADO	
TELLER		[39074		2 MAY		7 (97				8 GOOD	<u>R</u>		6	WEST CREEK ABV. WESTCREEK, COLORADO	}
WELD		6743500			3 AUG		7 195				8 POOR	R	1	.6	LITTLE THOMPSON RIVER AT MILLIKEN, COLORADO	
WELD		6753500			5 AUG		3 195				BUNKNOWN	R	. 2	<u>6</u>	LONE TREE CREEK NR. NUNN, COLORADO	
WELD		6753500			5 AUG	`	7 195				9 FAIR	R			LONE TREE CREEK NR. NUNN, COLORADO LONE TREE CREEK NR. NUNN, COLORADO	···
WELD		8753500			5 JUN	1	4 198				9 FAIR			8	DWL CREEK TRIB. NR. ROCKPORT, COLORADO	
WELD		6753800			1 AUG		3 197 8 197				8 UNKNOWN			5	OWL CREEK TRIB. NR. ROCKPORT, COLORADO	
WELD		6753800	40550		11 JUN											

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COUNTY		STATION	LATITUDE	LONGITUDE	MONTH	IDAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST
		NUMBER		77.00		7221.	1 27. 7.1.			AREA		 -	1 110.10	1-3223		NUMBER
	<u> </u>					1		(FT3/S)		(SQ MI)						
MELD		6758200	405800	1043350		20		119			UNKNOWN	<u> </u>	2	6	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO	
WELD	. [6758200	405800	1043350		19		192			UNKNOWN	ļ <u>Ļ</u>	-	<u>6</u>	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO	
WELD		6758400	400210	1041300		3	1972			18.15	UNKNOWN	<u>L</u> _	.	- 6	GOOSE CREEK NR. HOYT, COLORADO	ļ
WELD			401029 403800	104584 1043000		3	1951	6200		·	UNKNOWN		22	6 -	ST. VRAIN CREEK NR. LONGMONT, COLORADO	
WELD			404300	1041400		10	1965				FAIR POOR	<u>R</u>	ļ	<u>-</u>	COAL CREEK NR. BRIGGSDALE, COLORADO CROW CREEK NR. KEOTA, COLORADO	·
WELD	}	• !	404500	1034800		14		6280			GOOD				NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	
WELD			404200			15	1965	26700			GOOD	Ř	·		PAWNEE CREEK NR. STONEHAM, COLORADO	
WELD			405438	1045414		27	1971	3120			FAIR	R	-	6	LONE TREE CREEK NEAR CARR, COLORADO	·
WELD			402230	104382	APR	12	1973	13600	1	1.	FAIR	R	3	8	BEEBE DRAW NR. AUBURN, COLORADO	
YUMA		6821400	395424	1021608		23 12	1969	2280	1		UNKNOWN	L	2	6	NORTH FORK BLACK WOLF CREEK NR. VERNON, COLORADO	
YUMA		6825000	393700	1021430			1951				FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	<u> </u>
YUMA		6825000	393700	1024300		13	1961	2960			POOR	<u>R</u>		<u> </u>	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	ļ
YUMA YUMA		6825000	393700 393659	1024300		13	1962				FAIR	R		<u>6</u>	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	ļ
YUMA	·	6825000 6825000	393659	102143		23	1969	14900 5900			GOOD GOOD	<u>R</u>	2 2	<u></u>	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	
YUMA		6825500	393440	1021450		12	1951	3110			UNKNOWN		.		LANDSMAN CREEK NR HALE, COLORADO	·····
YUMA		6825500	393430	1021510		24	1962	2590		268		R			LANDSMAN CREEK NR HALE, COLORADO	1
YUMA		6825500	393430	1021510		24 16	1963				FAIR	∱ ·'È	†	ē	LANDSMAN CREEK NR. HALE, COLORADO	İ
YUMA		6825500	393430	1021510	AUG	7	1983			268	GOOD	R	.]	- 6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA		6825500	393430	1021510	JUN	13	1964	1650	11	268	FAIR	R		- 6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA		6825500	393432	102150		23	1969	10600			POOR	R	L	6	LANDSMAN CREEK NR. HALE, COLORADO	
YUMA		6825500	393432	102150		20		13000			POOR	R	4	<u>6</u>	LANDSMAN CREEK NR. HALE, COLORADO	ļ
YUMA		6826900	394150			11					UNKNOWN	-		<u>├</u> ह	SAND CREEK NR. HALE, COLORADO	
YUMA		6826900	394150 395338	102103 102134		28 17		4350 17800			GOOD	<u>L</u>		<u>B</u>	SAND CREEK NR. HALE, COLORADO BLACK WOLF CREEK NEAR WRAY, COLORADO	·
BACA		·	372600	1021341		17					FAIR	F R	+	7	BEAR CREEK NEAR SPRINGFIELD, COLORADO	
BACA		·	371900	102360		 	1965				UNKNOWN	- F	-		LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	
BACA			373800	102370		17					GOOD	† <u>-</u>	 	7-	TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO	1
BENT		7124000	380508	103125		20					UNKNOWN	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	
BENT		7124000	380508	103 125	JUN	19					GOOD	P P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	<u></u>
BENT		7128000	375500	103180	APR	24					UNKNOWN	P	1	7	PURGATOIRE RIVER AT HIGHLAND DAM, NR. LAS ANIMAS COLORADO	
BENT		7128000	375500	103 180	JUN	28	1943	5175	1		UNKNOWN	p	1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT	[7128000	375500			5	1949	26100	2		UNKNOWN	P	11	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT		7128000	375500			23 23 20 29	1951	17200	1		UNKNOWN	<u>P</u>	1. 1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT		7128000	375500			23	1954				UNKNOWN	P	1 . 1	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT		7128000	375500	103180		20	1955	73400			UNKNOWN	L. P	.11	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	
BENT		7128500	380202	103120		29	1950				пикиоми	<u>P</u>		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	ļ
BENT		7128500	380202	103120		. 19					UNKNOWN	<u>P</u>		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT		7128500 7128500	380202 380202	103120		12	1951 1951	10000			UNKNOWN	P		4	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT		7128500	380202	103120		23 18					UNKNOWN	5		··· ' ··· ·	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	** * ** *	7128500	380202	103120		27	1966	17300			FAIR	} 5		····	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	
BENT	.,	7129400	374900			18		276000			FAIR	· ···}	13	'	RULE CREEK NR. TOONERVILLE, COLORADO	
BENT		7129500	380000	103040		22					UNKNOWN) · · · p · ·	1 '1	7	RULE CREEK NR. CADDOA, COLORADO	
BENT]	7129500	380000	103040		5	1949				UNKNOWN	P	· · i · ·	7	RULE CREEK NR. CADDOA, COLORADO	
BENT		7129500	380000	103040	MAY	19	1955	4810		435	UNKNOWN	P	1	7	RULE CREEK NR. CADDOA, COLORADO	
BENT		7129500	380000	103040	0 JUL	19	1956	2300	1	435	FAIR	P	1	7	RULE CREEK NR. CADDOA, COLORADO	
BENT		7129500	380000		DAUG	18	1963				UNKNOWN	P	12	7	RULE CREEK NR. CADDOA, COLORADO	ļ
BENT		7130500	380500			24 24	1942				UNKNOWN	JP		77	ARKANSAS RIVER AT CADDOA, COLORADO	· i — ————
BENT		7130500					1942	40000			UNKNOWN	R	2	 	ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLORADO	
BENT		7131000				11	1941	253			UNKNOWN	- 	2	7	CADDOA CREEK AT CADDOA, COLORADO	
BENT BENT		7131000 7131000			AUG	19					UNKNOWN		 	\ '	CADDOA CREEK AT CADDOA, COLORADO	
BENT		7131000				19					GOOD	<u>P</u>		'	CADDOA CREEK AT CADDOA, COLORADO CADDOA CREEK AT CADDOA, COLORADO	
BENT		7131000				1B 24					UNKNOWN	P			CADDOA CREEK AT CADDOA, COLORADO	+
BENT		131000	380305			27					FAIR			7	ARKANSAS RIVER TRIB. NR. LAS ANIMAS, COLORADO	†
BENT	1	:	380523			18					GOOD	-		7	ADOBE CREEK NR. LAS ANIMAS, COLORADO	-t
BENT			380504			18					POOR	P	-1	7 7	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO	
CHAFFEE			383908	106030	2 AUG	28					FAIR	R		7	UNNAMED ARKANSAS RIVER TRIB. NEAR NATHROP, COLORADO	
EL PASO		7099220	383736		AUG	28	1978	284	1		FAIR	R		7	TURKEY CREEK ABV. TELLER RES. NR. STONE CITY, COLORADO	
EL PASO		7103700				5					UNKNOWN	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO		7103700				11					UNKNOWN	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO		7103700			9 MAY	29					FAIR	IP	_	7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO		7103700			9 AUG	4	1994				POOR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	
EL PASO		7103700	385117		9 JUN	2	1981	650			FAIR			7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	ļ
EL PASO		7103950	390014		AUG		1981	2300			FAIR	P		7	KETTLE CK. NEAR BLACK FOREST, COLORADO	·
EL PASO		7104000	385504		5 AUG	14					FAIR	P		· 7	MONUMENT CREEK AT PIKEVIEW, COLORADO MONUMENT CREEK AT PIKEVIEW, COLORADO	·
EL PASO EL PASO		7104000	385504 384859		5 AUG		1981				FAIR FAIR	p			FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO	+
EL PASO		7105500				2	1981				POOR	┼			FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO	
TE LVOO		100000	, ,67008	104492	A LANKA	<u> </u>	1001	1 3930	'	1 382	11.000			t	II CONTANT ONLER DI COLONDO SENINOS, COLONDO	

COUNTY		LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DIȘCHARGE	TYPE		RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST
	NUMBER						(FT3/S)		AREA (SQ MI)	·· ·					NUMBER
EL PASO	7105760	384508	1044543		15	1981	2700	1		FAIR	. <u>P</u>		7	B-DITCH DRAIN NR. SECURITY, COLORADO	
EL PASO EL PASO	7105800 7105800	384348 384346	1044000		24	1965	25000 2880		488 488	POOR GOOD	R		- 7	FOUNTAIN CREEK AT SECURITY, COLORADO FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO	7105800	384346	1044400		- ii	1972	6520	1		FAIR			7	FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO	7105800	384348	1044400] <u>2</u>]	1981	4330	1		FAIR	P		7	FOUNTAIN CREEK AT SECURITY, COLORADO	
EL PASO EL PASO	7105920 7105940	384055 383833	1045130 1044449		26	1981 1979	512 260	į.		FAIR POOR	P		··· · 7	LITTLE FOUNTAIN CK. ABV. KEATON RES., NR. FT CARSON, CO LITTLE FOUNTAIN CREEK NR. FOUNTAIN, COLORADO	
EL PASO	7106000	383608	1044013	MAY	28	1940	22100	1 1	876	UNKNOWN	P			FOUNTAIN CREEK NR. FOUNTAIN, COLORADO	
EL PASO	7106000 7124220	383608 370843	1044013		30 26	_1954 1981	6800 950		676	UNKNOWN GOOD	F	ļ	- 7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO REILLY CANYON AT COKEDALE, COLORADO	
EL PASO	1123220	390650	1043707		- 25	1954	44500			UNKNOWN	<u>-</u>		 	BIG SANDY CRK AT STATE HIGHWAY NO. 208 AT RAMAH, COLORADO	
EL PASO		390500	1041700		17	1965	90700		49	FAIR	P	1	7	BIG SANDY CREEK NR. CALHAN, COLORADO	
EL PASO EL PASO		384225 390105	1042325 1043200		- 17	1965 1965	141000	}		GOOD FAIR	 	ļ	- 7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO BLACK SQUIRREL CREEK NR. PEYTON, COLORADO	
EL PASO		384700	1045000	JUL	24	1965	3710			GOOD	P	1	<u> </u>	FOUNTAIN CREEK TRIB. NR. COLORADO SPRINGS, COLORADO	
EL PASO EL PASO	[384320 385825	1043845 1045237		17	1965 1965	124000 515	!	54 3 20.7	FAIR FAIR	R		7	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO W MONUMENT CREEK BL STANLEY CANYON NR. PIKEVIEW, COLORAD	
FREMONT	7093740	383925	1054845	SEP.	4	1981	254			GOOD	. F	:	7	BADGER CK (UPPER STATION) NEAR HOWARD, COLORADO	Ÿ
FREMONT	7093775	385759	1055108	SEP	5	1981	267	1		GOOD	<u>P</u>]	<u> </u>	BADGER CREEK (LOWER STATION) NEAR HOWARD, COLORADO	-
FREMONT	7096500 7096500	382700 382700	1051030		121	1950	778 4260		432 432	UNKNOWN GOOD		l	··· · 7	OIL CREEK NR. CANON CITY, COLORADO OIL CREEK NR. CANON CITY, COLORADO	1
FREMONT	7096500	382611	1051127	JUL	8	1973	631	1 1	434	GOOD	<u> </u>	1	7	FOURMILE CREEK NR. CANYON CITY, COLORADO	
FREMONT FREMONT	7096500 7099100	382611 382227	1051127 1045749		29	1982	1080			FAIR	P		7	FOURMILE CREEK NR. CANON CITY, COLORADO BEAVER CREEK NR. PORTLAND, COLORADO	
FREMONT	7099100	302227	1045749		9	1973	4800	- i		FAIR	<u>F</u>		 -	BEAVER CREEK NR. PORTLAND, COLORADO	
FREMONT	7099100	382227	1045749		17	1981	2730		214	FAIR	₽			BEAVER CREEK NR. PORTLAND, COLORADO	
FREMONT	· [382313 382908	1050657 1052319		27	1949	5420 930	-	0.84	UNKNOWN FAIR	P	ļ	7	COAL CREEK AT FLORENCE, COLORADO ARKANSAS RIVER TRIB. AT PARKDALE, COLORADO	
FREMONT		382908	1052322	JUL.	27	1961	284	3	0.16	G000	P		7	ARKANSAS RIVER TRIB. NO. 2 AT PARKDALE, COLORADO	
FREMONT FREMONT	:[362806	1052240 1055100		27 29	1981	6500		4.8	POOR	P		7	MCINTYRE GULCH NR. PARKDALE, COLORADO	
HAMILTON	7137500	383000 380133	1020100		17	1978 1965	9960 158000		25410	POOR	R	1	 - '7	BADGER CREEK NR. HOWARD, COLORADO ARKANSAS RIVER NR. COOLIDGE, KANSAS	
HUERFANO	7111000	374340	1052110	AUG	2	1951	10200	1	73	UNKNOWN	P	İ	7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORAD	
HUERFANO HUERFANO	7111000 7112500	374340 374340	1052103 1050045		3 17	1972	6520 645	1		GOOD	P	l	7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORAD HUERFANO RIVER AT BADITO, COLORADO	에
HUERFANO	7112500	374340	1050045		21	1940	1310	-		UNKNOWN	R	2		HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045		3	1940	1180			UNKNOWN	R	2	7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO HUERFANO	7112500 7112500	374340 374340	1050045 1050045		20	1950 1950	445 620	1		UNKNOWN	R			HUERFANO RIVER AT BADITO, COLORADO HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO	7112500	374340	1050045	AUG	3	1951	1280		532	UNKNOWN	R		7	HUERFANO RIVER AT BADITO, COLORADO	
HUERFANO HUERFANO	7112500 7113500	374340 375100	1050045 1044200		16	1953	2050 26000	5		UNKNOWN	R	12	7	HUERFAND RIVER AT BADITO, COLORADO HUERFAND RIVER NEAR MUSTANG, COLORADO	
HUERFANO	7113500	375100	1044200		16	1943	3200			UNKNOWN	- 'R' -	12	-	HUERFANO RIVER NEAR MUSTANG, COLORADO	
HUERFANO	7113500	375100	1044200		7	1945	3500			UNKNOWN	R	11	7	HUERFANO RIVER NEAR MUSTANG, COLORADO	
LAS ANIMAS	7118500 7124100	372400 370756	104382 8 1044824		31 27	1979 1978	4520 278	. !		POOR GOOD	P	:	-7 -	APISHAPA RIVER AT AGUILAR, COLORADO MOLINO CANYON NR. WESTON, COLORADO	-
LAS ANIMAS	7124100	370756	1044824	AUG	10	1981	5100		4.23	POOR	Þ		7	MOLINO CANYON NR. WESTON, COLORADO	
LAS ANIMAS	7124100	370756	1044824		10 27	1981	5100			POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	
LAS ANIMAS	7124120 7124120	370726 370728	1044549		18	1978	472 3380			FAIR		ļ.———		SARCILLO CANYON NR. SEGUNDO, COLORADO SARCILLO CANYON NR. SEGUNDO, COLORADO	
LAS ANIMAS	7124200	370748	1043820		12	1975	4500	1		FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124200 7124200	370746 370746	1043820 1043820		<u>17</u>	1979	3610 11500			FAIR FAIR	R	ļ	7	PURGATOIRE AT MADRID, COLORADO PURGATOIRE RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124200	370746	1043820		26	1981	3250	1	505	FAIR	P	<u> </u>	7	PURGATOIRE RIVER AT MADRID, COLORADO	
LAS ANIMAS	7124220	370843	1043707		27	1978	1440			FAIR	P		7	REILLY CANYON AT COKEDALE, COLORADO	
LAS ANIMAS	7124220 7124220	370843 370843	1043707 1043707		31	1979 1979	2510 2510	1		POOR	- F		$-\frac{7}{7}$	REILLY CANYON AT COKEDALE, COLORADO REILLY CANYON AT COKEDALE, COLORADO	-
LAS ANIMAS	7124300	370653	1043617	JUL	19	1976	2480	i	100	GOOD	P	1	7	LONG CANYON CREEK NR. MADRID, COLORADO	
LAS ANIMAS	7124300 7124350	370653 370913	1043617 1043411		17 26	1979	3140 2790			FAIR FAIR	<u>R</u>			LONG CANYON CREEK NR. MADRID, COLORADO CARPIOS CANYON NR. JANSEN, COLORADO	.
LAS ANIMAS	7124350	370913	1043402	AUG	10	1981	5300	i	4.57	FAIR	P	l:		CARPIOS CANYON NEAR JANSEN, COLORADO	
LAS ANIMAS	7124500	371010	1043030		8	1909	13300	1 _	795	UNKNOWN	P	Į	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500 7124500	371005 371015	1043110		22 23	1925 1942	33000 35000			UNKNOWN	P	·	7	PURGATOIRE RIVER AT TRINIDAD, COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7124500	371015	1043031	JUL.	12	1961	11200	<u></u>	795	FAIR	P			PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS LAS ANIMAS	7124500 7124700	371015 370936	1043031 1042538		17	1965	15700			GOOD		l <u>1</u>	<u>7</u> .	PURGATOIRE RIVER AT TRINIDAD, COLORADO	
LAS ANIMAS	7125000	371450	1042538		22	1954	2520 5920	<u>1</u>		UNKNOWN		22	/	GRAY CREEK NEAR ENGLEVILLE, COLORADO PURGATOIRE RIVER NR. HOEHNE, COLORADO	+
LAS ANIMAS	7125000	371450	1042350	JUN	16	1965	20000	2	857	POOR	<u>P</u>	1	7	PURGATOIRE RIVER NR. HOEHNE, COLORADO	
LAS ANIMAS	7125100	371200 371200	1041140		22 21	1954	13500 2310	2.4		UNKNOWN POOR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	
LAS ANIMAS	7125100	3/1200	1041200	AUG	21	1958	2310		1 08	POOR	-	<u>l</u>		FRIJOLE CREEK NR. ALFALFA, COLORADO	1

										Extreme Str	estutow ha	ta Base			
COUNTY	STATION	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER
							(FT3/S)		(SQ MI)	I					.
LAS ANIMAS	7125100	371200	104114		17	1965	10600	44		GOOD	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	
LAS ANIMAS	7125100	371200			3	1981	28400	24		FAIR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	
LAS ANIMAS	7125500	391100	104083		22 19	1954	26300	2.4		UNKNOWN	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7125500	371110	104075		19	1955	15500	4		UNKNOWN	<u> </u>			SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7125500	371110		אַטרַוֹס	29 7	1959	2970			GOOD	<u>P</u>			SAN FRANCISCO CREEK NR. ALFALFA, COLORADO SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS	7125500	371110		OAUG		1964	6680 14000			FAIR		—		SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	
LAS ANIMAS LAS ANIMAS	7125500 7126000	371110 371130		O JUN O SEP	18	1952	3440			UNKNOWN				PURGATOIRE RIVER NR. ALFALFA, COLORADO	1
LAS ANIMAS	7128000	371130		OJUN	1 16	1953	8740			UNKNOWN			7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7128000	371130		OJUL	13 16 11	1953	6230	i i		UNKNOWN	P	<i>-</i>	7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130	104073	OJUL	22	1954	37800	1	1320	UNKNOWN	Р		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7128000	371130		0 MAY	22 19 18	1955	41900	11		UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126000	371130		0 JUN	18	1965	27300	1		GOOD	<u>P</u>			PURGATOIRE RIVER NR. ALFALFA, COLORADO	
LAS ANIMAS	7126100	371816		4 MAY	26	1987	1060	. !		FAIR	ļ <u>R</u>		<u>7</u>	LUNING ARROYO NR. MODEL, COLORADO	
LAS ANIMAS	7128100	371816		4 AUG	26	1968	4830 6240			FAIR	<u>R</u>			LUNING ARROYO NR. MODEL, COLORADO VAN BREMER ARROYO NR. MODEL, COLORADO	
LAS ANIMAS LAS ANIMAS	7128200 7128200	372045 372045		7 MAY 7 AUG	20	1979	6050			POOR				VAN BREMMER ARROYO NR. MODEL, COLORADO	
LAS ANIMAS	7128300	372130		4 AUG		1977	12200			FAIR	R		7	PURGATOIRE RIVER NR. THATCHER, COLORADO	-
LAS ANIMAS	7128400	373324		OAUG	7	1971	1410	11		UNKNOWN	 	†	7	RED ROCK CANYON NR. BLOOM, COLORADO	L
LAS ANIMAS	7128450	371143		3 JUL	22	1970	843	1		UNKNOWN	Ĺ	1	7	TOBE ARROYO NR. TOBE, COLORADO	
LAS ANIMAS	7129100	373357	103102	6 AUG	22 28 19	1971	5040	1	7.69	UNKNOWN	L		7	RULE CREEK NR. NINAVIEW, COLORADO	
LAS ANIMAS	7129200	373558		8 AUG	19	1971	1260	11		UNKNOWN	L L		7	MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO	
LAS ANIMAS	7129200	373558		8 MAY	20		2270	<u> !</u>		UNKNOWN	↓ <u>-</u>	 	7	MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO	ļ
LAS ANIMAS	7153450	370524		9 JUN	7		940	ļ <u>ļ</u>		UNKNOWN	 -		1 7	LONGS CANYON CREEK NR. TOBE, COLORADO	
LAS ANIMAS LAS ANIMAS	 	370700 370757		O APR	23 23 23 23 23 23 22	1942	11500 11400	 }	104	UNKNOWN	 			LONG CANYON NR. SOPRIS, COLORADO PURGATOIRE RIVER AT LONGS CANYON, COLORADO	·
LAS ANIMAS	!: —	370/5/		S APR	23	1942	21400		∤`	UNKNOWN	╁┈┋┈			PURGATOIRE RIVER AT PIEDMONT BRIDGE, COLORADO	·
LAS ANIMAS	 	370847		O APR		1942	5630		l:	UNKNOWN	<u> </u>			PURGATOIRE RIVER AT RATON CREEK, COLORADO	
LAS ANIMAS		370850		0 APR	73	1942	5580	i	63	UNKNOWN	p		7	RATON CREEK NR. TRINIDAD, COLORADO	
LAS ANIMAS		371000		3 JUL	22	1954	15500			GOOD	P		7	ALKALI ARROYO NR. TRINCHERA, COLORADO	
LAS ANIMAS		370911		2 JUL	1.	1954	3100	1	9.88	UNKNOWN	P	I	7	COLORADO CANYON NR. JANSEN, COLORADO	
LAS ANIMAS		371145		B JUL	22 22 22	1954	1130	23		UNKNOWN	P		7	DRAW NO. 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	
LAS ANIMAS	1.	371145		O JUL	22	1954	447	3,		UNKNOWN	. <u>P</u>			NO. 1 DRAW AT U.S. HIGHWAY 180, NEAR TRINIDAD, COLORADO	
LAS ANIMAS		370745		SO JUL	22	1954	25100	2.4		UNKNOWN	<u>F</u>		7	TRINCHERA CREEK NR. TRINCHERA, COLORADO ALKALI ARROYO NR. TRINCHERA, COLORADO	
LAS ANIMAS		371000 370730		3 MAY	19		1280 1150	- ···		GOOD	- E		·	BURRO CANYON AT MADRID, COLORADO	
LAS ANIMAS	S s.	373310		MAY O	19		3170	ļ -		UNKNOWN			···· '	CHACUACO CREEK NR. LA JUNTA, COLORADO	
LAS ANIMAS		371712		IS MAY	19		1140			UNKNOWN	ğ		7	CHICOSA CREEK NR. HOEHNE, COLORADO	
I AS ĀNIMAS	<u>ļ</u> .	370911		2 MAY	Ìiè		940			UNKNOWN	P	1	7	COLORADO CANYON NR. JANSEN, COLORADO	
LAS ANIMAS	ļ	371145		MAY	19		375			UNKNOWN	Ë.		7	DRAW NO. 2 AT U.S. HIGHWAY 180, NEAR TRINIDAD, COLORADO	.
LAS ANIMAS		370904		IS MAY	19		820			UNKNOWN	. P		. <u>₹</u> .	GRASMACK ARROYO NR. TRINIDAD, COLORADO	
LAS ANIMAS		371215		0 MAY	19		1960			UNKNOWN	P .		7	GRAY CREEK NR. TRINIDAD, COLORADO JOE CREEK NR. MORELY, COLORADO	
LAS ANIMAS	j	370100	·	MAY	19		642 9650			UNKNOWN	¥		· · · · · / -	LONG CANYON NR. SOPRIS, COLORADO	
LAS ANIMAS		370720 371145		O MAY		1955	187	3		UNKNOWN	- 5		7	NO. 1 DRAW AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	
LAS ANIMAS	·····	371200		MAY	1		9000	<u>`</u>	1 4.42	UNKNOWN	P	1	7	POWELL ARROYO NR. EL MORO, COLORADO	
LAS ANIMAS	1	370610		B MAY	19	1955	1790	2	381	UNKNOWN	P		7	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	,
LAS ANIMAS]	370732	10441	YAM O	19	1955	4400	2	485	UNKNOWN	T. P]	7	PURGATOIRE RIVER AT DIVERSION DAM AT VALDEZ, COLORADO	
LAS ANIMAS	1	370902		MAY	19	1955	26400			UNKNOWN	L P		7	PURGATOIRE RIVER AT JANSEN, COLORADO	
LAS ANIMAS		370828		MAY	19	1955	19800			UNKNOWN	<u>P</u>		Į <u>7</u>	PURGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO	
LAS ANIMAS		371712		MAY	19		37900			GOOD	<u>P</u>	<u> </u>	·	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO RATON CREEK AT STARKVILLE, COLORADO	·
LAS ANIMAS	·	370653 370030		B MAY	19		9400			FAIR			1 1	RATON CREEK AT STARRVILLE, COLORADO RATON CREEK AT UPPER U.S. HWY 85, 87 CROSSING, COLORADO	
LAS ANIMAS		370758		MAY	!8		2800			UNKNOWN			1	REILLY CANYON AT COKEDALE, COLORADO	1
LAS ANIMAS		370725	4	MAY	19		1460			GOOD	<u>ē</u>		1 7	SARCILLO CANYON NR. SEGUNDO, COLORADO	
LAS ANIMAS		371000		DOLJUN	1-17	1965	2600		34.5	GOOD	- -	1	7	ALKALI ARROYO NR. TRINCHERA, COLORADO	
LAS ANIMAS		370730		SO JUN	17		3120			FAIR	P	1	7	BURRO CANYON AT MADRID, COLORADO	
LAS ANIMAS		373211		36 JUN	17	1965	1		387	GOOD	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	
LAS ANIMAS	J	370538	10431	19 JUN	17	1965	1720			GOOD	P		7	CLEAR CREEK NR. STARKVILLE, COLORADO	
LAS ANIMAS		370904		15 JUN	17					FAIR	P	 	7	GRASMACK ARROYO NR. TRINIDAD, COLORADO	
LAS ANIMAS		371215		O JUN	17					GOOD	P		7	GRAY CREEK NR. TRINIDAD, COLORADO	
LAS ANIMAS	:	370100		45 JUN	117					POOR FAIR	P	{	- 7 7	JOE CREEK NR. MORELY, COLORADO LONG CANYON NR. SOPRIS, COLORADO	+
LAS ANIMAS		370720 370800		00 JUN	17					GOOD			7	NORTH FORK PURGATOIRE AT WESTON, COLORADO	-
LAS ANIMAS	-	370800		00 100	+ }					UNKNOWN	P	 	† 	PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	5
LAS ANIMAS	1	371712		42 JUN			20900			GOOD	- -	1 2	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	
LAS ANIMAS	1	372130	10418	42 JUN	i ii	1965	47700	4	193	FAIR	P	2	77	PURGATOIRE RIVER NR. THATCHER, COLORADO	
LAS ANIMAS	1	370653	10431	IB JUN	11	1965	12900			FAIR	P	ļ	17	RATON CREEK AT STARKVILLE, COLORADO	
LAS ANIMAS	·	370030		50 JUN	16	1965	4860			7 FAIR	. P	ļ		RATON CREEK NR. MORLEY, COLORADO	
LAS ANIMAS	.	370756		34 JUN	1. 15					UNKNOWN	P	<u>-</u>		REILLY CANYON AT COKEDALE, COLORADO SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	+
LAS ANIMAS	1.	370100	10412	00 JUN	1 17	1985	7960	<u> </u>	32.	1 GOOD	<u> </u>	<u> </u>	<u></u>	TOWN JOINTO CHEEK NY. IKINGHEKA, COLOKADO	

										Extreme Str	reamtow Da	ta Base			
COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER
							(FT3/S)		(SQ MI)						.
LAS ANIMAS	·	370725	1044525		17	1965	1830	1		UNKNOWN	P	<u>-</u>	} <u>₹</u>	SARCILLO CANYON NR. SEGUNDO, COLORADO	
LAS ANIMAS	· ·	370800 370745	1045100 1040050		18	1965	1340 4500	4		GOOD FAIR		 -	7-7-	SOUTH FORK PURGATOIRE RIVER AT WESTON, COLORADO TRINCHERA CREEK NR. TRINCHERA, COLORADO	
LINCOLN	···	385100	1033200		17	1965	3710	. 4		FAIR	-		} 	SOUTH RUSH CREEK NR. KARVAL, COLORADO	
OTERO	7119500	380528	1035852		- 15	1942	14700	·		UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852		19	1955	17000	24		UNKNOWN	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852		6	1958	12100	4		FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO	7119500	380528	1035852		13	1960	1200			POOR	P		<u> 7-</u> -	APISHAPA RIVER NR. FOWLER, COLORADO APISHAPA RIVER NR. FOWLER, COLORADO	
OTERO OTERO	7119500 7119500	380528 380528	1035852 1035852		13	1963 1965	2730 11400	4		FAIR FAIR	+ P	·	 	APISHAPA RIVER NR. FOWLER, COLORADO	· · · · · · · · · · · · · · · · · · ·
OTERO	7119500	380528	1035852		τō	197B	18300	24		FAIR	P		7	APISHAPA RIVER NR. FOWLER, COLORADO	-
OTERO	7119700	380735	1035840	JUN	18	1965	43200	2		UNKNOWN	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	
OTERO	7119700	380733	1035441		10	1978	23300	23		POOR	R	2	7	ARKANSAS RIVER AT CATLIN DAM NR. FOWLER, COLORADO	
OTERO	7121000	375720 375720	1034320 1034320		27 14	1941	3100 4300			UNKNOWN	8	2		TIMPAS CREEK NR. ROCKY FORD, COLORADO TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320		4	1949	1300	-		UNKNOWN	· · · · 	·-·· - 2 ·-··		TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320		24	1950	9510	1		FAIR		2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320		24 12	1953	10000	1		UNKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	
OTERO	7121000	375720	1034320		23	1958	15500	!_		FAIR	R	2	ļ <u>?</u>	TIMPAS CREEK AT CATLIN SYPHON, COLORADO	
OTERO	7121500 7122400	380010 375856	1033918 1033552		22 20	1969	2169 395			POOR	R		$-\frac{7}{7}$	TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO CROOKED ARROYO NR. SWINK, COLORADO	
OTERO	7126500	374400	1033552		15	1934	45000			UNKNOWN	R	1		PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	
OTERO	7126500	374400	1032900		23	1942	43500	2		UNKNOWN	Р	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	
OTERO	7126500	374400	1032900		5	1949	26100	2		UNKNOWN	P		7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	
OTERO	7120500	394400	1032900		19	1955	80000	2		UNKNOWN	P	1 2		PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO KING'S ARROYO NR. LA JUNTA, COLORADO	-
O1ERO OTERO	: 	375900 375955	1033200 1033513		21 12	1927	16450 24300	24		UNKNOWN FAIR	Ř	12	· ··· / ·	CROOKED ARROYO NR. LA JUNTA, COLORADO	•
OTERO	· · · · · · · ·	374225	1032420		19	1955	5660	1		UNKNOWN	P		7	SMITH CANYON NR. NINAVIEW, COLORADO	
OTERO		375720	1034320		5	1958	23000	1		UNKNOWN	p		7	TIMPAS CREEK AT CATLIN SYPHON NR. ROCKY FORD, COLORADO	
OTERO		380138	1034730		l	1965	31670	4	l:	UNKNOWN			7	ARKANSAS RIVER AT SWINK, COLORADO	
OTERO	·	374225	1032420		18	1965	84000			GOOD	<u>P</u>			SMITH CANYON NR. NINAVIEW, COLORADO TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	
PROWERS	7133000	380040 380617	1033830 1023701		! <u>{</u>	1965	21480 130000	24		UNKNOWN	R	2	'j-	ARKANSAS RIVER AT LAMAR, COLORADO	· ····
PROWERS	7133050	380216	1023651		23	1975	475	1		GOOD	P P	- •	7	WILLOW CREEK NR. LAMAR, COLORADO	1
PROWERS	7133050	380216	1023651		23 27	1975	2460	1		FAIR	P		7	WILLOW CREEK NR. LAMAR, COLORADO	
PROWERS	7134100	380651	1022900			1975	121	3		UNKNOWN	<u></u>	2	7	BIG SANDY CREEK NR. LAMAR, COLORADO	
PROWERS PROWERS	7134100	380651 375230	1022900 1022854		16	1976	2520 7880	3		UNKNOWN	 	2	ļ .	BIG SANDY CREEK NR. LAMAR, COLORADO WOLF CREEK NR. CARLTON, COLORADO	
PROWERS	7134300 7135800	381545	1020933		23 30	1971	2411	 		UNKNOWN	├ 			WILD HORSE CREEK TRIB. NR. HARTMAN, COLORADO	-
PROWERS	7136000	380245	1020708		-==	1949	1690			UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	
PROWERS	7136000	380245	1020705		17	1965	10800	1	272	UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	
PROWERS	:	380300	1020300			1049	5900	14		UNKNOWN	R	1	7	CHEYENNE CREEK NEAR HOLLY, COLORADO CLAY CREEK NR. LAMAR, COLORADO	
PROWERS PROWERS	·	380533 380326	1023155		∤	1949	12600 1830	4	220	UNKNOWN	- · · · · · ·		·· /	HOLLY DRAIN AT HOLLY, COLORADO	
PROWERS	: · · · · · · · · · · · · · · · · · · ·	380140	1020820		<u> </u>	1949	407	···· i ····	817	UNKNOWN			1 7	TWO BUTTES CREEK NR. HOLLY, COLORADO	
PROWERS		380343	1020745		1	1949	8340	4		UNKNOWN	p		7	WILD HORSE CREEK ABV. HOLLY, COLORADO	
PROWERS		380509	1023148		15	1951	27500		228					CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380140	1020820		1 15	1951	34000		817	UNKNOWN	- P		17	TWO BUTTES CREEK NR. HOLLY, COLORADO	
PROWERS	· -	380300 380230	1020700		15	1951 1951	5000 8800		116	UNKNOWN		1	+ 	WILD HORSE CREEK NR. HOLLY, COLORADO WOLF CREEK NR. GRANADA, COLORADO	
PROWERS		380509	1023148		20	1955	5500	1	·	UNKNOWN	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380230	1022030	MAY	20	1955	1420	i	116	UNKNOWN	P	L	7	WOLF CREEK NR. GRANADA, COLORADO	
PROWERS		380509	1023148		19	1956	3860	1		POOR	P		7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS	·	380230	1022030		19	1956	1170	ļ <u>.</u> 1	116	UNKNOWN			7	WOLF CREEK NR. GRANADA, COLORADO DRY CREEK NR. LAMAR, COLORADO	_ -
PROWERS PROWERS		380300 380300	1024200		27	1957 1958	17100		116	FAIR			· ·	WOLF CREEK NEAR GRANADA, COLORADO	
PROWERS		380307	1020253		18	1962	4630	 		FAIR	k	t '	} -	CHEYENNE CREEK AT COLORADO-KANSAS LINE	
PROWERS	r - 1	380509	1023148		21	1864	3530	i		GOOD	P	L	7	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380509	1023148	JÜL	17		14400	i	228	GOOD	F		77	CLAY CREEK NR. LAMAR, COLORADO	
PROWERS		380715	1022850				3600	!		FAIR		ļ 1	1 7	BIG SANDY CREEK NR. LAMAR, COLORADO	
PROWERS PROWERS	}·	380044 375920	1023426		18 17		158000 12600			FAIR	ļ <u>წ</u>	ļ		CLAY CREEK NR. LAMAR, COLORADO GRANADA CREEK NR. GRANADA, COLORADO	
PROWERS		380425	1022625		- 17	1965	10600	···		GOOD	· 		7	SMITH ARROYO NR. GRANADA, COLORADO	
PROWERS		380140			17		182000	1	817	GOOD	P	1	7 -	TWO BUTTES CREEK NR. HOLLY, COLORADO	
PROWERS		380156	1023707	JUN	18	1965	24300		40.5	FAIR	P		1 7	WILLOW CREEK NR. LAMAR, COLORADO	
PROWERS		375705			17	1965	35300	! -		FAIR	P P		ļ., .ļ	WOLF CREEK NR. GRANADA, COLORADO ARKANSAS RIVER NR. PORTLAND, COLORADO	
PUEBLO	7099200 7099250	382019 381146			21	1965 1978	23900 860			UNKNOWN			1 . /	SODA CREEK TRIB NR. LIVESEY, COLORADO	
PUEBLO	7099500	381602	1043926		22	1965	23500	4		FAIR	. <u>b</u> .		†	ARKANSAS RIVER NR. PUEBLO, COLORADO	
PUEBLO	7108500	381620	1043540	AUG	26	1941	10921	l i i	926	POOR	R.	2	1. 7	FOUNTAIN CREEK AT PUEBLO, COLORADO	
PUEBLO	7106500	381620			14	1942		i		UNKNOWN	Ŕ	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO	1

										Extreme Str		10 0450			
COUNTY	STATION NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR		TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER
			17:17=				(FT3/S)		(SQ MI)		<u>_</u>				
PUEBLO	7108500	381620	1043540		10	1945	17800	5	926	UNKNOWN	R			FOUNTAIN CREEK AT PUEBLO, COLORADO	.
PUEBLO	7106500				28	1948	16500	5		UNKNOWN	R	2	7	FOUNTAIN CREEK AT PUEBLO, COLORADO	
PUEBLO	7108500				17	1965	47000			GOOD	Р		. 7	FOUNTAIN CREEK AT PUEBLO, COLORADO	
PUEBLO	7107500		1044735		15	1980	3300			FAIR	R		7	ST. CHARLES RIVER AT BURNT MILL, COLORADO	·
PUEBLO	7107600		1044833			1976	967			UNKNOWN	<u>-</u> _	ļ		ST. CHARLES TRIB. NR. GOODPASTURE, COLORADO	.
PUEBLO	7107900		1045721		10	1975	340	i		FAIR	<u>P</u>			GREENHORN CREEK NR. RYE, COLORADO	·
PUEBLO	7108050		1044742		2	1976	1220			POOR	<u>P</u>			GREENHORN CREEK NR. COLORADO CITY, COLORADO	
PUEBLO	7108500		1043140 1043140		19	1942	6670			UNKNOWN	<u>P</u>	2		ST. CHARLES RIVER NR. PUEBLO, COLORADO	·
PUEBLO	7108500 7108500				26 19	1950 1955	16100			UNKNOWN		·		ST. CHARLES RIVER NR. PUEBLO, COLORADO ST. CHARLES RIVER NR. PUEBLO, COLORADO	·
PUEBLO	7108900				!8	1981	20600 2400			FAIR				ST. CHARLES RIVER AT VINELAND, COLORADO	·
PUEBLO	7109500		1042355		30		15400			POOR	} [:			ARKANSAS RIVER NR. AVONDALE, COLORADO	
PUEBLO	7110500				27		13000			UNKNOWN		2	-	CHICO CREEK NEAR NORTH AVONDALE, COLORADO	
PUEBLO	7115500	380000			28		28640			UNKNOWN		} -	·- 	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	ļ
PUEBLO	7115500	380200	1042500			1938	11000			UNKNOWN	Р			HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	· · · · · · · · · · · · · · · · · · ·
PUEBLO	7115500	380000	1042800		16	1943	3700	-		UNKNOWN		12	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	1
PUEBLO	7118000		1042800		- 'š	1945	13500			UNKNOWN	├ <u>'</u> ह	12	-	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	· · · · · · · · · · · · · · · · · · ·
PUEBLO	7118000		1042800		13		6000	1		UNKNOWN	R	12	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	·
PUEBLO	7116000				28	1950	18700	2		FAIR		11	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7116000		1042800		11		3340	1		UNKNOWN	R	12	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	1
PUEBLO	7118000		1042800		19	1955	11300	2		FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	T
PUEBLO	7118000		1042800		5	1958	18800	2		FAIR	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	
PUEBLO	7117000		1040940		18	1965	43100	2 4	9345	FAIR	P	[7	ARKANSAS RIVER NR. NEPESTA, COLORADO	
PUEBLO	I	380112	1044331		19	1955	3650	1	42.5	UNKNOWN	P		7	MUDDY CREEK NR. PUEBLO, COLORADO	
PUEBLO		381127	1040832	JUL	13	1963	6840	23	160	FAIR	P		7	KRAMER CREEK AT COLORADO 96 NR. NEPESTA, COLORADO	
PUEBLO],	381240	1040740	JUL	13	1963	4720	1	155	FAIR	P		7	KRAMER CREEK NR. NEPASTA, COLORADO	
PUEBLO	ļ. 	381442	1042038	JUN	18	1985	104000	4		POOR	P		7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	
PUEBLO		381900	1045300	JUL	19	1965	7000	1	2.66	FAIR	P	1	7	ORMAN'S GULCH NR. SWALLOWS, COLORADO	i
CONEJOS	8238000	371210			20	1936	313	1	98	UNKNOWN	R	2	8	LA JARA CREEK AT GALLEGOS RANCH NR. CAPULIN, COLORADO	
COSTILLA	8241500				31		1520	1		UNKNOWN	R	12	8	SANGRE DE CRISTO CREEK NR. FORT GARLAND, COLORADO	
COSTILLA	8247500				4	1936	1280	1		UNKNOWN	R	12	8	SAN ANTONIO RIVER NR. ORTIZ, COLORADO	
COSTILLA	8249400				5	1968	327			FAIR	l R		8	CULEBRA CREEK NR. CHAMA, COLORADO	
MINERAL	8218500				27		240			UNKNOWN	<u>R</u>		8	WILLOW CREEK AT CREEDE, COLORADO	
MINERAL IRIO GRANDE	8217500					1970	4660			UNKNOWN	P		8	RIO GRANDE AT WAGONWHEEL GAP, COLORADO	
	8220500		1082650		3	1938	720			UNKNOWN	<u>K</u>	2	g	PINOS CREEK NR. DEL NORTE, COLORADO	
RIO GRANDE	8220900		1082211		30		754			FAIR	<u>K</u>			SAN FRANCISCO CREEK NR. DEL NORTE, COLORADO	
SAGUACHE	8227500				26	1938		!		UNKNOWN	<u>R</u>	1.2		NORTH CRESTONE CREEK NR. CRESTONE, COLORADO	
SAGUACHE SAGUACHE	8229500	375600 380437			11	1968	540 174	1		GOOD	Ŕ		å	COTTONWOOD CREEK NEAR CRESTONE, COLORADO RITO ALTO CREEK NEAR MOFFAT, COLORADO	
ARCHULETA	9339900		1085025		8	1970	1710			POOR	R			E FK SAN JUAN ABV. SAND CREEK NR. PAGOSA SPGS., COLORADO	
ARCHULETA	9340000				l ä	1970	2080			GOOD			å	E FK SAN JUAN NR. PAGOSA SPRGS., COLORADO	
ARCHULETA	9342500		1070037			1970	6580			GOOD	 		8	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	
ARCHULETA	9343000				6	1970	2500	23		GOOD	Ř	2	9	RIO BLANCO NR. PAGOSA SPRINGS, COLORADO	
ARCHULETA	9344300				14	1970	1400	2		GOOD	Ř	2	9	NAVAJO RIVER ABV. CHROMO, COLORADO	1
ARCHULETA	9349500			SEP	Ē	1970	7980	1		POOR	Ř		ĝ	PIEDRA RIVER NR. PIEDRA, COLORADO	
ARCHULETA		370440			ě	1970	132	1		GOOD	R	t	ě	LITTLE NAVAJO RIVER NR. CHROMO, COLORADO	1
DELTA	9134200	384822	1074112		20		946	1	41	POOR	- R	1	9	COTTONWOOD CREEK NR. HOTCHKISS, COLORADO	
DELTA	9144200	384718	1075941	SEP	6	1978	221		196	GOOD	R		9	TONGUE CREEK AT CORY, COLORADO	
DELTA	0149500				15	1947	3500			UNKNOWN	R	2	9	UNCOMPANGRE RIVER AT DELTA, COLORADO	1
DELTA	9149500				20		1540	1		GOOD	G	1	9	UNCOMPAHGRE RIVER AT DELTA, COLORADO	1
DELTA	8149500		1080449		6	1970	2250			FAIR	R		9	UNCOMPAHGRE RIVER AT DELTA, COLORADO	.]
DELTA	9150500				24	1977	799	1		POOR	R		9	ROUBIDEAU CREEK AT MOUTH NR. DELTA, COLORADO	
DELTA	9151500				24	1977	2050			FAIR	G	ļ <u> </u>	9	ESCALANTE CREEK NR. DELTA, COLORADO	<u> </u>
DOLORES	9165000				6	1970	1930	1		GOOD	R	<u> </u>	9	DOLORES RIVER BELOW RICO, COLORADO	
DOLORES	9168100				8	1958	824	1		FAIR	R		. 8	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100				4	1959	1770	‡		FAIR	<u> </u>		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100				30 13	1964		ļ <u>ļ</u>		FAIR	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES	9168100	. 1					1	<u> </u>		FAIR	<u>R</u>	ļ	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	.
DOLORES	9168100				18			ļ <u></u>]		UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	.
DOLORES	9168100				24		7270			FAIR	R		F	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	
DOLORES		374742				1970		<u> </u>]		POOR	R		<u></u>	BIG CANYON CREEK NR. DOVE CREEK, COLORADO DOVE CREEK AT DOVE CREEK, COLORADO	-
DOLORES	- OOF BOOK	374544				1970		} <u>}</u>		POOR		 			
EAGLE	9058900	394337			27		10	<u>\$</u>		UNKNOWN	<u>- e</u> -	2	×	MONIGER CREEK NR. MINTURN, COLORADO MONIGER CREEK NR. MINTURN, COLORADO	
EAGLE EAGLE	9058900				. ₽ . ₽	1968		5		UNKNOWN	G	2	ž	MONIGER CREEK NR. MINTURN, COLORADO MONIGER CREEK NR. MINTURN, COLORADO	· ····
EAGLE EAGLE	9060800				1 4	1959		• • • •		UNKNOWN	, ii		8	BIG ALKALI CREEK NR. BURNS, COLORADO	
EAGLE	9061450				100	1976				FAIR	R		á	SWEETWATER CREEK AT MOUTH NR. DOTSERO, COLORADO	
EAGLE	9087300				12 26	1961	310	l		POOR	R	1	Š	ALKALI CREEK NR. WOLCOTT, COLORADO	1
EAGLE	9087300				18			2.4		UNKNOWN		- i	- ···· <u>\$</u> ·· · ·	ALKALI CREEK NR. WOLCOTT, COLORADO	1
GARFIELD	9092000				18			7		UNKNOWN		†	9	RIFLE CREEK NR. RIFLE, COLORADO	
GARFIELD	9092000				9			 		FAIR	R		ă -	RIFLE CREEK NR. RIFLE, COLORADO	-
- pro- 14 11 1500 00 000	*******	700710		.,,,,,,			, ,,,,,,			1 - 1.277 7				100 T-10-01 00 10 -01 T-10 0 T-7	

County C											Extreme Stre	O 4,111,011 De	10 0030			
CAMPACE CAMP	COUNTY	STATION	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE F	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST
OMPHELD FOR MINISTER FOR MIN		NUMBER	l	L	1	I	I	[AREA		1	1	I		
GARPER 99000 54/02 19900 1		.l. <u></u> .	l			1	I	(FT3/S)		(SQ MI)			1			
CAMPELL 0 00000 311-00 18000		9093000	393402	108083	7 AUG	19	1977	2310	1	141 6	POOR	G	[9	PARACHUTE CREEK NR. GRAND VALLEY COLORADO	· · · · · · · · · · · · · · · · · · ·
CAMPELLO 60550 39171 1 180009 ADD 3 191 950		8083000	393402	108083	7 AUG	25	1977	431	1	141 F	FAIR		1	9	PARACHUTE CREEK NR. GRAND VALLEY COLORADO	
CAMPELLO 6000000 200711 1000011.0.1.0.1.0.1.0.1.0.1.0.1.0.1.0.1	GARFIELD	9093500	392710	108033	DAUG	3	1951	600	1	200 L	UNKNOWN		† -	9	PARACHUTE CREEK AT GRAND VALLEY COLORADO	
COMPRESS SECTION MARCH	GARFIELD	9093500	392711	108033	3 JUL	31	1976	2600	1				 	<u>a</u>		·
GARPELLO 65500 5500 1819-16 CT 2 17 19 50 1 00 JUNIOSAN 0 1 0 DY FORT HAIR FELLE COLORADO APPELLO 65500 5500 1819-16 JUNIO 70 170 1 19 76 1 1	GARFIELD	9095000	392712	1081851	ÂUG				i					<u>š</u>		·
GAMPIELD 605400 507500 709541 AUL 33 7979 17 19 AAR	GARFIELD	9095400	392208			27			· - i			<u>-</u>	- -	ă		
ORDERING 085400 100541 AUS 22 HFT 153 1 109 POCK R 8 0 DIVERTORS FOR SEGUE COLORDO	GARFIELD	9095400	392208						•				··	·		
GAPPELD 1987-19 1981-14 106 16 179 170 1 109 688 R 0 107 109 100	GARFIELD	9095400							— <u>;</u> —				 	1 	DDY FORK NR. DE BEQUE COLORADO	
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MONTEZUMA 9370820 370557 1082758 JUL 13 1981 3020 1 320 FAIR G 9 MANCOS RIVER BLW JOHNSON CAN NR. CORTEZ, COLORADO 9370820 370557 1082758 JUL 13 1981 3020 1 320 FAIR R 9 MANCOS RIVER BLW JOHNSON CANYON NR. CORTEZ, COLORADO MONTEZUMA 9371000 370200 1084300 JUL, 27 1940 1200 1 550 UNKNOWN G 1 9 MANCOS RIVER RIV. TOWAGC, COLORADO MONTEZUMA 9371000 370200 1084300 SEP 22 1940 4600 1 550 UNKNOWN G 1 9 MANCOS RIVER RIV. TOWAGC, COLORADO MONTEZUMA 9371000 370200 1084300 OCT 14 1941 5300 1 550 UNKNOWN G 1 9 MANCOS RIVER RIV. TOWAGC, COLORADO] 25]			. 1			G				
MONTEZUMA 9370920 370557 1092756 JUL 13 1991 3020 1 320 FAIR R 0 MANCOS RIVER BLW JOHNSON CANYON NR. CORTEZ, COLORADO 100 100 100 100 100 100 100 100 100 10						13			1			G		ě	MANCOS RIVER BLW JOHNSON CAN, NR. CORTEZ, COLORADO	
MONTEZUMA 937 1000 370200 1084300 JUL 27 1940 1200 1 550 UNKNOWN G 1 9 MANCOS RIVER NR. TOWAGC, COLORADO MONTEZUMA 937 1000 370200 1084300 SEP 22 1940 4600 1 550 UNKNOWN G 1 9 MANCOS RIVER NR. TOWAGC, COLORADO MONTEZUMA 937 1000 370200 1084300 OCT 14 1941 5300 1 550 UNKNOWN G 1 9 MANCOS RIVER NR. TOWAGC, COLORADO						1 13			. 1	320 F	AIR		İ	ēĺ	MANCOS RIVER BLW. JOHNSON CANYON NR. CORTEZ. COLORADO	
			370200	1084300	JUL	27	1940	1200	1				1 1			
		9371000	370200	1084300	SEP	22	1940		1			Ğ	j			
		9371000	370200	1084300	OCT	[14]	1941		1			Ğ	1 1			
The state of the s	MONTEZUMA					30			1			···· 🛱 ··	· · · · ·			
															MATTER THE TOTAL COLUMN	

COUNTY		LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST
	NUMBER	Ĺ		1	l				AREA		. 				NUMBER
	[[I		(FT3/S)		(SQ MI)		Ĺ				_
MONTEZUMA	93/1000	370139	108442	7 SEP	6	1970	4530	1	550	POOR	R		9	MANCOS RIVER NR. TOWAOC, COLORADO	1
MONTEZUMA	9371300	372051	1082856	BAUG	15	1977	1750	3	4.43	UNKNOWN	1 T	2	9	MCELMO CREEK TRIB. NR. CORTEZ, COLORADO	
MONTEZUMA	9371402		408393		24	1982	731			POOR	Ġ ·		9	MUD CREEK AT HWY 32 NR. CORTEZ, COLORADO	
MONTEZUMA	9371500		108400		- 33	1941	4540			UNKNOWN	Ř	12	ā	MCELMO CREEK NEAR CORTEZ, COLORADO	
MONTEZUMA	9371500		108400		22 31 20	1953	694			UNKNOWN		12		MCELMO CREEK NR. CORTEZ, COLORADO	
MONTEZUMA	937 1500	371900	108400		1… 왔	1954	1280			POOR	 			MCELMO CREEK NEAR CORTEZ, COLORADO	
			108402		129	1934			1 233	POOR	.} <u>`</u> ∑,	ļ	} <u>×</u>	MCELMO CREEK NR. CORTEZ, COLORACO	
MONTEZUMA	9371500	371923			24 29	1982	730] <u>G</u>		} -		_
MONTEZUMA	9372000	371927	109005		29	1051	1700	, <u>1</u>		UNKNOWN	ļ <u>R</u>			MCELMO CREEK NR. COLORADO-UTAH LINE	
MONTEZUMA	9372000	371900	109010		1 1	1953	459			UNKNOWN	L⊆	12	9	MCELMO CREEK NR. COLORADO-UTAH STATE LINE	
MONTEZUMA	9372000	371927	109005		6	1970	2880			FAIR	<u> </u>	l	<u> 9</u>	MCELMO CREEK NR. COLORADO-UTAH LINE	
MONTROSE	9149450	383319	108024		27	1982	1040	1		POOR	L G	i	9	DRY CREEK NR. OLATHE, COLORADO	
MONTROSE	9169500	381837	108530	SEP	6	1970	5710	1 1	1910	GOOD	R		9	DOLORES RIVER AT BEDROCK, COLORADO	_ L
MONTROSE	9169800	381653	108482	ISEP	1 ~	1970	368	3	4,14	UNKNOWN	1		9	EAST PARADOX CREEK TRIB. NR. BEDROCK, COLORADO	
MONTROSE	9177000	382125	1084246		15	1956	3490	12	1550	UNKNOWN	1		9	SAN MIGUEL RIVER AT URAVAN, COLORADO	
MONTROSE	9177000	382125	108424		ž	1970	8910	·····		POOR	P	·	9	SAN MIGUEL RIVER AT URAVAN, COLORADO	-
MONTROSE	9179000		108552		10		885	-		FAIR	 	· -	-	ROC CREEK NEAR URANIUM, COLORADO	
MONTROSE	1 91,9000	382904	107594		1 8	1982	5030			POOR	` G	··	<u></u>	COAL CREEK WEST OF MONTROSE, COLORADO	
	9146600				27	- 1002		· · ·			∤¥		·	PLEASANT VALLEY CREEK NR. NOEL, COLORADO	-
OURAY		380850	107550		1 29		500	ļ		UNKNOWN	<u>F</u>		·····		_
RIO BLANCO	9306007	394934	108105		19		520	3		FAIR	R		9	PICEANCE CREEK BELOW RIO BLANCO, COLORADO	
RIO BLANCO	9306028	304845	108110		3	1977	38			FAIR	JM		9	WEST FK STEWARD GL. AT MOUTH, NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306036	394930	108115		31	1976	40	1		UNKNOWN	M	·	- 8	SORGHUM GULCH AT MOUTH NR. RIO BLANCO, COLORADO	
RIO BLANCO	9306039	394936	108122	SJUL	19	1977	36	1	1.2	FAIR	M		9	COTTONWOOD GULCH NR. RIO BLANCO, COLORADO	l
RIO BLANCO	9306042	395001	108131	2 SEP	ă	1977	451	1	1 06	POOR	M	1	9	PICEANCE CREEK TRIB. NEAR RIO BLANCO, COLORADO	
RIO BLANCO	9306058	395014	108143		1 ···· š	1977	23	1	48.7	POOR	R "		9	WILLOW CREEK NR. RIO BLANCO, COLORADO	
RIO BLANCO	9300202	395559	108185		24		10			POOR	M	1	9	HORSE DRAW NR. RANGELY, COLORADO	
RIO BLANCO	9306203	395812	108175		24		16			POOR	M		<u> </u>	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	
RIO BLANCO	9306203	395612	108175		17	1977	41			GOOD	} W	}	}ă	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO	
RIO BLANCO	9306222	400439	108140		4	1971	242			UNKNOWN	 		ł	PICEANCE CREEK AT WHITE RIVER, COLORADO	
					1 7						M	ł		STAKE SPRINGS DRAW NR. RANGELY, COLORADO	
RIO BLANCO	9300230	395537	108251		_11	1977	245			GOOD			ļ Š		
RIO BLANCO	9306235	395422	108315		23 25	1977	272			POOR	<u>M</u>		<u></u>	CORRAL GULCH BELOW WATER GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306240	395318	108314		25	1977	30			POOR	<u>₩</u> .		9	BOX ELDER GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306241	395450	108290		111		5	l!		POOR	J R			BOX ELDER GULCH TRIB. NR. RANGELY, COLORADO]
RIO BLANCO	9306241	395450	108290		9	1981		1		FAIR	. ₩	ł	i <u>9</u>	BOX ELDER GULCH TRIB. NR. RANGELY	
RIO BLANCO	9306242		108282		23	1977	183	1		POOR	R .	i	9	CORRAL GULCH NR. RANGELY, COLORADO	
RIO BLANCO	9306244	395604	108253	SEP	11	1977	60	1		FAIR	M			CORRAL GULCH AT 84 RANCH NR. RANGELY, COLORADO	
RIO BLANCO	9308248	395855	108271	ÖLJÜL	23	1977	62	1	39.1	FAIR	M		Đ	DUCK CREEK AT UPPER STATION, NR 84 RANCH, COLORADO	
RIO BLANCO	9308255	401007	108240	2 ไม่นั้น	24	1977	756	î î	262	POOR] " M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	
RIO BLANCO	9300255	40 1007	108240	2 SEP	7	1978	6800	2.4	262	POOR	M	1	9	YELLOW CREEK NR. WHITE RIVER, COLORADO	
RIO BLANCO	9306380		108463		Š	1977	1170	1 -:	425		l Mi			DOUGLAS CREEK AT RANGELY, COLORADO	
RIO BLANCO	9306380		108463		24		3250		425		i ii		ă	DOUGLAS CREEK AT RANGELY, COLORADO	
RIO BLANCO	1 5225300	400950	108241		25		1050		757	UNKNOWN	l ñ		ă	YELLOW CREEK NR. RANGELY, COLORADO	-
SĀN JUĀN	9358900		107433		43	1970	750		i	15.7 2000		٠. ٠	Å	MINERAL CREEK ABY, SILVERTON, COLORADO	.
	การแลกก				1 0				, "	11	1 5	12	, ,	ICEMENT CREEK NR. SILVERTON, COLORADO	
SAN JUAN	1 -	374900	107400		18	1 1 1 1 1	547		272	UNKNOWN	#	12.	,		
SAN JUAN	1	374827	107403		5	1970	3070			GOOD	Į Ŗ		9	MINERAL CREEK AT SILVERTON, COLORADO	
SAN MIGUEL	9188500	1	108385		28		1270			UNKNOWN	I R	2	J 9	DISAPPOINTMENT CREEK NR CEDAR, COLORADO	1
SAN MIGUEL	9166500	375400	108360	Ö JÜÜL	29	1953	1430	4	180	UNKNOWN	G	1.1.	B	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	
SĂN MIĞUEL	1 9168500	375446	108385		12		183	1 i	167	GOOD	ÌŘ	1	9	DISAPPOINTMENT CREEK NR CEDAR, COLORADO	1
SAN MIGUEL	9168500	375446	108385		27		2540			UNKNOWN	R	1	9	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	
SAN MIGUEL	9168500	375446	108385		28		2060			UNKNOWN	T R		· · · · · · · · · · · · · · · · · · ·	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	
SAN MIGUEL	9168700	1		1 SEP	50	1970	215	-		UNKNOWN	1 - 12	·	i š	DISAPPOINTMENT CREEK TRIB, NR. SLICK ROCK, COLORADO	- 1
						1957	1390	i		FAIR	j · 🚡 · ·	1		IFALL CREEK NR. FALL CREEK, COLORADO	·-
SAN MIGUEL	9172000			MAY	· <u>.4</u>	1					·	·			
SAN MIGUEL	9175000			OAUG	1 11	1915	850			UNKNOWN	<u>K</u>	12	¥	NATURITA CREEK NR. NORWOOD, COLORADO	
SAN MIGUEL	9175000			OAUG] 3	1951	430	\$		UNKNOWN	JR	<u> </u>	9	NATURITA CREEK NR. NORWOOD, COLORADO	
SAN MIGUEL	9175800			8 SEP	ŀ	1970	613			UNKNOWN	1 4	2	<u>9</u>	DEADHORSE CREEK NR. NATURITA, COLORADO	
SAN MIGUEL	9175800	380237	108343	8 AUG	23	1977	1250	23	5.33	UNKNOWN	L	1	9	DEADHORSE CREEK NR. NATURITA, COLORADO	
SAN MIGUEL	9175900			7 SEP	1	1970	5660		1	POOR	Î Ř		1 - 6	DRY CREEK NR. NATURITA, COLORADO	T

				т.	Υ	Extreme	e Precipita	tion	T	т
					Note II			After Storm No. 217		
			· · · · · · · · · · · · · · · · · · ·	-	1	T	1	1		
Storm#	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precip	Remarks	USBR Storm File
20	Livermore-Boxelder	со	May 20-21, 1904	2	LC	40 59	105 11	8" at Boxelder	Huge flood on N. Fork and Poudre River	
34	Cascade/ SW CO	со	Sept. 3-7, 1909	3	GLC	37 40	107 48	2.9" 24 hrs, Cascade, CO	4.49" 108 hrs, Cascade, heavy Ft. Range rains, flood on San Juan River	х
58	Penrose	со	June 2-6, 1921	2	GLC	38 27	105 04	9.00" 72 hrs, Silver Lake, CO	Huge flood thru Pueblo but flooding throughout E. CO	х
65	Missouri Canyon	со	June 15, 1923	2	LC	40 26	105 13	2.50" in 30 minutes	Missouri Canyon near Masonville, flood Buckhorn Creek	
72	Trinidad	со	July 19-22, 1925	2	LC	37 10	104 30	Est 5" in 40 min W of Trinidad	Major flood came down Purgatory River "Cloud burst" near Idledale, signif	
86	Bear Creek	со	July 7, 1933	2	LC	39 38	105 15	Unknown	flooding Intense rains of 3-9" overnight, upper	
	Cherry Creek Kassler	co co	August 2-3, 1933	1,2	LC G	39 39	104 51	3.90" 1 day Calhan 3.98" 24 hrs, Kassler	basin 6500-7500 ft	<u></u>
		co	Sept 9-11, 1933	4	LC	1		J.96" 24 nrs, Kassier Unknown	Flooding in Denver Sheets of water caused flooding in	X
	Purgatory River Pitkin	co	Sept 15, 1934 July 17, 1936	3	LC			1.8", 75 minutes, Pitkin, CO	Purgatory basin	
	West of Gardner	co	July 27, 1936	2	LC			Unknown	Local "cloud burst" caused flooding on Huerfano Creek	
102	West Slope/Front Range	со	Aug 31-Sept 4, 1938	2,5	GLC	39 57	105 21	8.57" 48 hrs, Waterdale, CO	7", 6 hrs near Morrison, severe flooding several F.R. streams, mostly Sept 2	x
	near Gateway	со	July 16, 1940	5	LC			1.41" 2 days Colorado Ntl Mon	Local "cloud burst" caused flooding at West Creek	х
	Rico	co	Sept 18-23, 1941	3	G			3.85" Rico, CO		Х
	Fort Collins	co	May 30, 1948	2	GLC	1		9.0" near Fort Collins (8 hrs) 6.0" less than 2 hrs near Golden	2.33" 24 hrs, Box Ranch, CO	X
	near Golden	co	June 7, 1948	2	LC			12pm - 2 am	1.61" 1 day Hawthorne	ļ
129	Eastern Colorado	co	June 4-7, 1949	1	GLC	38 06	102 39	4.70" 1 day, Lamar	Flash floods and hail over CO 4-7" in area with severe hail, high	
131	Southeastern CO	co	May 14-15, 1951	1	GLC	37 17	102 37	7.05" 1 day Springfield 8S 12" 48 hrs at Redstone Creek and	wind, 1 death 6.06" 48 hrs, Fort Collins, local	
133	Redstone Creek	со	August 2-3, 1951	3	LC	40 26	105 13	near Belvue	flooding Heavy rains and flooding from tropical	х
	Central Arizona	AZ	August 26-29, 1951		ļ	34 12	112 20	13.55" Crown King, storm total	hurricane	
137	Wray Cucharas Dam	CO CO	September 7, 1951 July 11, 1953	2	LC	40 04	102 13	1.25" Wray, 3.02" at Yuma 3.40" 1 hr, 4.03 storm total	West and south of Wray >6" reported	
	Rye	co	May 18-20, 1955	2	G	1		6.10" 1 day, Rye (13" in New Mex)	many other stations 2-5" Arkansas River flooding	×
	Englewood	co	July 30-Aug 3, 1956	2	LC			12" in 5 days, \$5 mill flood damage	Lots of rain Denver area and W.Slope, local damaging floods	

		1					[Barrada	USBR Storm File
Storm #	Storm Name	State	Storm Date	Region	Туре	Lat	Long	Maximum Precip	Remarks	Storm rae
		ŀ				ŀ		Many 3-5" totals, 4.04" 1 day	\$2 million in flood damage, snow in	
			0.40.4057	004		40 40	10E 04	Longmont	mtns, 1.36" Aspen, 8" snow, 3 deaths	l
	Colorado	CO	May 8-12, 1957	2,3,4	G LC	40 00	103 04	5.50" 1 day, Akron	hail, major damage in area	x
143	Akron	co	July 26, 1957		LU	39 21	103 09	.5-4.5" 45 minutes - Kiowa Creek	minor road/bridge damage	 ^
	Kiowa Creek	100	July 30, 1957		 	39 21	104 20	6-6.5" from 7-8 pm at Wray/Vernon,	Tillitor load bridge damage	
454	186		Lub. 47, 4060	4	LC	40.04	102 13	flash flooding	No extreme precip reports found in CD	,
191	Wray	co	July 17, 1962	- 	12.0	140 04	102 13	nast nooding	Severe flooding Ruby canyon, train	
454	Duku Camuan	co	August 24, 1062		LC	38 52	106 58	No extreme precip found in CD	derailed	Į.
154	Ruby Canyon		August 31, 1963		150	30 JZ	1100 00	THO EXITETING PROOF FORTING WE'GE	3-5" in Kiows, Bent, Prowers and	
455	l	СО	May 20 20 1064	1	GLC	38 04	102 37	5.64 1 day, Lamar	Baca Counties, local flooding	
100	Lamar		May 29-30, 1964	-	OLO_	30 04	102 51	J.O-4 1 day, Edition	Huge storm at Breckenridge, massive	
450	Dh Crank	СО	luna 12 20 1065	1,2,4	GLC	30.05	104 20	15.17" 48 hrs, Holly	widepsread flood	x
159	Plum Creek		June 13-20, 1965	1,2,4	GEC	39 03	104 20	10.17 40 113, 11019	Denver flooding, 3.3" 30-40 min in	<u> </u>
105	Denver	co	July 25, 1965	2	LC	39 46	104 53	2.05" Denver AP, 1.99" - 30 min	Aurora	
100	Denver		July 25, 1905		╬	100 10	10,00	2.00 Delivery 1 1.00 00 1131	Cloudburst flooding in Rio Grande	
177	Sargents	co	August 11, 1968	3	LC	38 24	106 26	.74" Sargents	Valley, 10NW DeBeque	
	Calgeria		August 11, 1500	- <u>`</u>		100 2.	1100			
				1			İ	5.35" 24 hrs, Jones Pass 2E, 13.05"	11.27 Morrison, continuos rains, local	
170	Big Elk Meadow	СО	May 4-8, 1969	2,4	G	40 16	105 25	96 hrs near Boulder	flooding, road/building damage	Х
173	Dig Lik Weadow		may 4.0, 1000		+	† 	1.00	8,00" Stratton 3NE, 11-1:30 aftn,		
183	Stratton 2NE	co	August 22, 1969	1	LC	39 18	102 35	damaging wind and hail	2 people drowned, flash flood	
100	OGGIOTI ETTE	 00	/ tugust 22, 1000		1=	1	1		4-6" < 12 hrs, some locations,	
188	South Western CO	co	Sept 4-6, 1970	3	G	37 48	107 40	5.00" 48 hrs, Palisade Lakes	widespread flooding	X
	SW Colorado	co	Oct. 19-20, 1972	3,5	G G			5.00" 48 hrs, Durango, CO	Heavy rains, flooding	X
	371 30,0143		000. 10 00) 10:2		1		†		6" est near Kiowa, S.Platte River	
	1			1				5.31" near Broomfield, 31 hrs, many 1	-flooding, 4.24" 24 hrs, Palmer Lake,	1
194	Front Range	co	May 5-6, 1973	2	G	39 55	105 06	5" totals along F.R.	flash flood in Denver	X
	, you wanted					1	 	12" 24 hrs, Big Thompson Canyon	Ferocious flash flood - most rain in 3-6	5
198	Big Thompson Canyon	co	Jul 31-Aug 1, 1976	2	LC	40 25	105 26		hours, 256 dead	X
	Grand Junction	CO CO	Sept 7, 1978	3,5	LC	39 07		Est 2-4" rain - localized	Flash flood, road swept away	
	0.000				1			16.63" 10 days Crown King (NW of	Heavy snows, rains in western CO	
	1				1			Phoenix), 3-12" Central Basin, White	esp San Juan Mtns, 4-9" totals for 10	1
1	Arizona	AZ	Feb 13-22, 1980	}	ł	34 12	112 20		days	
205	Cripple Creek	co	August 8, 1980	2	LC			5.00" 3 hrs, Cripple Creek	2" < 1 hr, Lake George	
	1	- 			1	1	1		4.52" 1 day Trinidad AP, caused train	1
207	Frijole Creek	lco	July 3, 1981	1,2	LC	37 15	104 20	Est 16" in Frijole Creek, about 4 hrs	wreck, flooding	Х
	1, 1,0,0 0,000	— 	15 - 7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	- - - - - - - - - - 	1		1	.92" 12th, .83" 13th - Glenwood		
205	Glenwood Springs	co	July 12, 1981	4 or 6	LC	39 31	107 19	Springs	2"<1 hr, mudslides, homes damaged	
	Trinidad	co	August 11, 1981	2	LC	37 15	104 20	4.20" 1 day Trinidad, CO		1

. Il measurements that match ccc storms indirect Measurements Extreme Streamflow Data Base

MORREST 019C1 PARTE MEASUREMENTS IN CLO GRADO	CCC STORM LIST	-
COUNTY STATION LATITUDE LONGITUDE MONTH DAY YEAR OISCHARGE TYPE DEARWAGE RATING FILE NOTE PART DESCRIPTIONA.CATION	CCC STORMUST	L
COUNTY STATION ATTITUDE CONGITUDE MONTH DAY VEAR DISCHARGE TYPE DRAHAGE RATING FILE NOTE PART DESCRIPTIONAGCATION	CCC STORMUST	
URBER 675200 40385 1051319 MAY 20 150 150 150 150 150 150 150 150 150 15	CCC STORM LIST	
URBER 675200 40385 1051319 MAY 20 150 150 150 150 150 150 150 150 150 15		COMMENTO
ARBURER 6752000 403939 1031310 MAY 20 1904 57520 1 1053 UHRINOWN R 2 8 CACHE LA POUDRE RIVER AT IMOC NIF FORT COLLINS, COLORADO ARBURA 1715500 38037 1010 104030 SEP 8 1939 133300 1 7255 UHRINOWN R 2 7 PURGATORE RIVER AT TRINIDAD, COLORADO ROMAN RESPONSIVE AND ARBURA 1715500 38037 1010 104030 SEP 8 1939 13300 1 19300 UHRINOWN R 2 2 7 ARKINAS RIVER AT LAMAR COLORADO COLORADO ROMAN RESPONSIVE AT LAMAR COLORADO COLORADO ROMAN RESPONSIVE AT LAMAR COLORADO COLORADO ROMAN RESPONSIVE AT LAMAR COLORADO COLORADO ROMAN RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO COLORADO RESPONSIVE AT LAMAR COLORADO RES	NUMBER	COMMENIS
ARINARE 6732000 403993 10511310 MAY 20 1904 57700 1 1055 UNKNOWN R 2 8 CACHE LA POLIDRE RIVER AT MICHAEL COLORADO AS ANIMAS 7114500 371910 1055030 SEP 6 1909 13300 1 795 UNKNOWN R 7 7 PURGATORIE RIVER AT TRINIDAD, COLORADO PROMER 5 13300 1301500 130150 130150 NR 1 1301 13000 1 1905 UNKNOWN R 7 7 PURGATORIE RIVER AT TRINIDAD, COLORADO AS ANIMAS 7114500 371901 1055030 SEP 6 1909 13300 1 1905 UNKNOWN R 7 7 PURGATORIE RIVER AT TRINIDAD, COLORADO LAS ANIMAS 7114500 371905 (643110) ALL 22 1925 15000 4 975 UNKNOWN R 7 2 R 1 PURGATORIE RIVER AT TRINIDAD, COLORADO LAS ANIMAS 7114500 371905 (643110) ALL 22 1925 15000 4 975 UNKNOWN R 7 2 R 1 PURGATORIE RIVER AT TRINIDAD, COLORADO EFFERSON 6 711500 333931 10511412 ALL 7 1333 1110 1 1 645 UNKNOWN R 7 2 R 1 BEAR CREEK AT MORRISO, COLORADO EFFERSON 6 711500 33931 10511412 ALL 7 1333 1110 1 1 645 UNKNOWN R 7 2 R 1 BEAR CREEK AT LORSITE, MOCORDADO EFFERSON 6 711500 339405 (1051655 SEP 9 1933) 35000 1 399 UNKNOWN R 7 2 R 2 GOUTH FLATTE RIVER AT DEWER COLORADO EFFERSON 6 711500 339000 19014500 ALL 7 1901 1301 1401 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	HOWBEN	
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OTERO	129	
PROWERS 380509 1023148 MAY 15 1951 27500 1 228 UNKNOWN P 7 CLAY CREEK NR. LAMAR, COLORADO PROWERS 380140 1020820 MAY 15 1951 34000 1 817 UNKNOWN P 7 TWO BUTTES CREEK NR. HOLLY, COLORADO PROWERS 380300 1020700 MAY 15 1951 5000 1 UNKNOWN P 1 7 WOLF CREEK NR. HOLLY, COLORADO PROWERS 380230 1022030 MAY 15 1951 8600 1 116 UNKNOWN P 1 7 WOLF CREEK NR. GRANADA, COLORADO ARAPAHOE 393908 1045909 AUG 3 1951 11000 1 UNKNOWN R 6 LITTLE DRY CREEK ENGLEWOOD, COLORADO ARAPAHOE 394916 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 MISTLE DRY CREEK ENGLEWOOD, COLORADO ARAPAHOE 394916 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 MISTLE DRY CREEK RR. GRANADA COLORADO ARAPAHOE 394916 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 MEST BIJOU CREEK NR. BYERS, COLORADO ARAPAHOE 394903 1041343 AUG 3 1951 41000 4 UNKNOWN R 2 6 WEST BIJOU CREEK NR. BYERS, COLORADO BOULDER 400453 1051114 AUG 3 1951 5700 1 UNKNOWN R 6 6 DRY CREEK NR. HIMOT, COLORADO LARIMER 674500 402355 1050610 AUG 3 1951 785 1 46 FAIR R 1 6 LEFTHAND CREEK NR. HIMOT, COLORADO LARIMER 6741500 402355 1050610 AUG 3 1951 11400 4 UNKNOWN R 6 8 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402755 1050150 AUG 3 1951 11400 4 UNKNOWN R 6 8 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402755 1051150 AUG 3 1951 11400 4 UNKNOWN R 6 8 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402755 1050150 AUG 3 1951 11400 4 UNKNOWN R 6 8 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 674000 402325 1050150 AUG 3 1951 11400 4 UNKNOWN R 7 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 674000 402320 105135 AUG 3 1951 11400 4 UNKNOWN R 12 6 BUCKHORN CREEK NEAR PINEWOOD, COLORADO LARIMER 674000 402220 1051335 AUG 3 1951 12000 4 UNKNOWN R 12 6 BUCKHORN CREEK NEAR PINEWOOD, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 4200 4 UNKNOWN R 12 6 BUCKHORN CREEK NEAR PINEWOOD, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 4200 4 UNKNOWN R 12 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	129	
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PROWERS 380300 102030 MAY 15 1951 5000 1 UNKNOWN P 1 7 WILD HORSE CREEK NR. HOLLY COLORADO PROWERS 380230 1022030 MAY 15 1951 8800 1 116 UNKNOWN P 7 WOLF CREEK NR. GREEK NR. GOLORADO ARAPAHOE 393908 1045909 AUG 3 1951 1200 1 UNKNOWN R 6 6 LITTLE DRY CREEK ENGLEWOOD, COLORADO ARAPAHOE 394016 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 MIDDLE BUOU CREEK NR. DEER TRAIL, COLORADO ARAPAHOE 394016 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 MIDDLE BUOU CREEK NR. DEER TRAIL, COLORADO ARAPAHOE 940453 1051114 AUG 3 1951 5700 1 UNKNOWN R 2 6 DRY CREEK NR. BYERS, COLORADO BOULDER 6742500 400453 1051114 AUG 3 1951 5700 1 UNKNOWN R 6 DRY CREEK NR. BYERS, COLORADO BOULDER 6742500 400700 1051800 AUG 3 1951 785 1 48 FAIR R 1 6 LEFTHAND CREEK NEAR BOULDER, COLORADO LARIMER 6741500 402355 1050610 AUG 3 1951 19000 1 515 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402215 1051150 AUG 3 1951 14000 1 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402215 1051150 AUG 3 1951 14000 1 131 POOR R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402215 1051150 AUG 3 1951 14000 1 131 POOR R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 UNKNOWN R 1 2 6 CACHE LA POUDRE RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 UNKNOWN R 5 6 CACHE LA POUDRE RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 UNKNOWN R 5 6 CACHE LA POUDRE RIVER RA LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 UNKNOWN R 5 6 CACHE LA POUDRE RIVER RA LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 UNKNOWN R 5 6 CACHE LA POUDRE RIVER RA LAPORTE, COLORADO	131	
PROWERS 380230 1022030 MAY 15 1851 8800 1 116 UNKNOWN P 7 WOLF CREEK NR. GRANADA, COLORADO ARAPAHOE 39300 1045993 AUG 3 1951 1200 1 UNKNOWN R 6 LITTLE DRY CREEK ENGLEWOOD, COLORADO ARAPAHOE 394016 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 LITTLE DRY CREEK ENGLEWOOD, COLORADO ARAPAHOE 394303 1041343 AUG 3 1951 11000 4 UNKNOWN R 2 6 WEST BIJOU CREEK NR. BYERS, COLORADO BOULDER 400453 1051114 AUG 3 1951 5700 1 UNKNOWN R 6 DRY CREEK NR. NIWOT, COLORADO BOULDER 6742500 400700 1051800 AUG 3 1951 785 1 48 FAIR R 1 6 LEFTHAND CREEK NR. BYERS, COLORADO LARIMER 6741500 402355 1050610 AUG 3 1951 19000 1 515 UNKNOWN R 6 BIG THOMPSON RIVER NEAR BOULDER, COLORADO LARIMER 6739500 402355 1050610 AUG 3 1951 11400 4 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402305 105015 AUG 3 1951 11400 4 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402155 10505105 AUG 3 1951 11400 4 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402155 10505105 AUG 3 1951 11400 1 131 POOR R 6 BIG THOMPSON RIVER NEAR MASONAULE, COLORADO LARIMER 674000 402202 1051335 AUG 3 1951 12000 4 UNKNOWN R 1 6 BUCKHORN CREEK NEAR MASONAULE, COLORADO LARIMER 674000 402202 1051335 AUG 3 1951 420 4 7 UNKNOWN R 5 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO LARIMER 6740000 402202 1051335 AUG 3 1951 420 4 7 UNKNOWN R 5 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	131	
ARAPAHOE 393908 1045909 AUG 3 1951 1200 1 UNKNOWN R 6 11TIL DRY CREEK ENGLEWOOD, COLORADO ARAPAHOE 394016 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO ARAPAHOE 394303 1041343 AUG 3 1951 41000 4 UNKNOWN R 2 6 MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO BOULDER 400453 1051114 AUG 3 1951 5700 1 UNKNOWN R 6 6 DRY CREEK NR. NIWOT, COLORADO BOULDER 6742500 400700 1051800 AUG 3 1951 7500 1 UNKNOWN R 1 6 LEFTHAND CREEK NR. BURDLER, COLORADO BOULDER 6741500 402305 1050801 AUG 3 1951 7850 1 48 FAIR R 1 6 LEFTHAND CREEK NR. BURDLER, COLORADO LARIMER 6741500 402305 10508010 AUG 3 1951 19600 1 515 UNKNOWN R 6 8 BIG THOMPSON RIVER REAR BOULDER, COLORADO LARIMER 674500 402305 1050916 AUG 3 1951 11400 4 UNKNOWN R 6 8 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051150 AUG 3 1951 14000 1 131 POOR R 6 BUCKHORN CREEK NEAR MASONVILLE, COLORADO LARIMER 674000 40220 1050900 AUG 3 1951 12000 4 UNKNOWN R 1 2 6 CACHE LA POUDRE RIVER AT LAPORTE, COLORADO LARIMER 674000 40220 1051335 AUG 3 1951 12000 4 UNKNOWN R 5 6 CHIMNEY POLUTOW DRY CREEK NEAR PINEWOOD, COLORADO LARIMER 674000 40220 1051335 AUG 3 1951 420 4 7 UNKNOWN R 5 6 CHIMNEY POLUTOW DRY CREEK NEAR PINEWOOD, COLORADO	131	
ARAPAHOE 394016 1040554 AUG 3 1951 11000 1 UNKNOWN R 2 6 MIDDLE BUOU CREEK NR. DEER TRAIL, COLORADO ARAPHOE 394030 1041343 AUG 3 1951 41000 4 UNKNOWN R 2 6 WEST BIJOU CREEK NR. DEER TRAIL, COLORADO BOULDER 400453 1051114 AUG 3 1951 5700 1 UNKNOWN R 6 6 DRY CREEK NR. NIMOT, COLORADO BOULDER 6742500 400700 1051800 AUG 3 1951 765 1 48 FAIR R 1 6 LEFTHAND CREEK NEAR BOULDER, COLORADO LARIMER 6741500 402355 1050610 AUG 3 1951 19000 1 515 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 402300 1050146 AUG 3 1951 11400 4 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051150 AUG 3 1951 14000 1 131 POOR R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051150 AUG 3 1951 14000 1 131 POOR R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051150 AUG 3 1951 14000 1 131 POOR R 6 BIG CHORNOR REEK NEAR MASONVILLE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 UNKNOWN R 1 2 6 CACHE LA POUDER RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 7 UNKNOWN R 5 6 CACHE LA POUDER RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 7 UNKNOWN R 5 6 CACHE LA POUDER RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 12000 4 7 UNKNOWN R 5 6 CACHE LA POUDER RIVER AT LAPORTE, COLORADO	131	
ARAPAHOE 394303 1041343 AUG 3 1951 41900 4 UNKNOWN R 2 6 WEST BIJOU CREEK NR. BYERS, COLORADO BOULDER 400453 1051114 AUG 3 1951 5700 1 UNKNOWN R 6 DRY CREEK NR. NIWOT, COLORADO BOULDER 6742500 400700 1051800 AUG 3 1951 785 1 48 FAIR R 1 6 LEFTHAND CREEK NEAR BOULDER, COLORADO LARIMER 6741500 402355 1050610 AUG 3 1951 19000 1 515 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 402300 1050146 AUG 3 1951 11400 4 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051150 AUG 3 1951 1400 1 131 POOR R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051150 AUG 3 1951 1400 1 131 POOR R 6 BUCKHORN CREEK NEAR MASONVILLE, COLORADO LARIMER 403800 1050800 AUG 3 1951 12000 4 UNKNOWN R 1 6 BUCKHORN CREEK NEAR MASONVILLE, COLORADO LARIMER 674000 402220 1051335 AUG 3 1951 420 4 7 UNKNOWN R 5 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO LARIMER 674000 402220 1051335 AUG 3 1951 420 4 7 UNKNOWN R 5 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
SOULDER 400453 1051114 AUG 3 1951 5700 1	133	
BOULDER 6742500 490700 1951800 AUG 3 1951 785 1 48 FAIR R 1 6 LEFTHAND CREEK NEAR BOULDER, COLORADO	133	
LARIMER 6741500 402355 1050610 AUG 3 1951 19000 1 515 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 402300 1050146 AUG 3 1951 11400 4 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051150 AUG 3 1951 14000 1 131 POOR R 6 BUCKHORN CREEK NEAR MASONVILLE, COLORADO LARIMER 403800 1050800 AUG 3 1951 12000 4 UNKNOWN R 1 2 6 CACHE LA POURE RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 420 4 7 UNKNOWN R 5 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
LARIMER 402300 1050146 AUG 3 1951 11400 4 UNKNOWN R 6 BIG THOMPSON RIVER NEAR LOVELAND, COLORADO LARIMER 6739500 402715 1051135 AUG 3 1951 14000 1 131 POOR R 6 BUCKHORN CREEK NEAR MASONVILLE, COLORADO LARIMER 403800 10508800 AUG 3 1951 12000 4 UNKNOWN R 12 6 CACHE LA POUR RIVER AT LAPORTE, COLORADO LARIMER 6740000 49220 1051335 AUG 3 1951 420 4 7 UNKROWN R 5 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
LARIMER 6739500 402715 1051150 AUG 3 1951 14000 1 131 POOR R 6 BUCKHORN CREEK NEAR MASONVILLE, COLORADO LARIMER 403800 1050800 AUG 3 1951 12000 4 UNKNOWN R 1.2 6 CACHE LA POUDRE RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 420 4 7 UNKNOWN R 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
LARIMER 403800 1050800 AUG 3 1951 12000 4 UNKNOWN R 12 6 CACHE LA POUDRE RIVER AT LAPORTE, COLORADO LARIMER 6740000 402220 1051335 AUG 3 1951 420 4 7 UNKNOWN R 6 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
LARIMER 6740000 492220 1051335 AUG 3 1951 420 4 7 UNKNOWN R 5 CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
	133	
LARIMER 6741000 402300 1051430 AUG 3 1951 2260 1 15 GOOD R 8 COTTONWOOD CREEK NR. PINEWOOD, COLORADO	133	
LARIMER 403/15 1051045/AUG 3 1951 8000 1 UNKNOWN R 6 DRY CREEK ABY. BELLVIEW, COLORADO	133	
LARIMER 6740500 402210 1051715[AUG 3 1951 350 2 3]POOR R 6 RATTLESNAME CREEK IR. PINEWOOD, COLORADO	133	
LOGAN 403424 1032056 SEP 7 1951 12000 4 POOR R 2 6 PAWNEE CREEK NEAR LOGAN, COLORADO		Wray?
1932 1932		Wray?
MORGAN 402238 1033736[SEP 7 1951 13400 4 POOR R 6 DEADHORSE CREEK NEAR SNYDER, COLORADO		Wray?
WELD 6733500 404600 1044725/AUG 3 1951 239 6 199 UNKNOWN R 2 5 LONE TREE CREEK NR. NUNN, COLORADO	133	
WELD 401029 1048847 AUG 3 1851 6200 4 UNKNOWN R 2 6 ST. VRAIN CREEK NR. LONGMONT, COLORADO	133	
LAS ANIMAS 7126000 371130 1040730 JUL 11 1953 6230 1 1320 UNKNOWN P 7 PURGATORE RIVER NR. ALFALFA, COLORADO	137	
OTERO 375955 1033513 JUL 12 1953 24300 24 87 FAIR R 7 CROOKED ARROYO NR. LA JUNTA, COLORADO	137	
OTERO 7121000 375720 1034320 JUL 12 1953 10000 1 451 UNKNOWN R 2 7 TIMPAS CREEK NR. ROCKY FORD, COLORADO	137	
PUEBLO 7116000 380000 1042800 JUL 11 1953 3340 1 1673 UNKNOWN R 12 7 HUERFAND R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	137	7
BENT 7124000 380508 1031250 MAY 20 1955 44000 1 14417 UNKNOWN P 7 ARKANSAS RIVER AT LAS ANIMAS, COLORADO	138	
BENT 7128000 375500 1031800 MAY 20 1955 73400 12 3376 UNKNOWN P 1 7 PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		Pask Q Indrect
BENT 7129500 380000 1030400 MAY 19 1955 4810 1 435 UNKNOWN P 1 7 RULE CREEK NR. CADDOA, COLORADO	138	
LAS ANIMAS 371000 1035613 MAY 19 1955 1260 1 35 GOOD P 7 ALKALI ARROYO NR. TRINCHERA, COLORADO	138	
LAS ANIMAS 370730 1043859 MAY 19 1955 1150 1 28 UNIKNOWN P 7 BURRO CANYON AT MADRID, COLORADO	138	
LAS ANIMAS 373310 1033700 MAY 19 1955 3170 1 387 UNKNOWN P 7 CHACUACO CREEK NR. LA JUNTA, COLORADO	138	
LAS ANIMAS 371712 1041943 MAY 19 1955 1140 2 123 UNKNOWN P 7 CHICOSA CREEK NR. HOEHNE, COLORADO	138	
LAS ÁNIMÁS 370911 1043222 MAY 19 1955 940 1 10 UNIKNOWN P 7 COLORADO CANYON NR. JÁNSEN, COLORADO	138	
LAS ANIMAS 371145 1041036 MAY 19 1955 375 2.3 1 UNKNOWN P 7 DRAW NO, 2 AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO	138	
LAS ANIMAS 370904 1043045 MAY 19 1955 820 1 4 UNKNOWN P 7 GRASMACK ARROYO NR. TRINIDAD, COLORADO	138	
LAS ANIMAS 371215 1042710 MAY 19 1955 1960 1 16 UNKNOWN P 7 GRAY CREEK NR. TRINIDAD, COLORADO LAS ANIMAS 370100 1042843 MAY 19 1955 642 3 5 UNKNOWN P 7 JOE CREEK NR. MORELY, COLORADO	138	
	138	
	138	
LAS ANIMAS 371145 1041100 MAY 19 1955 187 3 1 UNKNOWN P 7 NO 1 DRAW AT U.S HIGHWAY 160, NEAR TRINIDAD, COLORADO LAS ANIMAS 371200 1042900 MAY 19 1955 9000 1 UNKNOWN P 1 7 POWELL ARROYO NR EL MORO, COLORADO	136	
105 ANIMAS 370610 1044548 MAY 19 1955 1790 2 381 UNKNOWN P 7 PURGATORIER ABY LORENCITO CANYON, NR WESTON, COLORADO	138	
103 ATIMAS 370732 10404150 MAY 19 1955 4400 2 485 UNKNOWN P 7 PURGATORIER RIVER AT DIVERSION DAM AT VALUEZ, COLORADO	138	
15 ATIMAS 3707902 1043230 MAY 19 1955 26400 4 766 UNKNOWN P 7 PUNGATORE RIVER AT JANSEN, COLORADO		
1033533 MAY 19 1955 19800 2 691 UNKNOWN P 7 PUNGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO	138	<u> </u>

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COUNTY	TSTATION	LATITUDE	LONGITUDE	MONTH	DAY	YFAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST	COMMENTS
COUNTY	NUMBER	OTTI OUG	LONGITUDE	1	1				AREA	1		- "			NUMBER	
	INOMBER			 	\vdash		(FT3/S)		(SQ MI)	 					l	
	·}	234742	454444	liaiv -	19	1955	37900	24		GOOD	-	7	7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	138	
AS ANIMAS		371712	1041842				41900			UNKNOWN	P			PURGATOIRE RIVER NR. ALFALFA, COLORADO	138	
LAS ANIMAS	7126000	371130	1040730		19			-		FAIR				RATON CREEK AT STARKVILLE, COLORADO	138	
LAS ANIMAS	ļ	370653	1043115		19		9400				P P			RATON CREEK AT UPPER U.S. HWY 85, 87 CROSSING, COLORADO	138	
LAS ANIMAS		370030	1042650	MAY	19		402	3		UNKNOWN					138	
LAS ANIMAS		370756	1043634	MAY	19	1955	2800	11		UNKNOWN	Р.	·	7	REILLY CANYON AT COKEDALE, COLORADO		
LAS ANIMAS	7125500	371110	1040750	MAY	19	1955	15500	+		UNKNOWN	P			SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	138	
LAS ANIMAS	1	370725	1044525		19		1460	1	36	GOOD	Ρ		7	SARCILLO CANYON NR. SEGUNDO, COLORADO	138	
	7119500	380528	1035852		19		17000	2.4	1124	UNKNOWN	Р		7	APISHAPA RIVER NR. FOWLER, COLORADO	138	
OTERO					19		80000	2		UNKNOWN	P	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	138	
OTERO	7126500	394400	1032900							UNKNOWN	- 		7	SMITH CANYON NR. NINAVIEW, COLORADO	138	
OTERO	ļ	374225	1032420		19		5660				- F		7	CLAY CREEK NR. LAMAR, COLORADO	138	
PROWERS	ļ	380509	1023148		20		5500	1		UNKNOWN					138	
PROWERS		380230	1022030	YAM (20	1955	1420	1		UNKNOWN	Р		. 7	WOLF CREEK NR. GRANADA, COLORADO	138	
PUEBLO	7116000	380000	1042800	MAY	19	1955	11300	2	1673	FAIR	P	1 1	7	HUERFANO R. BLW, HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
PUEBLO		380112	1044331	MAY	19	1955	3650	1	43	UNKNOWN	Р		7	MUDDY CREEK NR. PUEBLO, COLORADO	138	
PUEBLO	7108500	381220	1043140		19		20600	1	468	UNKNOWN	Ρ		7	ST. CHARLES RIVER NR. PUEBLO, COLORADO	138	
ARAPAHOE	6712500	393618	1044919		31		5310	1		UNKNOWN	R	·	6	CHERRY CREEK NEAR MELVIN, COLORADO	140	L
	0712300				9		6450			FAIR	R		6	SAND CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	142	
ADAMS	<u> </u>	394552	1044937		1					FAIR	Ř	···		SAND CREEK NR. AURORA, COLORADO	142	
ADAMS	<u> </u>	394600	1045000		9	1957	7660	6				 		TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO	142	
ARAPAHOE	L	394332	1044904		↓ 9	1957	10400	23		UNKNOWN	R	2		TOALD OBJECT DELONG TOLL CATE CREEK AT DENILED COLORADO	142	
DENVER	L	394648	1045404	MAY	<u> </u>	1957		1		UNKNOWN	R	ļ	6	SAND CREEK BELOW FOLL GATE CREEK AT DENVER, COLORADO		
EL PASO	6757600	390400	1043455	5]JÜL	30	1957	5250	1		GOOD	R	l	6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	143	
YUMA	1	395338			17		17500	1	2	GOOD	R	L	6	BLACK WOLF CREEK NEAR WRAY, COLORADO	151	
MESA	9163500	390900			31		7000			UNKNOWN	G	12	9	COLORADO RIVER NR. COLORADO UTAH STATE LINE	154	
								-		FAIR	P		7	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	155	7
EL PASO	7103700	385117	1045239		29								6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	159	
ADAMS	<u> </u>	394018	1040552		17		145000			FAIR	R	 		SAND CREEK AT SABLE AVE. AURORA, COLORADO	159	
ADAMS		394524	1044904		16		13400	1		GOOD	R		6		159	
ADAMS	1	394952	104565	3 JUN	17		18800	4		FAIR	<u> </u>	ļ	6	SOUTH PLATTE RIVER AT DERBY, COLORADO	159	
ADAMS	6720500	395512	104521	BIJUN	17	1965	29600	1	471	UNKNOWN	I R	2	6	SOUTH PLATTE RIVER AT HENDERSON, COLORADO		
ARAPAHOE	6712500	393542	104484		16		39900	4	33	6 UNKNOWN	R	[6	CHERRY CREEK NEAR MELVIN, COLORADO	159	
ARAPAHOE	07 12300	393700			17	1965	274000	1		FAIR	R	1	6	EAST BIJOU CREEK AT DEER TRAIL, COLORADO	159	
	4774546				18			4		6 POOR	R		6	KIOWA CREEK AT BENNETT, COLORADO	159	
ARAPAHOE	6758300	394454							2		R			PINEY CREEK NR. MELVIN, COLORADO	159	
ARAPAHOE		393635	104463		16			13				 	6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	159	
ARAPAHOE	6710000	393710	1050110		. 16		110000	4	306		<u>R</u>	}	<u></u>	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO	159	
ARAPAHOE	l	394332	104490		16	1965	16000	23		P NNKNOWN	R		<u> </u>		159	
ARAPAHOE	1	394223	104140	7 JUN	!?	1965	75500	<u> </u>		7 FAIR	<u> </u>	1	6	WEST BUOU CREEK AT BYERS, COLORADO	159	
DENVER		394605	104530	ÖÜÜN	16	1965	18900	3	16	7 FAIR	IR	.l	l6	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO		
DOUGLAS	1	392417	104522	5 JUN	16	1965	126000	1	10	8 POOR	R	l	6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	159	
DOUGLAS	6709500				16		154000	1	30	2 UNKNOWN	R		6	PLUM CREEK NR. LOUVIERS, COLORADO	159	
	1 0103300	392230	104573		16				10	8 POOR	R		6	WEST PLUM CREEK NR. SEDALIA, COLORADO	159	
DOUGLAS	- 				17			 	- 	3 GOOD	R	 	6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	159	?
EL PASO	6757600	390400							·		Ř	 	6	KIOWA CREEK SUB WATERSHED NO. J-33 NR. EASTONVILLE, CO.	159	7
EL PASO	6757700	390616			. 17					1 GOOD	+		—— —	KIOWA CREEK AT ELBERT, COLORADO	159	
ELBERT	6758000	391235			17			<u> </u>		9 GOOD	R	·	6_		159	
ELBERT	6758200	392000	104290	O JUN	17			4_	.1 11	UNKNOWN	R	1	<u> </u>	KIOWA CREEK AT KIOWA, COLORADO	159	
ELBERT	6757750	390920	104311	6 JUN	17	1969	2010	l1	.1	3 GOOD	L_R_	1	6	KIOWA CREEK SUB WATERSHED NO. R-3 NR. ELBERT, COLORADO		
ELBERT	6757800	391003	104311	4 JUN	17	196	1270	1		1 FAIR	R	1	6	KIOWA CREEK SUBWATERSHED NO. Q-51 NR. ELBERT, COLORADO	159	
ELBERT		391600			17	7 196	67200	1	8	6 POOR	R	1	6	WEST BIJOU CREEK NR. KIOWA, COLORADO	159	
ELBERT	6758100	391230			17			1	3	6 FAIR	R	T	6	WEST KIOWA CREEK AT ELBERT, COLORADO	159	
	-1-0/30100				-1	196				9 FAIR	R	1	6	PAWNEE CREEK NR. STERLING, COLORADO	159	
LOGAN		403700								2 FAIR	R		6	SOUTH PLATTE RIVER AT BALZAC, COLORADO	159	7
LOGAN	6760000	40242									R	 	- B	BEAVER CREEK NEAR BRUSH, COLORADO	159	7
MORGAN		400800						1-1		6 GOOD		 	6	BIJOU CREEK NEAR WIGGINS, COLORADO	159	
MORGAN		40151			. 18					4 POOR	R	 			159	
MORGAN	6758500	40192	103551	5 JUN	15					5 UNKNOWN	R	 2	1 6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	155	
SEDGEWICK	6764000	40584	102151	5 JUN	20	0 196	5 37600	1_		8 UNKNOWN	<u>R</u>	22	<u> </u>	SOUTH PLATTE RIVER AT JULESBURG, COLORADO		
WELD	1.	40380		NULO	1:	5 196	5 5340	4	1 7	3 FAIR	R	1	6	COAL CREEK NR. BRIGGSDALE, COLORADO	159	
WELD	1	40430		NUL O	15			1	63	3 POOR	R	1	6	CROW CREEK NR. KEOTA, COLORADO	159	
WELD	6753500				1	4 196		-		9 FAIR	R	I	6	LONE TREE CREEK NR. NUNN, COLORADO	159	
	0133300	40450		NULO						2 GOOD	R	1	6	NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	159	
WELD					! ;					7 GOOD	Ř	1 1	6	PAWNEE CREEK NR. STONEHAM, COLORADO	159	17
WELD		40420		NUL	1 1	5 196					P	+ +	7	BEAR CREEK NEAR SPRINGFIELD, COLORADO	159	
BACA		37260		NULO	1			·		3 FAIR		+ :-	 		159	
BACA	I	37190)O JUN	. 1	7 196				R UNKNOWN	Р.	1	 	LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	15:	
BACA	<u> </u>	37380	0 102370	NULOC	1	7 196	5 82600	24		3 GOOD	P	1	17_	TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO		
BENT	<u> </u>	38052		4 JUN		8 196			56	9 GOUL	Р		7	ADOBE CREEK NR. LAS ANIMAS, COLORADO	15	
	7124000			SOJUN		9 196				GOOD	P		7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	159	
BENT				OS JUN		8 196				I GOOD	P	1	7	CADDOA CREEK AT CADDOA, COLORADO	15	
BENT	713100								1 12	O POOR		$\overline{}$	 	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO	15	9[
BENT		38050		IO JUN		8 196						+	 	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	15	9
BENT	712850			NUL OC		8 196				3 UNKNOWN	P	 -	7		15	
BENT	712940			NUL 00	1	8 196				5 FAIR	P	1.3	7	RULE CREEK NR. TOONERVILLE, COLORADO		
EL PASO		39050		00 JUN	1)		9 FAIR	Р	1	1_7_	BIG SANDY CREEK NR. CALHAN, COLORADO	15	
EL PASO		38422		25 JUN		7 196			3:	53 GOOD	P		7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO	15	
		39010		DO JUN		7 198				16 FAIR	P		7	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO	15	
EL PASO										GOOD	Þ	1		FOUNTAIN CREEK AT SECURITY, COLORADO	15	
EL PASO	710580			DO JUN		4 196					R	 	 	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO	15	9 ? Date?
EL PASO		30432		15 JUN		7 196				54 FAIR		 	+	W MONUMENT CREEK BL STANLEY CANYON NR. PIKEVIEW, COLORAD		9 7
EL PASO	_1	38582		37 JUN		196	51:			21 FAIR	P					9 7
HAMILTON	713750	0 38013	3 102010	NUL 00	1	7 196				10 POOR	P		7	ARKANSAS RIVER NR. COOLIDGE, KANSAS		
LAS ANIMAS		37100		NUL 00	1	7 196				35 GOOD	Р	1	7	ALKALI ARROYO NR. TRINCHERA, COLORADO		9 7
A PER PER PER PER PER PER PER PER PER PER		37073		NUL 8		7 196				20 FAIR	P		. 7	BURRO CANYON AT MADRID, COLORADO	<u> </u>	9 7
LAS ANIMAS																

											Labellic C	treamflow i				
COUNTY	STATION NUMBER	ATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTIONA OCATION	CCC STORM LIST	COMMENTS
	-{		l	l		 	(FT3/S)	<u> </u>	(SQ MI)	-		L				
LAS ANIMAS	JJ	373211	1033606		17		38900			GOOD	P			CHACUACO CREEK NR. LA JUNTA, COLORADO	159	7
LAS ANIMAS	1	370538	1043119		17		1720			G000	P			CLEAR CREEK NR. STARKVILLE, COLORADO	159	7
LAS ANIMAS	7125100	371200	1041140		17		10600	. •		GOOD	Р.			FRIJOLE CREEK NEAR ALFALFA, COLORADO	159	7
LAS ANIMAS	 	370904	1043045		17		1090			FAIR	<u>P</u>			GRASMACK ARROYO NR. TRINIDAD, COLORADO	159	
LAS ANIMAS LAS ANIMAS	1	371215	1042710		17		3540			GOOD	P P			GRAY CREEK NR. TRINIDAD, COLORADO	159	
	+ +	370100			·		760			POOR	Р.			JOE CREEK NR. MORELY, COLORADO	159	7
LAS ANIMAS	- 	370720	1043520		17		4480			FAIR	P			LONG CANYON NR. SOPRIS, COLORADO	159	7
LAS ANIMAS	- 	370800	1045100		16		1920	1		GOOD	R			NORTH FORK PURGATOIRE AT WESTON, COLORADO	159	
LAS ANIMAS	7124500	370800	1044800		17		3000	4		UNKNOWN	P	_ 1		PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	159	
LAS ANIMAS	1 /1243001	<u>371015</u> 371712	1043031		!7		15700	4		GOOD	P			PURGATOIRE RIVER AT TRINIDAD, COLORADO	159	
LAS ANIMAS	7126000	371130	1040730		16		20900	4		GOOD	P	2		PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	159	
LAS ANIMAS	7125000	371450	1042350		16		27300			GOOD	P			PURGATOIRE RIVER NR. ALFALFA, COLORADO	159	
LAS ANIMAS	11230001	372130	1041842		18		20000 47700	7		POOR	무			PURGATOIRE RIVER NR. HOEHNE, COLORADO	159	
LAS ANIMAS	·f	370653	1043118		17		12900			FAIR	 	2		PURGATOIRE RIVER NR. THATCHER, COLORADO	159	
LAS ANIMAS	1	370030	1042650		16		4660			FAIR				RATON CREEK AT STARKVILLE, COLORADO	159	
LAS ANIMAS	1 1	370756	1043634		16		3410	 		UNKNOWN	P			RATON CREEK NR. MORLEY, COLORADO	159	
LAS ANIMAS	7125500	371110	1040750		16		14000	-		FAIR		 -∤		REILLY CANYON AT COKEDALE, COLORADO	159	
LAS ANIMAS	1	370100	1041200		17		7960	-		GOOD				SAN FRANCISCO CREEK NR. ALFALFA, COLORADO SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	159	
LAS ANIMAS	1	370725	1044525		17		1630	1		UNKNOWN		- ' 		SARCILLO CANYON NR. SEGUNDO, COLORADO	159	
LAS ANIMAS]	370800	1045100		16		1340	4		GOOD	 	- 1 		SOUTH FORK PURGATOIRE RIVER AT WESTON, COLORADO	159 159	12
LAS ANIMAS		370745	1040050		17		4500			FAIR	6			TRINCHERA CREEK NR. TRINCHERA, COLORADO	159	
LINCOLN	J	385100	1033200		17		3710	1	188	FAIR	P	 1		SOUTH RUSH CREEK NR. KARVAL, COLORADO	159	
OTERO	7119500	380528	1035852	JUN	17		11400	4		FAIR	P			APISHAPA RIVER NR. FOWLER, COLORADO	159	
OTERO	7119700	380735	1035640		18		43200	2		UNKNOWN	P			ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	159	
OTERO		380138	1034730			1965	31670	4		UNKNOWN	P			ARKANSAS RIVER AT SWINK, COLORADO	159	
OTERO	 	374225	1032420		18		84000	1	291	FAIR	P			SMITH CANYON NR. NINAVIEW, COLORADO	159	
OTERO	- -	380040	1033830		17		21480	24		G000	P			TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	159	
PROWERS	- -	380715	1022850		17		3600	1		FAIR	Р.	1		BIG SANDY CREEK NR. LAMAR, COLORADO	159	?
PROWERS PROWERS	-	380044	1023426		18		158000			FAIR	P			CLAY CREEK NR. LAMAR, COLORADO	159	
PROWERS	 -	375920 380425	1021650 1022625		17		12600 10600	1		FAIR	P			GRANADA CREEK NR. GRANADA, COLORADO	159	
PROWERS		380140	1020820		17		182000	1		GOOD	P			SMITH ARROYO NR. GRANADA, COLORADO	159	
PROWERS	7136000	380245	1020705		17		10600			UNKNOWN	p	 i		TWO BUTTES CREEK NR. HOLLY, COLORADO	159	
PROWERS	1-1134334	380156	1023707		18	1965	24300	1		FAIR	P			WILD HORSE CREEK AT HOLLY, COLORADO WILLOW CREEK NR. LAMAR, COLORADO	159	
PROWERS		375705	1022605		17		35300	1		FAIR	P			WOLF CREEK NR. GRANADA, COLORADO	159 159	
PUEBLO	7117000	381054	1040940	JUN	18	1965	43100	24		FAIR	P			ARKANSAS RIVER NR. NEPESTA, COLORADO	159	
PUEBLO		381442	1042036	JUN	18		104000	4		POOR	P			ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	159	
PUEBLO	7106500	381633	1043909		17		47000	4	926	GOOD	p			FOUNTAIN CREEK AT PUEBLO, COLORADO	159	
ARAPAHOE	6711500	393908	1050157		25	1965	2900	5	260	UNKNOWN	R			BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO	165	
SAGUACHE	-	380437	1054546		11		174			GOOD	R	[RITO ALTO CREEK NEAR MOFFAT, COLORADO	177	
BOULDER JEFFERSON	1-2222	400608	1052033		7		1970	1		GOOD	R			JAMES CREEK AT MOUTH NR. JAMESTOWN, COLORADO	179	
YUMA	6825500	393122 393432	1051113		23	1969 1969	2730 10600			FAIR	R			TURKEY CREEK NR. MORRISON, COLORADO	179	
YUMA	6821400	395424	1021608		23		2280			POOR	R	- 2 1		LANDSMAN CREEK NR. HALE, COLORADO	183	
YUMA	6825000	393659	1021432		23		14900	4		UNKNOWN GOOD	R			NORTH FORK BLACK WOLF CREEK NR. VERNON, COLORADO		
OTERO	7121500	380010	1033918		22		2169	1		G000	R			SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO	183	
PROWERS	7134300	375230	1022854		23		7880	1		UNKNOWN	} }	2		WOLF CREEK NR. CARLTON, COLORADO	183 183	
MINERAL	8217500	374600	1064950		6		4660	1		UNKNOWN	 			RIO GRANDE AT WAGONWHEEL GAP, COLORADO	188	
ARCHULETA	9339900	372325	1065025	SEP	6	1970	1710	1		POOR	R			E FK SAN JUAN ABV. SAND CREEK NR. PAGOSA SPGS., COLORADO	188	
ARCHULETA	9340000	372210	1065330	SEP	6	1970	2060	1		GOOD	Ř			FK SAN JUAN NR. PAGOSA SPRGS., COLORADO	188	
ARCHULETA		370440	1064834	SEP	6	1970	132	1		GOOD	R			LITTLE NAVAJO RIVER NR. CHROMO, COLORADO	188	
ARCHULETA	9349500	371320	1072032		6	1970	7980	1	371	POOR	R			PIEDRA RIVER NR. PIEDRA, COLORADO	188	
ARCHULETA	9343000	371246	1064738		6	1970	2500	23	58	GOOD	R	2	9 [RIO BLANCO NR. PAGOSA SPRINGS, COLORADO	188	
ARCHULETA	9342500	371558	1070037		6	1970	6580	1		GOOD	R		9 (SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	188	
DELTA	9149500	384431	1080449		6]	1970	2250		1129	FAIR	R	T	9 [UNCOMPAHGRE RIVER AT DELTA, COLORADO	188	
DOLORES	1	374742	1085126		5	1970	2400			POOR	R			BIG CANYON CREEK NR. DOVE CREEK, COLORADO	166	
DOLORES	9165000	373820	1080335		틧	1970	1930			GOOD	<u>R</u>			DOLORES RIVER BELOW RICO, COLORADO	188	
HINSDALE	0347705	374544	1085403		2	1970	830			POOR	<u>R</u>	2		DOVE CREEK AT DOVE CREEK, COLORADO	188	
LAPLATA	9347200	_ <u>372912</u> 375959	1070946 1081117		- 3	1970 1970	2520 1150	1		POOR	R	<u>-</u>		MIDDLE FORK PIEDRA RIVER NR. PAGOSA SPRINGS, COLORADO	188	
LA PLATA	9352900	372839			- 5		7050			POOR GOOD				LA PLATA RIVER AT COLORADO, N. M. LINE	188	
MESA	9179500	384055	1085850		-61	1970	5350	· - ;		POOR	R			VALLECITO CREEK NR. BAYFIELD, COLORADO	188	
MINERAL	9341200	372647	1065300		- 6	1970	585	1		GOOD	R			DOLORES RIVER AT GATEWAY, COLORADO NOLF CREEK NR. PAGOSA SPRINGS, COLORADO	188	
MONTEZUMA	9166500	372815	1063015			1970	5190	-		GOOD	- R	<u>-</u> -		DOLORES RIVER AT DOLORES, COLORADO	188	
MONTEZUMA	9371000	370139	1084427	SEP	5	1970	4530	1		POOR	R		9 1	MANCOS RIVER NR. TOWADC, COLORADO	188	
MONTEZUMA	9372000	371927	1090054		6	1970	2880	1		FAIR	R			MCELMO CREEK NR. COLORADO-UTAH LINE	188	
MONTROSE	9169500	361637	1085305		6	1970	5710	1	1910	GOOD	R		9 [DOLORES RIVER AT BEDROCK, COLORADO	188	
MONTROSE MONTROSE	9169800	381653	1084821			1970	368	3		UNKNOWN				EAST PARADOX CREEK TRIB. NR. BEDROCK, COLORADO		Date?
SAN JUAN	9177000	382125 375104	1084240 1074331		<u>5</u>	1970 1970	8910			POOR	R			SAN MIGUEL RIVER AT URAVAN, COLORADO	188	
SAN JUAN	3330300	374827	1074039			1970	750	1		FAIR	R			MINERAL CREEK ABV. SILVERTON, COLORADO	188	
SAN MIGUEL	9175800	380237	1083438		5	1970	3070			GOOD	R			MINERAL CREEK AT SILVERTON, COLORADO	188	
SAN MIGUEL	9158700	380133	1084651		·{	1970	513 215	3		UNKNOWN		_ 2		DEADHORSE CREEK NR. NATURITA, COLORADO		Date?
SAN MIGUEL	9175900	360532	1083717			1970	5660			POOR	R			DISAPPOINTMENT CREEK TRIB. NR. SLICK ROCK, COLORADO DRY CREEK NR. NATURITA, COLORADO	188	Date?
LA PLATA	9363200	370321	1075209		19	-	154	1		GOOD	R			FLORIDA RIVER AT BONDAD, COLORADO	193	
LA PLATA		371723	1075223		19		1780	1		GOOD	R			JUNCTION CREEK AT DURANGO, COLORADO	193	
											- 1			THE TENSOR DESCRIPTION SELECTION	193[

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OUNTY	STATION	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PAR	ī	DESCRIPTIONALOCATION	CCC STORM LIST	COMMENTS
	NUMBER			I	Ι				AREA							NUMBER	
							(FT3/S)		(SQ MI)								
A PLATA	9352000	371613	1075358	OCT	19		2830	1		GOOD	R		Ü		LIGHTNER CREEK AT DURANGO, COLORADO	193	
A PLATA	9363100	370823	1074510		19		611	1	17	GOOD	R		9		SALT CREEK NEAR OXFORD, COLORADO	193	
A PLATA		371556	1075515		19	1972	870	1		FAIR	R		9		WILDCAT CREEK NEAR DURANGO, COLORADO	193	
DAMS		395935	1045627		6	1973		3		UNKNOWN	L		6		BIG DRY CREEK AT U.P.R.R. CULVERT AT DENVER, COLORADO	194	<u> </u>
DAMS		395028	1045753		6	1973		1		UNKNOWN			- 6		NIVER CREEK NR. MOUTH AT DENVER, COLORADO	194	
DAMS	J	394446	1045248		<u> 6</u>	1973	290	1		UNKNOWN	<u> </u>		6		WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO	194	
RAPAHOE		393745	1050003		6	1973		4		UNKNOWN	L		5		BIG DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO	194	
RAPAHOE	ļ	393911	1045914		<u> 6</u>	1973	1510	1		UNKNOWN			6		LITTLE DRY CREEK AT BRUWY AND ACOMA AT DENVER, COLORADO	194	<u> </u>
ENVER		394707	1045413		6	1973	5630			UNKNOWN		<u> </u>	6		SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO	194	
DENVER	ļ	394129	1050020		6	1973	320	3		UNKNOWN			5		SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO	194	
DENVER		394350	1050120		1 6	1973	430			UNKNOWN	<u> </u>		6		WEIR GULCH AT DECATUR AT DENVER, COLORADO	194	
OUGLAS	1	390806	1050941		[7	1973	78	3		GOOD	R		6		TRAIL CREEK NR. WESTCREEK, COLORADO	194	
OUGLAS		390922	1050945		17	1973	2020	11		FAIR	R	3	8		WEST CREEK AT WESTCREEK, COLORADO	194	
OUGLAS	ا ــــــــــا	391032	1050956		7	1973	3080	1		FAIR	R	3	<u> </u>		WEST CREEK BELOW WESTCREEK, COLORADO	194	<u></u>
EFFERSON	<u> </u>	394553	1050749		6	1973	820	1		UNKNOWN	<u>.</u>	L	6		LENA GULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO	194	
ELLER		390744	1050942		7	1973		1		GOOD	R		6		WEST CREEK ABV. WESTCREEK, COLORADO	194	L
ARIMER		402539	1052037		31		28200	1		POOR	R		6		BIG THOMPSON ABV. DRAKE, COLORADO	198	
ARIMER	1	402552	1051937		31		30100	1		POOR	R	<u> </u>	6		BIG THOMPSON RIVER BELOW DRAKE, COLORADO	198	
ARIMER	6738000	402518	1051334	JUL	31	1976	31200	1	305	POOR	R	L	6		BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO	198	
ARIMER	J	402259	1052811	JUL	31	1976	4330	1	164	GOOD	R		6		BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO	198	
ARIMER		402505	1051202		31			1	311	POOR	R		6		BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO	198	
ARIMER		402433	1052507		31		6950	1	1	POOR	R		6		BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	198	
ARIMER	Ī.	402344	1052734	JUL	31	1976	8700	1	1	POOR	R		6		BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	198	
ARIMER		402704	1052528	JUL	31	1976	1990	1	3	POOR .	R		6		BLACK CREEK NEAR GLEN HAVEN, COLORADO	198	
ARIMER	6752260	403517	1050408	AUG	1	1976	5700	1	1127	FAIR	R	[6		CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	198	
ARIMER	6752000	403952	1051326		1 1	1976		1	1056	FAIR	R		6		CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	198	
ARIMER		405736	1052139	JUL	31	1976		3	1	GOOD	R	I	8		DALE CREEK TRIB. AT VIRGINIA DALE, COLORADO	198	
ARIMER	<u> </u>	402344	1052617		31		7210	1	1	POOR	R	<u> </u>	6		DARK GULCH AT GLEN COMFORT, COLORADO	198	
LARIMER		405550	1052057		31		7400	11	24	POOR	R		1 6		DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	198	
ARIMER	ļ	402624	1052731		31		2810	1	1	POOR	R	<u></u>	6		DEVILS GULCH NR. GLEN HAVEN, COLORADO	198	
ARIMER	<u> </u>	402242	1052915		31		4460	1	6	POOR	R	<u> </u>	6		DRY GULCH AT ESTES PARK, COLORADO	198	
ARIMER		402422	1052837		31			1	2	POOR	R	<u> </u>	6		DRY GULCH NR. ESTES PARK, COLORADO	198	
LARIMER		402717	1052713		3!				7	POOR	R	<u> </u>	6		FOX CREEK AT GLEN HAVEN, COLORADO	198	
LARIMER		402006	1052548		. 31				3	FAIR	R	ļ	6_	l	LITTLE THOMPSON RIVER NR. ESTES PARK, COLORADO	198	
ARIMER	[·]	404744	1051724		13!		2590			FAIR.					LONE PINE CREEK NR. LIVERMORE, COLORADO	198	
LARIMER		402346	1052404		31			1		POOR			6		LUNG GULCH NR. DRAKE, COLORADO	198	
ARIMER		402747	1052513		1 31	1976				POOR	R	 	6		MILLER FORK NR. GLEN HAVEN, COLORADO	198	
ARIMER	<u></u>	402620	1052152		31	1976		1		FAIR	R	ļ	6		NO. FK, BIG THOMPSON RIVER ABV, DRAKE, COLORADO	198	
ARIMER	. <u> </u>	402717	1052705		. 31				19	POOR	R	ļ	6		NO. FK. BIG THOMPSON RIVER AT GLEN HAVEN, COLORADO	198	
ARIMER	1	402655	1052411		31			1_1_	<u>.</u> 1	POOR	R	ļ	1 6		NO. FK. BIG THOMPSON RIVER TRIB. NR. DRAKE, COLORADO	198	ļ
ARIMER	.	404715	1051508		31			 !		POOR	R	 	<u>.</u>		NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	198	
ARIMER	<u> </u>	402325	1052600		31			1	ļ3	POOR	R	ļ	- 6		NOELS DRAW AT GLEN COMFORT, COLORADO	198	
ARIMER		402714	1052604		31			1-1-	<u> </u>	POOR	<u>R</u>	ļ	46		NORTH FORK BIG THOMPSON TRIB. NR. GLEN HAVEN, COLORADO	198	
ARIMER	.	402423	1052417		31			!	3	POOR	<u>R</u>	 	6		RABBIT GULCH NR. DRAKE, COLORADO	198	
ARIMER	ļl	403019	1051149		31			1	29	POOR	R		6	$\overline{}$	REDSTONE CREEK NR. MASONVILLE, COLORADO	198	
ARIMER	ļ	403743	1051244		31			1_1_		POOR	R	ļ	- 6		RIST CANYON NR. BELLVIEW, COLORADO	198	
ARIMER	·	404837	1051501		131			<u> </u>		GOOD	<u>R</u>	ļ			STONEWALL CREEK NR. LIVERMORE, COLORADO	198	
ARIMER	 	402632	1052740		31			1		POOR	R		6		WEST CREEK NR. GLEN HAVEN, COLORADO	198	
MESA		390328	1083530		1	1978		1		FAIR	<u> </u>	<u> </u>	9		NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	202	
IESA		390413			1?	1978		3		POOR	G		9		RED CANYON CREEK NEAR GRAND JUNCTION, COLORADO	202	
IIO BLANCO	9306255	401007	1082402		1	1978		24	262	POOR	M		9		YELLOW CREEK NR. WHITE RIVER, COLORADO	202	
DAMS	ļ	395111	1045916		.]3	1981		3	<u>}</u>	FAIR	<u> </u>	ļ			L TRIBUTARY OF NIVER GULCH NR. THORNTON, COLORADO	205	
ENVER	<u> </u>	394958	1050305		1_3	1981		3		FAIR	1 1	ļ	6		LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	205	
EFFERSON	ļ	394958	1050305		13	1981		3	1	FAIR	<u> </u>	ļ	6		LITTLE DRY CR AT 75TH AND SHERIDAN AT WHEATRIDGE, CO	205	
AS ANIMAS	7125100	371200	1041140		1 3	1981		24		FAIR	P		1 7		FRIJOLE CREEK NEAR ALFALFA, COLORADO	207	
MESA	9179200	383159			12	1.00		1		GOOD	G		9	_]	SALT CREEK NR. GATEWAY, COLORADO	208	
AS ANIMAS	7124100	370756	1044824		10	100				POOR	P	1	7]	MOLINO CANYON NR. WESTON, COLORADO	210	
AS ANIMAS	7124100	370756	1044824		10					POOR	<u>P</u>	 	17		MOLINO CANYON NR. WESTON, COLORADO	210	
AS ANIMAS	7124200	370746	1043820	AUG	10	1981	11500	11	550	FAIR	P		7		PURGATOIRE RIVER AT MADRID, COLORADO	210	[7

			INDIRECT DI	SCHARG			ENTS IN COLOR GE	ADO	7	5000	cks		, (\05	+ (All) Big ones to 9,500 cls in	(6) and	(7)
COUNTY	STATION	LĄTITUDĘ	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	AREA	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST NUMBER	COMMENTS
JEFFERSON	6710500			JUN	2	1867	(FT3/S)		(SQ MI) 164	UNKNOWN	R	2	6	BEAR CREEK AT MORRISON, COLORADO		
LA PLATA PROWERS PARK	9362000 6698500	371610 380300 391742	1075315 1024200 1054305	JUL	26 27 7	1937 1957 1979	·	1 1 3	183	NNKNOMN NNKNOMN NNKNOMN	P R	<u>i</u>	. <u>9</u> . <u>7</u>	LIGHTNER CREEK NEAR DURANGO, COLORADO DRY CREEK NR. LAMAR, COLORADO TARRYALL CREEK NR. JEFFERSON, COLORADO		
JEFFERSON MORGAN BENT	7129400	393917 401517 374900	1051821 1035800 1031100	JUN	18 18	1981 1965 1965	466000 276000			UNKNOWN POOR FAIR	R R P	13	6 6 7	TROUBLESOME CREEK AT KITTEREDGE, COLORADO BIJOU CREEK NEAR WIGGINS, COLORADO RULE CREEK NR. TOONERVILLE, COLORADO	159 159	?
ARAPAHOE PROWERS HAMILTON	7137500	393700 360140 380133	1040300 1020820 1020100	JUN	17 17 17	1965 1965	274000 182000 158000		617	FAIR GOOD POOR	P P	1	6 7 7	EAST BIJOU CREEK AT DEER TRAIL, COLORADO TWO BUTTES CREEK NR. HOLLY, COLORADO ARKANSAS RIVER NR. COOLIDGE, KANSAS	159 159	7
PROWERS DOUGLAS ADAMS	6709500	380044 392904 394018	1023426 1050007 1040552	JUN	16 16	1965 1965 1965	158000 154000 145000		302	FAIR UNKNOWN FAIR	P R R		7 6 6	CLAY CREEK NR. LAMAR, COLORADO PLUM CREEK NR. LOUVIERS, COLORADO MIDDLE BIJOÙ CREEK NR. DEER TRAIL, COLORADO	159 159 159	
EL PASO PROWERS DOUGLAS	7133000	384225 380617 392417	1042325 1023701 1045225	JUN	17 5 16	1965 1921 1965	141000 130000 126000	1	19780	GOOD UNKNOWN POOR	P R	2	7 7 6	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO ARKANSAS RIVER AT LAMAR, COLORADO EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	159	ok?
EL PASO LOGAN ARAPAHOE	6760000 6710000	384320 402424 393710	1043845 1032758 1050110	JUN	17 18 16	1965 1965 1965	124000 123000 110000	1 24 4	16852	FAIR FAIR UNKNOWN	R		7 6 6	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO SOUTH PLATTE RIVER AT BALZAC, COLORADO SOUTH PLATTE RIVER AT LITTLETON, COLORADO	159 159	
PUEBLO OTERO BACA		381442 374225 373800	1042036 1032420 1023700	JUN JUN	18 18 17	1965 1965 1965	104000 84000 82600	24	291 453	POOR FAIR GOOD	P P		- 1 7 - 7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO SMITH CANYON NR. NINAVIEW, COLORADO TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO	159 159 159	2
OTERO ARAPAHOE BENT	7126500 7128000		1032900 1041407 1031800	JUN MAY	19 17 20	1955 1965 1955	73400	12	277 3376	UNKNOWN FAIR UNKNOWN	P P	1 . 1	7 <u>6</u>	PÜRGATÖIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO WEST BIJOU CREEK AT BYERS, COLORADO PURGATÖIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		Peak Q Indirect
ELBERT BENT EL PASO	7128500	391600 380202 390500	1042000 1031200 1041700	JUN	17 18 17	1965 1965 1965	62500 60700	4	3503 49	POOR UNKNOWN FAIR	P	1	- 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	WEST BIJOU CREEK NR. KIOWA, COLORADO PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO BIG SANDY CREEK NR. CALHAN, COLORADO	159 159 159	
BENT LARIMER LAS ANIMAS	7128000 6752000	375500 403955 372130	1031800 1051310 1041842	MAY JUN	24 20 18	1904 1965	57200 47700		1055 1935	UNKNOWN UNKNOWN FAIR	, P R P	. 1 2 2	 6 7	PURGATOIRE RIVER AT HIGHLAND DAM, NR. LAS ANIMAS COLORADO CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO PURGATOIRE RIVER NR. THATCHER, COLORADO	20 159	7
PUEBLO OTERO EL PASO	7106500 7126500	381633 374400 390650	1043909 1032900 1041100	SEP	17 15	1965 1934 1954		1	2900	GOOD UNKNOWN UNKNOWN	R	1	7	FOUNTAIN CREEK AT PUEBLO, COLÓRADO PURGATOIRE RIVER AT MINEMILE DAM NR. HIGBEE, COLORADO BIG SANDY CRIK AT STATE HIGHWAY NO. 208 AT RAMAH, COLORADO	159 89	
BENT OTERO OTERO	7124000 7126500 7119700	380735	1031250 1032900 1035640	APR JUN	20 23 18	1942 1965	43200	2 2	2900 10901	NUKNOMN NUKNOMN NUKNOMN	P P	1	7 7	ARKANSAS RIVER AT LAS ANIMAS COLORADO PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO	138	7
PUEBLO LAS ANIMAS ELBERT	7117000 7126000 6758000	371130 391235	1040940 1040730 1043200	MAY	18 19 17	1955 1965	43100 41900 41500	24	1320	FAIR UNKNOWN GOOD	P :R		7 8	ARKANSAS RIVER NR. NEPESTA, COLORADO PURGATOIRE RIVER NR. ALFALFA, COLORADO KIOWA CREEK AT ELBERT, COLORADO	138 159 133	
ARAPAHOE BENT BENT	7128000 7130500	380500	1041343 1031800 1025510	JUL	23 24 24	1942	40000	. 2	18917	UNKNOWN UNKNOWN UNKNOWN	P P R	2 1 2	7	IWEST BIJOU CREEK NR. BYERS, COLORADO PURGATOIRE RIVER AT HIGHLAND DAW NR. LAS ANIMAS, COLORADO ARKANSAS RIVER AT CADDOA, COLORADO ARKANSAS RIVER BELOW JOHN MÁRTIN RÉSERVOIR, COLORADO		No 1942 Predp. CO
BENT ARAPAHOE LAS ANIMAS	6712500	360500 393542 373211	1025510 1044844 1033606	JUN	16 17	1965 1965	39900 38900	4	336 387	UNKNOWN GOOD	- R P		6 7	CHERRY CREEK NEAR MELVIN, COLORADO CHACUACO CREEK NR. LA JUNTA, COLORADO	159 159 138	7
LAS ANIMAS LAS ANIMAS SEDGEWICK	7126000 6764000	405846	1041842 1040730 1021515	JUL JUN	19 22 20	1954 1965		24 1 1	1320 23138	GOOD UNKNOWN UNKNOWN	P P R	22	7 6	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO PURGATOIRE RIVER NR. ALFALFA, COLORADO SOUTH PLATTE RIVER AT JULESBURG, COLORADO CÁDDOA CREEK AT CADDOA, COLORADO	159	7
BENT DOUGLAS PROWERS	7131000	380340 392230 375705	1025505 1045735 1022605	JUN S JUN	16 17	1965 1965		1	108 62.5	POOR FAIR	P R P		6 7	WEST PLUM CREEK NR. SEDALIA, COLORADO WOLF CREEK NR. GRANADA, COLORADO	159 159	7
LOGAN LAS ANIMAS PROWERS	7124500	380140		APR MAY	15 23 15	1965 1942 1951	35000 34000	1	795 817	FAIR UNKNOWN UNKNOWN UNKNOWN	₽. ₽.	!	7	PAWNEE CREEK NR. STERLING, COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO TWO BUTTES CREEK NR. HOLLY, COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO	159 131 72	Peak Indirect Q
LAS ANIMAS OTERO LARIMER LARIMER	7124500 6738000	380138	1034730 1051334	JUL	22 31 31	1965	31670	1	305	UNKNOWN POOR POOR	P R		7 6 6	PURCATORIE RIVER AT TRIMINAD, COLORADO ARKANSAS RIVER AT SWINK, COLORADO BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO BIG THOMPSON RIVER BELOW DRAKE, COLORADO	159 198 198	j
DOUGLAS ADAMS LAS ANIMAS	6720500 7125100	392000 395512	1044500 1045218	AUG JUN	17	1933 1965	30000 29600	2	175 4713	UNKNOWN UNKNOWN FAIR	Ř R P	12_	. 6 6 7	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO SOUTH PLATTE RIVER AT HENDERSON, COLORADO FRIJOLE CREEK NEAR ALFALFA, COLORADO	87 159 207	l
LARIMER PROWERS LAS ANIMAS	7126000	402539 380509	1052031 1023148	JUL MAY	31 15 18	1976 1951	28200 27500	!	189 228	POOR UNKNOWN GOOD	R		6 7	BIG THOMPSON ABY, DRAKE, COLORADO CLAY CREEK NR. LAMAR, COLORADO PUNGATOIRE RÍVER NR. ALFALFA, COLORADO	198 131	2
LARIMER WELD PUEBLO	7115500	402505 404200	1051202 1033900	JUL JUN	31 15 28	1976 1965	27000 26700		311 387	POOR GOOD UNKNOWN		1 1	6 7	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO PAWNEE CREEK NR. STONEHAM, COLORADO HUERFANO RIVER NR. UNDERCLIFFE, COLORADO	198 159 95	7
LAS ANIMAS LAS ANIMAS BENT	7125500 712600	370902 391100	1043230 1040830	MAY JUL	19	1955	26400 26300	24	766 160	UNKNOWN UNKNOWN	P P	1	7 7	PURGATOIRE RIVER AT JANSEN, COLORADO SAN FRANCISCO CREEK NR. ALFALFA, COLORADO PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	138	
OTERO	712650				<u> </u>	1949				UNKNOWN	- P	<u>li i</u>	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO	129 129	

											Extreme	Streamflow	D010 D03	•			
YTALIO	STATION	LATITUDE	LONGITUDE	MONTE	H DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	ום	ESCRIPTIONAOCATION	CCC STORM LIST	COMMENTS
	NUMBER				.	· ·	L		AREA			 	ļ	∤-		NOMBER	
JERFANO	3443255	375100	1044200	Jania -	14	1942	(FT3/S) 26000		(SQ MI)	UNKNOWN	R	12	7	· #	UERFANO RIVER NEAR MUSTANG, COLORADO		
NVER	7113500	394648	1045404		· 'š	1957	25500	·i	187	UNKNOWN	R		6	Ī.	AND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	142	
AS ANIMAS		370745	1040050	JUL	22	1954	25100	24		UNKNOWN	P		7	11	RINCHERA CREEK NR. TRINCHERA, COLORADO SUNTAIN CREEK AT SECURITY, COLORADO		
L PASO	7105800	384346	1044000		24	1965	25000	1		POOR	R		 '	- 12	OWA CREEK AT BENNETT, COLORADO	159	
RAPAHOE	6756300	394454	1042446		. 18	1965 1953	24900 24300	24	236	POOR	<u>R</u>	-	·-·	∤ĝ	ROOKED ARROYO NR. LA JUNTA, COLORADO	137	?
TERO KORGAN	1	375955 400600	1033500		12	1965	24300			GOOD	₩	7	··· 6		EAVER CREEK NEAR BRUSH, COLORADO	159	7
ROWERS	 	180156	102370		18	1965	24300	1		FAIR	Ρ		7		ILLOW CREEK NR. LAMAR, COLORADO	159	2
VEBLO	7099200	382019	104562		21	1965	23900	1		UNKNOWN	P			♣	RKANSAS RIVER NR. PORTLAND, COLORADO RKANSAS RIVER NR. PUEBLO, COLORADO		
PUEBLO	7099500	381602 380733			22	1965 1978	23500 23300	23		FAIR POOR		- 2-·	+		RKANSAS RIVER AT CATLIN DAM NR. FOWLER, COLORADO		
OTERO OTERO	7119700	375720	1034320			1958	23000			UNKNOWN	<u>P</u> -		7	Ť	IMPAS CREEK AT CATLIN SYPHON NR. ROCKY FORD, COLORADO		
L PASO	7106000	383608	1044013		28	1940	22100	1_		UNKNOWN	P		<u>?</u> _		OUNTAIN CREEK NR FOUNTAIN, COLORADO		· · · · · · · · · · · · · · · · · · ·
BENT	7124000	380508	1031250		19	1965	22100	<u>4</u>		GOOD	<u>P</u>	<u>-</u>	6		RKANSAS RIVER AT LAS ANIMAS, COLORADO OUTH PLATTE RIVER AT DENVER, COLORADO	88	.`
DENVER	6714000	394535 380040	1050010 1033830		10	1933	22000 21480	24		GOOD	<u></u>	·	7		IMPAS CREEK AT MOUTH NR. SWINK, COLORADO	159	7
LAS ANIMAS	`	370825	104331		23			4		UNKNOWN	P				URGATOIRE RIVER AT PIEDMONT BRIDGE, COLORADO		
AS ANIMAS		371712	104184		16					GOOD	<u>P</u>	2			URGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO T. CHARLES RIVER NR. PUEBLO, COLORADO	159 138	·
PUEBLO	7108500	381220			19		20600 20000			UNKNOWN FAIR	<u>P</u>		· - 'é	ş	VEST KIOWA CREEK AT ELBERT, COLORADO	159	7
ELBERT LAS ANIMAS	5758100 7125000	391238 371450	104321		16			2		POOR	P	1	7	P	URGATOIRE RIVER NR. HOEHNE, COLORADO	159	
LAS ANIMAS	1 123000	370828	104355	3 MAY	19	1955	19800	2	691	UNKNOWN	P		7	<u> </u>	URGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO	138	
ELBERT	6758200	392000	104290		- 17	1965	19700	4		UNKNOWN	<u>R</u>		· · · ·		IOWA CREEK AT KIOWA, COLORADO IG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
LARIMER	6741500	402355 394605	105061		- ;3	1951 1965	19000	}		UNKNOWN	<u>R</u>		6		AND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	159	
DENVER ADAMS	h	394952			17					FAIR	Ř	1	6	S	OUTH PLATTE RIVER AT DERBY, COLORADO	159	
MORGAN	6758500	401920	103551		19	196	18800			NIKNOWN	<u>R</u>	2	<u>6</u>		OUTH PLATTE RIVER NR. WELDONA, COLORADO PISHAPA RIVER NR. FOWLER, COLORADO	159	<u></u>
OTERO	7119500	380528			10	197		24		FAIR	<u>P</u> -		· · · · · · · · · · · · · · · · · · ·		OUNTAIN CREEK AT PUEBLO, COLORADO		
PUEBLO YUMA	7108500	381620 395338			!?					GOOD	R	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	6	8	LACK WOLF CREEK NEAR WRAY, COLORADO	151	
BENT	7126500	380202		0 JUL	23			1		UNKNOWN	Р		7		URGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
BENT	7128500	380202	103120		27	1960		1		FAIR	R				URGATOIRE RIVER NR. LAS ANIMAS, COLORADO URGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	ļ	
BENT	7128000	375500 380300		O JUL	23					UNKNOWN	P		7		VOLF CREEK NEAR GRANADA, COLORADO		
PROWERS OTERO	7119500	380526		2 MAY	19	195				UNKNOWN	P		7	```' Ā	PISHAPA RIVER NR. FOWLER, COLORADO	138	
PUEBLO	7116000	380000	104280	o JUL		195	8 16600	22		FAIR	P	!	. 7	}	IUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO IUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
PUEBLO	7116000	380000			26	195 194		<u>2</u>		FAIR	P R	1	· / 7		OUNTAIN CREEK AT PUEBLO, COLORADO		
PUEBLO OTERO	7106500	381620 375900		O JUL	21			1		UNKNOWN	P	12	7		ING'S ARROYO NR. LA JUNTA, COLORADO		
PUEBLO	7108500				26		16100	1	460	UNKNOWN	Ē.		7		T. CHARLES RIVER NR. PUEBLO, COLORADO	159	<u> </u>
ARAPAHOE		39433		4 JUN	16					UNKNOWN	R	- I - -	6		OLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO URGATOIRE RIVER AT TRINIDAD, COLORADO	159	7
LAS ANIMAS LAS ANIMAS	7124500	37101		I JUN I3 JUL	17					GOOD GOOD	<u>F</u>		7		LKALI ARROYO NR. TRINCHERA, COLORADO	1	
LAS ANIMAS	7125500	371110		O MAY	19	195				UNKNOWN	P		7		AN FRANCISCO CREEK NR. ALFALFA, COLORADO	136	ļ
OTERO	7121000					195				FAIR	<u>R</u>	. 2	- 7]	IMPAS CREEK AT CATLIN SYPHON, COLORADO RIKANSAS RIVER NR. AVONDALE, COLORADO	ļ	
PUEBLO	7109500				30	197 195				POOR	<u>P</u>				(IOWA CREEK AT KIOWA, COLORADO		
ELBERT YUMA	6758200 5825000			AUG	··· - 7					GOOD	R	2	6		SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	163	?
OTERO	7119500		103585	2 AUG	15	194	2 14700			NIKNOWN	e				APISHAPA RIVER NR. FOWLER, COLORADO	·	
PROWERS		36050		t8 JUL	. !?	196				B GOOD B GOOD	P	- · · · ·			LAY CREEK NR. LAMAR, COLORADO PINEY CREEK NR. MELVIN, COLORADO	155)
ARAPAHOE LARIMER	673950	39363 40271		35 JUN 50 AUG		196 195				1 POOR	K -		6		BUCKHORN CREEK NEAR MASONVILLE, COLORADO	13:	
LAS ANIMAS	712550			50 JUN	1 10	196	5 14000	4	16	FAIR	P		7		SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	159	<u> </u>
LA PLATA	935350	37230	0 10734	30 JUL	2	195	7 13800		27	GOOD	R	+			OS PINOS RIVER NR. BAYFIELD, COLORADO BEEBE DRAW NR. AUBURN, COLORADO	- 	
WELD		40223		25 APR 00 AUG		2 <u>197</u> 3 194			171	FAIR DUNKNOWN	R P	12			HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
PUEBLO LAS ANIMAS	711600			OUL	2					UNKNOWN	1 - 5 -		7		FRIJOLE CREEK NEAR ALFALFA, COLORADO	1	144-2
MORGAN		40223	8 103373	36 SEP		195	13400	4		POOR	R.		6	[DEADHORSE CREEK NEAR SNYDER, COLORADO	133	3 Whay?
ADAMS		39452		04 JUN	!9	196				3 GOOD 5 UNKNOWN	- R		6		SAND CREEK AT SABLE AVE. AURORA, COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO		7 Front Range, not SW
LAS ANIMAS	712450	37101 37260		30 SEP		6 190 7 196				3 FAIR			7		BEAR CREEK NEAR SPRINGFIELD, COLORADO	15	9 7
BACA LARIMER	· [- ·····	40235	A	05 JUI.		198	13100			POOR	R		6		FALL RIVER BLW. CASCADE DAM ABV, ESTES PARK, COLORADO		Lawn Lake Falure
PUEBLO	711050	38155	0 10422	30 AUG	2 20 1	194				UNKNOWN	R.		- - ?		CHICO CREEK NEAR NORTH AVONDALE, COLORADO LANDSMAN CREEK NR. HALE, COLORADO		
YUMA	682550	0 39343 37085		18 JUN 18 JUN	2	0 197 7 196				8 POOR 5 FAIR	. R		7	·	RATON CREEK AT STARKVILLE, COLORADO	15	9 7
LAS ANIMAS PROWERS		38053		55 JUN		194			22	8 UNKNOWN	1 P		7		CLAY CREEK NR. LAMAR, COLORADO	1	
PROWERS		37597	0 10216	50 JUN		7 196	1260	1	17	7 FAIR			7		GRANADA CREEK NR. GRANADA, COLORADO	15	alt
LAS ANIMAS	712630	0 37213	10353	44 AUG		1 197				5 FAIR	- R		. 7		PURGATOIRE RIVER NR. THATCHER, COLORADO APISHAPA RIVER NR. FOWLER, COLORADO	1	
OTERO LARIMER	711950	0 38052 40380		52 JUL 00 AUG		6 19: 3 19:			112	UNKNOWN	R	12	6		CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	13	3 Wrsy?
LARIMEN. LOGAN		40342		56 SEP		7 19	1200	4		POOR	R	2	. 6	` "	PAWNEE CREEK NEAR LOGAN, COLORADO	.	3 Weby?
MESA		39094	10818	41 JUL		8 19	74 1200			6 GOOD	g.				JERRY CREEK NR. CAMEO, COLORADO CADDOA CREEK AT CADDOA, COLORADO		
BENT	713100			05 AUG	-	9 19	56 1180 60 1170			1 UNKNOWN			- '		WEST CREEK NR. GATEWAY, COLORADO	10	4
MESA JEFFERSON	ľ	38460 39454		00 JUL 20 JUN		6 19 7 19	1160		-	2 UNKNOWN	Ŕ	2	ě		TUCKER GULCH AT GOLDEN, COLORADO		
BENT	712950			OO JUN	<u> </u>	3 19				5 UNKNOWN	P	1			RULE CREEK NR. CADDOA, COLORADO	12	āl

COUNTY		LATITUDE	ONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTIONALOCATION	CCC STORM LIST	COMMENTS
	NUMBER			4	[-	·- ·- · · · · · · · · · · · · · · · · ·	E1325		AREA		L · {		·		NUMBER	· :
LAS ANIMAS	1 . 1	370700	1043500	APR	23	1942	(FT3/S) 11500		(SQ MI)	UNKNOWN	Р	·	7	LONG CANYON NR. SOPRIS, COLORADO		
BENT	7128500	380202	1031200		29	1950	11500	···· i		UNKNOWN	P	- ··· -	7	PURGATOIRE RIVER NR LAS ANIMAS, COLORADO		
LAS ANIMAS	7124200	370748	1043820	AUG	10	1961	11500	i .		FAIR	٩		7	PURGATOIRE RIVER AT MADRID, COLORADO	210	?
LAS ANIMAS		370757	1043600		23	1942	11400	1		UNKNOWN	P			PURGATOIRE RIVER AT LONGS CANYON, COLORADO		····
LARIMER	4415256	402300	1050146 1035852		3	1951 1965	11400	🛊	2272	UNKNOWN FAIR	<u>R</u>		🗧	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO APISHAPA RIVER NR. FOWLER, COLORADO	133	3
OTERO PUEBLO	7119500	380528	1042800		19	1955	11300			FAIR	- F			HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	138	^
LAS ANIMAS	7124500	371015	1043031			1961	11200			FAIR	F	! (' 7 ·	PURGATOIRE RIVER AT TRINIDAD, COLORADO		
PUEBLO	7115500	380200	1042500		7	1938	11000	5		UNKNOWN	P	<u>1</u>	7	HUERFANO RIVER NR. UNDERCLIFFE, COLORADO		
PUEBLO	7106500	381620	1043540		14	1942	11000	1	926	UNKNOWN	R	2	. <u>7</u>	FOUNTAIN CREEK AT PUEBLO, COLORADO		
ARAPAHOE	1	394016	1040554		3	1951	11000			пикиоми	. <u>R</u>	2		MIDDLE BIJOU CREEK NR. DEER TRAIL COLORADO	133	
PUEBLO ARAPAHOE	7106500 6712500	381620 393542	1043540			1941 1963	10921			GOOD	· - K	2		FOUNTAIN CREEK AT PUEBLO, COLORADO CHERRY CREEK NEAR MELVIN, COLORADO		
LAS ANIMAS	7125100	371200	1041140		17	1965	10600	· · 		GOOD	<u>i</u>		7	FRUOLE CREEK NEAR ALFALFA, COLORADO	159	7
PROWERS	[- (! ! # ' ' ' ' '	380425	1022625		17	1965	10600	1		GOOD	P		7	SMITH ARROYO NR. GRANADA, COLORADO	159	?
PROWERS	7136000	380245	1020705		17	1965	10600	1		UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	159	?
YUMA	6825500	393432	1021506		_ 23	1969	10600	!		POOR	<u>R</u>		6	LANDSMAN CREEK NR. HALE, COLORADO	183 65	, ⁷
LARIMER	6739500	402715	1051150		15	1923	10500	23		UNKNOWN	- R	2		BUCKHORN CREEK NEAR MASONVILLE, COLORADO TOLL GATE CREEK AT E. 8TH AVE., NR. AURORA, COLORADO	147	j
ARAPAHOE EL PASO	·	394332 390105	1043200		17	1965	10400	43		FAIR		·f	0	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO	159	
HUERFANO	7111000	374340	1052110		2	1951	10200			UNKNOWN	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO		1337 LC Ft Collins date?
BENT	7128500	380202	1031200	JUL	12	1951	10000	1	3503	UNKNOWN	P		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
OTERO	7121000	375720	1034320		12	1953	10000	1	451	UNKNOWN	Ř	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	137	7
REMONT	ļ	383000	1055100		. 29	1978	9960	1	· <u></u>	POOR	<u>R</u>	1		BADGER CREEK NR. HOWARD, COLORADO		
ARAPANOE	8712500	393618	1044919		26 31	1957 1976	9950 9670	[POOR	P		6	CHERRY CREEK NEAR MELVIN, COLORADO NORTH FORK BIG THOMPSON TRIB, NR. GLEN HAVEN, COLORADO	···· ;	
LARIMER		370720	1002004		19	1955	9650			UNKNOWN	·		7	LONG CANYON NR. SOPRIS, COLORADO	138	·
YUMA	6825000	393700	1024300		13	1962	9610	4		FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
OTERO	7121000	375720	1034320		24	1950	9510			FAIR	Ř	22	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO		
LARIMER		404715	1051508		31	1976	9460	1		POOR	R		<u>§</u>	NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	198	
LAS ANIMAS MESA	·	370653 390328	1043118		19	1955	9400 9290			FAIR	- G		<u>/</u>	RATON CREEK AT STARKVILLE, COLORADO NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	202	
DOUGLAS	6712000	392130	1044550		<u></u> 5	1945	9170	5		UNKNOWN	R	2	š~··	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
LĀS ANIMĀS		371200	1042900		19	1955	9000	11		UNKNOWN	P	1	7	POWELL ARROYO NR. EL MORO, COLORADO	138	
MONTROSE	9177000	102125	1084240		6	1970	6910	1		POOR	R		9	SAN MIGUEL RIVER AT URAVAN, COLORADO	188	
PROWERS	أمَّهُ مَعْدُدًا	380230	1022030		15	1951	8800	1		UNKNOWN	P		7	WOLF CREEK NR. GRANADA, COLORADO PURGATOIRE RIVER NR. ALFALFA, COLORADO	131	Data 2
LAS ANIMAS LARIMER	7126000	371130 402620	1040730		10	1953	8740 8710			UNKNOWN FAIR	·		É	NO. FK, BIG THOMPSON RIVER ABY, DRAKE, COLORADO	198	Pare /
LARIMER	· · · · ·	402344	1052734		31	1976	6700			POOR	Ŕ	-	6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	198	
BENT		380523	1031824		18	1965	8600	4		GCOD	P		7	ADOBE CREEK NR. LAS ANIMAS, COLORADO	159	7
LARIMER		402301	1053258		15	1982	8520	1		POOR	R		6	FALL RIVER ABV. ESTES PARK, COLORADO		Lawn Lake Fallre
FREMONT	ļ. ļ	382806	1052240		27	1961	8500	1	_ 4.8	POOR	P		?	MCINTYRE GULCH NR. PARKDALE, COLORADO	•	•··-··· · · · · · · · · · · · · · · · ·
PROWERS JEFFERSON	6710500	380343 393911	1020745 1051142		٠.,	1949	8340 8110	. 4	164	UNKNOWN		2		WILD HORSE CREEK ABY, HOLLY, COLORADO BEAR CREEK AT MORRISON, COLORADO	86	
LARIMER	81 10300	403715	1051045		3	1951	8000		10-1	UNKNOWN	R	- · * · - ·	6	DRY CREEK ABY, BELLVIEW, COLORADO	133	<u> </u>
ARCHULETA	9349500	371320	1072032			1970	7980	· - i	371	POOR	R	-	9	PIEDRA RIVER NR. PIEDRA, COLORADO	188	
LAS ANIMAS	1	370100	1011200		17	1965	7960		32.1		P	1,	7	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	159	?
BENT	7126500	380202	1031200		19	1950	7950	. ! .		UNKNOWN	₽		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		(z
PROWERS	7134300 6759000	375230 401453	1022854		23	1969	7880 7840] -		UNKNOWN	<u> -</u>	2	<u>I</u>	WOLF CREEK NR. CARLTON, COLORADO BIJOU CREEK NEAR WIGGINS, COLORADO	183	/
MORGAN DOUGLAS_	6709500	392904	1050007		44	1994	7700			UNKNOWN	<u>\$</u>			PLUM CREEK NR. LOUVIERS, COLORADO		
ADAMS	9,09,00	394600	1045000		···· š	1957	7660	6		FAIR	Ř	i -	6	SAND CREEK NR. AURORA, COLORADO	142	
DOUGLAS		393157	1044735	AUG	3	1963	7620	1	13.6	FAIR	R		6	NEWLIN CREEK NR. PARKER, COLORADO		
LARIMER		405550	1052057		31	1976	7400	1		POOR	<u>R</u>		<u> </u>	DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	198	
EAGLE	9061450	394312	1070230		12	1976	7390			FAIR	R			SWEETWATER CREEK AT MOUTH NR. DOTSERO, COLORADO CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	198	· · · · · · · · · · · · · · · · · · ·
LARIMER BACA	6752000	403952 371900	1051326 1023600		- 17	1976 1965	7340 7330			FAIR	<u>6</u>		7	LONE ROCK DRAW NR. SPRINGFIELD, COLORADO	159	7
DOLORES	9168100	375236	1083457		24	1977	7270			FAIR	Ř		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
LARIMER	1	402344	1052617		31	1976	7210	, <u>, , </u>		POOR	Ŗ		<u> </u>	DARK GULCH AT GLEN COMFORT, COLORADO	198	
LARIMER	122200	402405	1053618		15	1982	7210]	POOR	Ŗ.		ē	FALL CREEK ABV. CASCADE DAM ABV. ESTES PARK, COLORADO		Lawn Lake Fallure
LA PLATA	9352900	372639	1073235		31	1970	7050 7000	}-	72.1		R	12		VALLECITO CREEK NR. BAYFIELD, COLORADO COLORADO RIVER NR. COLORADO UTAH STATE LINE	188	
MESA PUEBLO	9163500	390900 381900	1085700 1045300		19					UNKNOWN FAIR	G P	···· 3.2.	7	ORMAN'S GULCH NR. SWALLOWS, COLORADO	j <u></u>	
LARIMER	j · · ·i	402433	1052507		31	1976	6950	····· i ··		POOR	Ř	!	····÷	BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	198	
LARIMER	i i	402325	1052600	JUL	31	1975	6910		3.37	POOR	R		6	NOELS DRAW AT GLEN COMFORT, COLORADO	198	
PUEBLO	1	381127	1040832		13	1963	6840	23		FAIR	Ρ	ļ <u>-</u>	7	KRAMER CREEK AT COLORADO 96 NR. NEPESTA, COLORADO		ļ
LARIMER	1100000	404600	1051400		-31	1930	6800 6800	<u>- </u>		UNKNOWN		1		NO. FK. CACHE LA POUDRE RIVER AT LIVERMORE, COLORADO	 - · ·	
EL PASO RIO BLANCO	9306255	383608	1044013		30	1954 1978	6800			POOR	M		<u>-</u>	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO	202	
LAS ANIMAS	7125500	371110	1040750		;	1964	6680	·		FAIR	m		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	1	
PUEBLO	7108500	381220	1043140		19	1942		<u> </u>		UNKNOWN	P	2	7	ST. CHARLES RIVER NR. PUEBLO, COLORADO		
YUMA	6825000	393700	1021430		12	1951	6660	_ 1		FAIR	R		6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
ARCHULETA	9342500	371558	1070037		. 6	1976	6580			GOOD	_ <u>R</u>		9	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	188	
EL PASO	7105800	384346	1044400		11	1972	6520 6520	 		FAIR GOOD	<u>P</u>		- 1/2 -	FOUNTAIN CREEK AT SECURITY, COLORADO HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO		f
HUERFANO	7111000	374340 394552	1002103		3	1972	6450	-		FAIR	R	ļ	, i	SAND CREEK ABY, TOLL GATE CREEK NR. AURORA, COLORADO	142	
MESA	9179500				6	1970	6350			POOR	<u></u>	1	<u>š</u>	DOLORES RIVER AT GATEWAY, COLORADO	188	

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COLNTY	STATION	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTIONALOCATION	CCC STORM LIST	COMMENTS
	NUMBER		l						AREA		T T				NUMBER	
	l		1				(FT3/S)		(SQ MI)		T					
WELD		404500	1034800	JUN	14	1965	6280	1	62.3	GOOD	R	1	6	NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	159	7
LAS ANIMAS	7126200	372045	1035727	MAY	26	1965 1967	6240	1	166	FAIR	P		7	VAN BREMER ARROYO NR. MODEL, COLORADO		
LAS ANIMAS	7126000	371130	1040730	JUL	11	1953	6230	1	1320	UNKNOWN	"p"		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	137	,
JEFFERSON	6710500	393911	1051142	SEP	Ž	1938	6200	1		UNKNOWN		2	8	BEAR CREEK AT MORRISON, COLORADO	102	'
WELD	1	401029	1045847	AUG	· 3	1951	6200	4		UNKNOWN	R	·· 2 1		IST, VRAIN CREEK NR. LONGMONT, COLORADO		
CLEAR CREEK	6716500	394540	1053906		4.	1956	6130	725	145	UNKNOWN	- R	3	-	CLEAR CREEK NR. LAWSON, COLORADO		
LAS ANIMAS	7126200	372045	1035727	AUG	. š	1979	6050		168	POOR	R		7 ~	VAN BREMMER ARROYO NR. MODEL, COLORADO		
PUEBLO	7116000	380000	1042800	AUG	13	1946	6000	1	1673	UNKNOWN	R	12	7	HUERFANO R. BLW. HENO VLY DAM NR. UNDERCLIFFE, COLORADO		
LAS ANIMAS	7125000	371450	1042450	JUL	22	1954	5920	12	857	UNKNOWN	P 1		7	PURGATOIRE RIVER NR. HOEHNE, COLORADO		
PROWERS	[380300	1020300	JUN		1949	5900	14		UNKNOWN	Ř	i	7	CHEYENNE CREEK NEAR HOLLY, COLORADO		
YUMA	6825000	393659	1021432	MAY	. ž	1977	5900	1	1300	GOOD	Ř	2	6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
JEFFERSON	6719500	394505	1051455	SEP		1933	5900 5890	·· i ·· -		UNKNOWN	[2	6	CLEAR CREEK NR. GOLDEN, COLORADO	88	
WELD	6753500	404600	1044725	JUN	14	1965	5810	13	199	FAIR	R		6	LONE TREE CREEK NR. NUNN, COLORADO	159	7
LARIMER	6739500	402715	1051150		30	1948	5750	1	131	UNKNOWN	F		<u>6</u> -	BUCKHORN CREEK NEAR MASONVILLE, COLORADO	125	
MONTROSE	9169500	381837	1085305	SEP	6	1970	5710	1 7	1910	GOOD	Ř		· · · · · · · · · · · ·	DOLORES RIVER AT BEDROCK, COLORADO	188	
BOULDER	I	400453	1051114	AUG	3	1951	5700	1		UNKNOWN	R		6	DRY CREEK NR. NIWOT, COLORADO	133	
LARIMER	6752260	403517	1050408	ÁUĞ	1	1951 1976	5700		1127	FAIR] <u>E</u>]		~~ ē "	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO	198	
OTERO		374225	1032420		19	1955	5660	· · · i	291	UNKNOWN	1 P 1		7	SMITH CANYON NR NINAVIEW COLORADO	138	,
SAN MIGUEL	9175900	380532	1083717	SEP	_ 5	1970	5660	··· 🕶 :	85.9	POOR	R		9	DRY CREEK NR. NATURITA, COLORADO	188	
LAS ANIMAS		370847	1043300	APR	23	1942	5630	1		UNKNOWN	P		7	PURGATOIRE RIVER AT RATON CREEK, COLORADO		
DENVER		394707	1045413	MAY	6	1973	5630	4	187	UNKNOWN	1 1 1 1	***	6	SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO	194	
LAS ANIMAS		370850	1043210		23	1942	5580	1		UNKNOWN	P		7	RATON CREEK NR. TRINIDAD, COLORADO		
PROWERS	<u> </u>	380509	1023148	MAY	20	1955	5500	1	228	UNKNOWN "	P		7	CLAY CREEK NR. LAMAR, COLORADO	138	
LARIMER		402346	1052404	JUL	31	1976	5500	1		POOR	R		6	LONG GULCH NR. DRAKE, COLORADO	198	
LARIMER	6733000	402242	1053048		15	1982	5500 5420 5380	2	137	POOR	1		6	BIG THOMPSON RIVER AT ESTES PARK, COLORADO		Lawn Lake Failure
FREMONT	l[382313	1050657	JUN		1949	5420	4		UNKNOWN	[~ P ~ [7	COAL CREEK AT FLORENCE, COLORADO	129	
DOUGLAS	6712000	392130	1044550	JUL	30	1957	5380	1	169	GOOD	R		6	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
WELD	[·	403800	1043000] 15	1965	5340	4	73.1	FAIR UNKNOWN	Ř	1	6	COAL CREEK NR. BRIGGSDALE, COLORADO	159	7
ARAPAHOE	6712500	393618	1044919		31	1956	5310	1			R		6	CHERRY CREEK NEAR MELVIN, COLORADO	159	
MONTEZUMA	9371000	370200	1084300		14	1941	5300	. 1	550	UNKNOWN	G [1	9	MANCOS RIVER NR. TOWAGC, COLORADO		Max Q at Location/Indirect
LAS ANIMAS	7124350	370913	1043402		10	1981 1957	5300 5250	1		FAIR	P		7	CARPIOS CANYON NEAR JANSEN, COLORADO		
EL PASO	6757600	390400	1043455		30		5250	1		GOOD	R		6	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	143	
MONTEZUMA	9166500	372815	1083015		6	1970	5190	1	556	GOOD	R		9	DOLORES RIVER AT DOLORES, COLORADO	188	
BENT	7128000	375500	1031600		28	1943 1981 1981	5175 5100	. 1		UNKNOWN	P	i	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
LAS ANIMAS	7124100	370756	1044624		10	1981	5100		4 23	POOR	P		7	MOLINO CANYON NR. WESTON, COLORADO	210	7
LÁS ANIMÁS	7124100	370756	1044824	AUG	10		5100		4 23	POOR	P		· · · · · · · · · · · · · · · · · · ·	MOLINO CANYON NR. WESTON, COLORADO	210	7
BENT		380504	1032110		18	1985	5070	23		POOR	P		7.	HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO	159	<u> </u>
LAS ANIMAS	7129100	373357	1031026		28	1971	5040	1		UNKNOWN			7	RULE CREEK NR. NINAVIEW, COLORADO		·
MONTROSE	l l	382904	1075947		27		5030	1	30.4	POOR	G		9	COAL CREEK WEST OF MONTROSE, COLORADO		
PROWERS	I. Ī	380300	1020700	MAY	15	1951	5000	1		UNKNOWN	1 p 1	1	7	WILD HORSE CREEK NR. HOLLY, COLORADO	131	

· · · · ·					SCHARG SORTEL			ENTS IN COLOR	ADO								
																CCC STORM LIST	COMMENTS
COUNTY		NUMBER	LATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE (FT3/S)	TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTIONACCATION	NUMBER	COMMENTS
JEFFERSON		6710500			NUC	. 2	1867	3-13/31		(ŞQ MI) 164	UNKNOWN	R	2	- 6	BEAR CREEK AT MORRISON, COLORADO		
LARIMER LAS ANIMAS	-	6752000 7124500	403955 371010	1051310 1043030	SEP	20 6	1909	57200 13300		1055 795	UNKNOWN	R	2	6 7	CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS. COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO	34	? Front Renge, not SW
PROWERS LARIMER		7133000 6739500	360617 402715	1023701 1051150	JUN	. 15	1921 1923	130000 10500	<u>į</u>		UNKNOWN	R	2	. 7 6	ARKANSAS RIVER AT LAMAR, COLORADO BUCKHORN CREEK NEAR MASONVILLE, COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO	65	<u>ok?</u>
LAS ANIMAS OTERO BOULDER		7124500 6742000	371005 375900 401530	1043110 1033200 1051215	JUL	22 21 10	1925 1927 1930	33000 16450 3620			UNKNOWN UNKNOWN	P	_12	7	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO		
LARIMER DENVER	.	6714000	404600 394535	1051400 1050010	MAY	31 10	1930 1933	6800 22000	1	541 3604	UNKNOWN	R	1 2	6	NO. FK. CÁCHE LA POUDRE RIVER AT LIVERMORE, COLORADO SOUTH PLATTE RIVER AT DENVER, COLORADO	88	
DOUGLAS JEFFERSON	-	6710500	392000 393911	1044500 1051142	júi.	7	1933 1933	30000 8110		164	UNKNOWN	R	12	6	CHERRY CREEK AT CASTLEWOOD DAM, COLORADO BEAR CREEK AT MORRISON, COLORADO CLEAR CREEK NR. GOLDEN, COLORADO	86 86	
JEFFERSON OTERO PUEBLO		6719500 7126500 7115500	394505 374400 380000	1051455 1032900 1042800	SEP	15 28	1933 1934 1936	5890 45000 26640		2900	UNKNOWN UNKNOWN	R	1	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO HUERFAND RIVER NR. UNDERCLIFFE, COLORADO	89 95	7
CONEJOS		8238000 8247500	371210 370000	1061200	AUG	20	1936 1936	313 1260		98	UNKNOWN	R	12	8	LA JARA CREEK AT GALLEGOS RANCH NR. CAPULIN, COLORADO SAN ANTONIO RIVER NR. ORTIZ, COLORADO		
COSTILLA RIO GRANDE		8241500 8220500	372600 373520	1052400 1062650	ÂÚG	31	1936 1936			53	UNKNOWN	R	12	8	SANGRE DE CRISTO CREÉK NR. FORT GARLAND, COLORADO PINOS CREEK NR. DEL NORTE, COLORADO NORTH CRESTONE CREEK NR. CRESTONE, COLORADO	<u> </u>	
SAGUACHE SAN JUAN LA PLATA		9362000	380100 374900 371610	1054100 1074000 1075315	JUL	18		547		10.7	UNKNOWN UNKNOWN	R	12	9	CEMENT CREEK NR. SILVERTON, COLORADO LIGHTNER CREEK NEAR DURANGO, COLORADO	94	? probably not
ARAPAHOE JEFFERSON		6711500 6710500	393908 393911	1050157 1051142	SEP	2	1938 1938	6200		164	UNKNOWN UNKNOWN	R	2	6	BEAR CREEK AT MOUTH AT SHERIDAN , COLORADO BEAR CREEK AT MORRISON , COLORADO	102 102	
HUERFANO PUEBLO ARAPAHOE		7112500 7115500 6711500	374340 380200 393908	1050045 1042500 1050157	JUN	17 7 25	1938 1938 1940	11000	1 .	1702	UNKNOWN UNKNOWN	R	1 2	7	HUERFANG RIVER AT BADITO, COLORADO HUERFANG RIVER NR. UNDERCLIFFE, COLORADO BEAR CREEK AT MOUTH AT SHERIDAN , COLORADO		
EL PASO HUERFANO		7106000 7112500	383608 374340	1044013 1050045	MAY	28 21	1940	22100 1310		676 532	UNKNOWN	P R		7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO HUERFANO RIVER AT BADITO, COLORADO		
HUERFANO MESA		7112500	374340 384600	1050045 1085300 1084300	JUL	3 16 27		11700	1	23	UNKNOWN UNKNOWN	R G	2	ا ۋا	HUERFANO RIVER AT BADITO, COLORADO WEST CREEK NR GATEWAY, COLORADO MANCOS RIVER NR TOWAOC, COLORADO	104	
MONTEZUMA MONTEZUMA DOUGLAS		9371000 9371000 6712000	370200 370200 392130	1084300	SEP	13	1940			550	UNKNOWN	Ğ	<u> </u>		WANCOS RIVER NR. TOWAOC, COLORADO CHERRY CREEK NEAR FRANKTOWN, COLORADO	ļ -	
BENT		7131000 7129500	380340 380000	1025505 1030400	AUG	11 22	1941 1941		<u>î</u> .	435	UNKNOWN	R P	. Ž	7	CADDOA CREEK AT CADDOA, COLORADO RULE CREEK NR. CADDOA, COLORADO		
OTERO PUEBLO PUEBLO		7121000 7110500 7106500	375720 381550 381620	1034320 1042230 1043540	AUG	27 27 26	1941	3100 13000 10921		864	UNKNOWN POOR	R	2	7	TIMPAS CREEK NR ROCKY FORD, COLORADO CHICO CREEK NEAR NORTH AVONDALE, COLORADO FOUNTAIN CREEK AT PUEBLO, COLORADO		
LÁ PLATÁ LÁ PLATÁ		9365500	371720 371610	1080205	SEP	22		1880 1480			UNKNOWN	R		9	LA PLATA RIVER AT HESPERUS, COLORADO LIGHTNER CREEK NEAR DURANGO, COLORADO	107	?
MONTEZUMA MONTEZUMA		9371000 9371500	370200 371900	1084300	SEP	14 22	1941	5300 4540		233	UNKNOWN	R R	12	9	Mancos River nr. Towacc, colorado McElmo Creek near Cortez, colorado Disappointment creek nr. Cedar, colorado	107	Max Q at Location/indirect
SAN MIGUEL BENT BENT		9168500 7130500 7130500	375446 380500 380500	1083858 1025510 1025510	APR	26 24 24		40000	1 2	18917	UNKNOWN UNKNOWN	P R		- 77	ARKANSAS RIVER AT CADDOA, COLORADO ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLORADO		No 1942 Fredp. CO
BENT HUERFANO		7128000 7113500	375500 375100	1031800 1044200	APR AUG	24 14	1942 1942	60000 26000	. 1	3376 803	UNKNOWN	P.	12		PURGATOIRE RIVER AT HIGHLAND DAM, NR. LAS ANIMAS COLORADO HUERFANO RIVER NEAR MUSTANG, COLORADO		
LAS ANIMAS LAS ANIMAS LAS ANIMAS	.		370700 370757 370825	1043500 1043600 1043315	APR	- 23 - 23 - 23		11400		104	UNKNOWN UNKNOWN	P		/	LONG CANYON NR. SOPRIS, COLORADO PURGATOIRE RIVER AT LONGS CANYON, COLORADO PURGATOIRE RIVER AT PIEDMONT BRIDGE, COLORADO		
LAS ANIMAS LAS ANIMAS		7124500	370847 371015	1043300 1043030	APR	23 23	1942	5630			UNKNOWN	P		7	PURGATOIRE RIVER AT RATON CREEK, COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO		Peak Indrect Q
LAS ANIMAS OTERO		7119500	370850 380526	1043210 1035852 1032900	AUG	23 15 23	1942	14700	1	1125	UNKNOWN UNKNOWN	P		7.	RATON CREEK NR. TRINIDAD, COLORADO ANISHAPA RIVER NR. FOWLER, COLORADO PURGATOIRE RIVER AT NINEMILE DAM NR HIGBEE, COLORADO		
OTERO OTERO PUEBLO		7126500 7121000 7106500	374400 375720 381620	1034320 1043540	AUG	14		4300 11000		451	ONKNOWN	R	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO FOUNTAIN CREEK AT PUEBLO, COLORADO		
PUEBLO BENT		7108500 7128000	361220 375500	1043140	JUN	19 28	1943	6670 5175	1	468 3376	UNKNOWN	P	1 1	7	ST CHARLES RIVER NR. PUEBLO, COLORADO PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		
HUERFANO PUEBLO		7113500 7115500	375100 380000	1044200 1042800 1045840	AUG	16	1943 1943	3700		1710	UNKNOWN UNKNOWN	R P	12	7 7	HUERFANO RIVER NEAR MUSTANG, COLORADO HUERFANO RIVER NR. UNDERCLIFFE, COLORADO CHERRY CREEK AT DENVER, COLORADO		
DENVER DOUGLAS DOUGLAS		6712000 6709500	394315 392130 392904	1044550 1050007	AUG	5	1945	9170	<u>5</u>	169	UNKNOWN ONKNOWN	R	2 2	6	CHERRY CREEK NEAR FRANKTOWN, COLORADO PLUM CREEK NR. LOUVIERS, COLORADO		
HUERFANO PUEBLO		7113500 7106500	375100 361620	1044200 1043540) JUL	10	1945 1945	3500	1 5	800	UNKNOWN	R	1 .1	7	HUERFANO RIVER NEAR MUSTANG, COLORADO FOUNTAIN CREEK AT PUEBLO, COLORADO		

COUNTY		LATITUDE	LONGITUDE	MONTH	DAY	YEÁR	DISCHARGE	TYPE	DRAINAGE RATING	FILE	NOTE	PART	DESCRIPTIONACCATION	CCC STORM LIST	COMMENTS
	ŅŲMĢER						(FT3/S)		AREA (SQ MI)					NUMBER	
PUEBLO	7116000	380000	1042800	AUG] j	1945	13500	1	1710 UNKNOWN	P	12	7.7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
GUNNISON GUNNISON		383357 383353	1063827 1063804		31	1945 1945	750 460		0.7 UNKNOWN 0.2 UNKNOWN	R	2	9	FLICK GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO UNNAMED GULCH TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO	 	
GUNNISON	1	383413	1063730	jül	31	1945	940	<u>i</u>	5 1 UNKNOWN	R	2	9	WILLOW CREEK TRIB. TO QUARTZ CREEK NEAR OHIO, COLORADO		
SAN MIGUEL JEFFERSON	9175000	375800 393808	1061900		24	1945	850 1200	1	27.7 UNKNOWN 50.1 UNKNOWN	R	12	6	NATURITA CREEK NR. NORWOOD, COLORADO TURKEY CREEK NEAR MORRISON, COLORADO	 	
PUEBLO	7106500	301620	1043540	AUĞ	26	1946	16500	5	926 UNKNOWN	R	2	<u> 7</u>	FOUNTAIN CREEK AT PUERLO, COLORADO		
PUEBLO DELTA	7116000	380000 384430	1042800		13	1946 1947	6000 3500		1673 UNKNOWN	R	12	9 .	HUERFANO R. BLW. HENO VLY DAM NR. UNDERCLIFFE, COLORADO UNCOMPANGRE RIVER AT DELTA, COLORADO		· · · · · · · · · · · · · · · · · · ·
ADAMS		394422	1043500	MAY	30	1948	4700	1	UNKNOWN	R	2	6	BOXELDER CREEK NEAR WATKINS, COLORADO		Same date as Ft. Collins?
JEFFERSON LARIMER	6739500	394545 402715	1051320 1051150		30	1948	11600 5750		11.2 UNKNOWN		2	<u>6</u>	TUCKER GULCH AT GOLDEN, COLORADO BUCKHORN CREEK NEAR MASONVILLE, COLORADO	126	
BOULDER	6742000	401530	1051215	JUN	6	1949	3500	1	101 UNKNOWN	R		6	LITTLE THOMPSON RIVER NEAR BERTHOUD, COLORADO	129	
LARIMER BENT	6741000 7128000	402300 375500	1051430 1031800		4	1949	330 26100	1	15.1 POOR 3376 UNKNOWN		·		COTTONWOOD CREEK NR. PINEWOOD, COLORADO PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	129	
BENT	7129500	380000	1030400	JUN	5	1949	11600	1	435 UNKNOWN	P	<u>i</u>	7	RULE CREEK NR. CADDOA, COLORADO	129	
FREMONT	7126500	382313 374400	1050657 1032900		<u></u>	1949 1949	5420 26100		2900 UNKNOWN	<u>P</u>			COAL CREEK AT FLORENCE, COLORADO PURGATOIRE RIVER AT NINEMILE DAM NR, HIGBEE, COLORADO	129	
OTERO	7121000	375720	1034320	JUN	1	1949	1300	1	451 UNKNOWN	Ř	2	7	TIMPAS CREEK NR. ROCKY FORD, COLORADO	129	
PROWERS PROWERS		380300 380533	1020300 1023155		I	1949 1949	5900 12600	1,1	UNKNOWN 228 UNKNOWN	<u>R</u>	1	·	CHEYENNE CREEK NEAR HOLLY, COLORADO CLAY CREEK NR. LAMAR, COLORADO	<u> </u>	
PROWERS		380326	1020701	JUN		1949	1830		UNKNOWN	R		ļ <u>ž</u>	HOLLY DRAIN AT HOLLY, COLORADO	129	?
PROWERS	· 	380140 360343	1020820		·	1949 1949	8340		817 UNKNOWN UNKNOWN	<u>P</u>		7	TWO BUTTES CREEK NR. HOLLY, COLORADO WILD HORSE CREEK ABV. HOLLY, COLORADO		
PROWERS	7136000	380245	1020706	MÁŸ		1949		1	272 UNKNOWN	P		j''	WILD HORSE CREEK AT HOLLY, COLORADO		No 4060 Production
ARAPAHOE MORGAN	6759000	394549 401453	1041407		17	1950 1950	1600		. UNKNOWN 1420 UNKNOWN	R		6-	BIJOU CREEK AT BYERS, COLORADO BIJOU CREEK NEAR WIGGINS, COLORADO		No 1950 Predp. CO
BENT	7128500	380202	1031200	AUG	29	1950	11500	1	3503 UNKNOWN	<u> </u>		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
BENT FREMONT	7128500	360202 362700	1031200		19	1950 1950	7950 778		3503 UNKNOWN 432 UNKNOWN	R		7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO OIL CREEK NR. CANON CITY, COLORADO		
HUERFANO	7112500	374340	1050045	jüt	5	1950	445		532 UNKNOWN	Ř.		7	HUERFANO RIVER AT BADITO, COLORADO		
HUERFANO OTERO	7112500	374340 375720	1050045 1034320		20 24	1950 1950	620 9510		532 UNKNOWN 451 FAIR	R R		1 · · · · · · · · · · · · · · · · · · ·	HUERFANO RIVER AT BADITO, COLORADO TIMPAS CREEK NR. ROCKY FORD, COLORADO	·	
PUEBLO	7116000	380000	1042800	JUL	26 26	1950 1950	16700 16100	2	1673 FAIR 468 UNKNOWN	P	1	7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO		
PUEBLO ARAPAHOE	/108500	381220	1043140		3	1950	1200		. UNKNOWN	R		6	LITTLE DRY CREEK ENGLEWOOD, COLORADO	133	
ARAPAHOE		394016	1040554	AUG	3	1951	11000		. UNKNOWN	R	22	6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	133	
ARAPAHOE BOULDER		394303 400453	1041343		3	1951 1951	41000 5700		UNKNOWN	R	2	6	WEST BIJOU CREEK NR. BYERS, COLORADO DRY CREEK NR. NIWOT, COLORADO	133	
BOULDER	6742500	400700	1051800		3	1951	785	1	48 FAIR	<u>R</u>	1_	6	LEFTHAND CREEK NEAR BOULDER, COLORADO BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
LARIMER LARIMER	6741500	402355	1050610		3	1951			515 UNKNOWN UNKNOWN	R		6	BIG THOMPSON RIVER NEAR LOVELAND, COLORADO	133	
LARIMER	6739500	402715	1051150	AUG	3	1951	14000	1	131 POOR UNKNOWN	R		6	BUCKHORN CREEK NEAR MASONVILLE, COLORADO CACHE LA POUDRE RIVER AT LAPORTE, COLORADO	133	
LARIMER LARIMER	6740000	403800	1050800 1051335		3	1951 1951			7.43 UNKNOWN		12		CHIMNEY HOLLOW DRY CREEK NEAR PINEWOOD, COLORADO	133	
LARIMER	6741000	402300			3	1951	2260 8000	!	15.1 GOOD UNKNOWN	R		6	COTTONWOOD CREEK NR. PINEWOOD, COLORADO DRY CREEK ABV. BELLVIEW, COLORADO	133	
LARIMER LARIMER	6734500	402210	1051045		25	1951 1951	1480		16.9 POOR			6	FISH CREEK NR. ESTES PARK, COLORADO	1	
LARIMER	6740500	402210	1051715		. 3	1951	350	2	3.42 POOR	R		6	RATTLESNAKE CREEK NR. PINEWOOD, COLORADO	133	Wray?
LOGAN MORGAN		403424	1032056 1033324		7	1951	12000	2	POOR UNKNOWN		?		PAWNEE CREEK NEAR LOGAN, COLORADO ANTELOPE CREEK NEAR SNYDER, COLORADO	133	Whay?
MORGAN		402238			7	1951		4	POOR	R		6	DEADHORSE CREEK NEAR SNYDER, COLORADO LONE TREE CREEK NR. NUNN, COLORADO	133	Wray?
WELD	6753500	404600	1044725 1045847		$-\frac{3}{3}$	1951 1951	239 6200	4	199 UNKNOWN	R	<u> </u>	6	ST. VRAIN CREEK NR. LONGMONT, COLORADO	133	
YUMA	6625500	393440	1021450	JUL	12	1951	3110		268 UNKNOWN	<u>R</u>		6 -	LANDSMAN CREEK NR HALE, COLORADO SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	-	
YUMA BENT	6825000 7128000	393700 375500			12 23	1951 1951			1300 FAIR 3376 UNKNOWN		1-1-	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO		· · · · · · · · · · · · · · · · · · ·
BENT	7128500	380202	1031200	JUL	12	1951	10000	[3503 UNKNOWN 3503 UNKNOWN	P		17	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO		
FREMONT	7128500 7096500	380202 382700		JUL	11	1951		<u> </u>	432 GOOD	R		1	OIL CREEK NR. CANON CITY, COLORADO		
HUERFANO HUERFANO	7111000 7112500	374340 374340	1052110	AUG	Ž	1951	10200		73 UNKNOWN 532 UNKNOWN	P		ļ <u>?</u>	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO HUERFANO RIVER AT BADITO, COLORADO	2	133? LC Ft. Collins date? 133? LC Ft. Collins date?
PROWERS	112300	380509	1023148	MAY	15	1951	27500	<u> </u>	228 UNKNOWN	<u>P</u>		<u></u>	CLAY CREEK NR. LAMAR, COLORADO	131	
PROWERS PROWERS		380140			15	1951 1951		1 1	817 UNKNOWN UNKNOWN	<u>P</u>	1	7	TWO BUTTES CREEK NR. HOLLY, COLORADO WILD HORSE CREEK NR. HOLLY, COLORADO	-	
PROWERS	1	380230	1022030	MAY	15	1951	1 8800		116 UNKNOWN	P	<u> </u>	7	WOLF CREEK NR. GRANADA, COLORADO	13	
MINERAL GARFIELD	9093500				27	1 <u>95</u> 1			35.3 UNKNOWN 200 UNKNOWN	R		8 9	MILLOW CREEK AT CREEDE, COLORADO PARACHUTE CREEK AT GRAND VALLEY, COLORADO	- 	133 ? Certral AZ?
MONTEZUMA	9372000	371927	1090054	AUG	29	1951	1700		. 350 UNKNOWN	Ř		į	MCELMO CREEK NR. COLORADO UTAH LINE		
SAN MIGUEL CLEAR CREEK	9175000				3	195		1 1	27.7 UNKNOWN	R	 	9	NATURITA CREEK NR. NORWOOD, COLORADO CLEAR CREEK NEAR LAWSON, COLORADO	-	
MORGAN	6759000				22	1952		<u> </u>	1314 UNKNOWN	Ř	1	j š	BIJOU CREEK NEAR WIGGINS, COLORADO		

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COUNTY		TATION	LATITUDE	LONGITUDE	MONT	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE AREA	RATING	FILE	NOTE	PART	DESCRIPTIONALOCATION	CCC STORM LIST	COMMENTS
LAS ANIMAS MONTROSE		7126000 9179000	371130 382605	1040730		13 10	1952 1952	(F13/\$) 3440 885			UNKNOWN FAIR	 P R		7 9	PURGATOIRE RIVER NR. ALFALFA. COLORADO ROC CREEK NEAR URANIUM, COLORADO		
DENVER DOUGLAS		6713500 6709500	394458 392904 374340	1050008 1050007 1050045	JUL	29	1953 1953 1953	2050 2700 2050	1	319	UNKNOWN FAIR UNKNOWN	- R R	2		CHERRY CREEK AT DÉNVER, COLORADO PLUM CREEK NR. LOUVIERS, COLORADO HUERFANO RIVER AT BADITO, COLORADO		
HUERFANO LAS ANIMAS LAS ANIMAS		7112500 7126000 7126000	371130 371130	1040730	JUN	16	1953	8740 6230	<u>ř</u>	1320 1320	UNKNOWN	<u>P</u>	,	7	PURGATOIRE RIVER NR. ALFALFA, COLORADO PURGATOIRE RIVER NR. ALFALFA, COLORADO	137	
OTERO OTERO		7121000	375955 375720 380000	1033513 1034320 1042800	JUL	12	1953 1953 1953	24300 10000 3340	1	451	FAIR UNKNOWN UNKNOWN		12	7	CROOKED ARROYO NR. LA JUNTA, COLORADO TIMPAS CREEK NR. ROCKY FORD, COLORADO HUERFANO R. BLW. HENO VLY DAM NR. UNDERCLIFFE, COLORADO	137	
PUEBLO GARFIELD MONTEZUMA		7116000 9092000 9371000	393710 370200	1074545 1084300	JUL	18 30	1953 1953	758 4300		140 550	NUKNOWN	R		9	RIFIE CREEK NR. RIFLE, COLORADO MANCOS RIVER NR. TOWAOC, COLORADO MCELMO CREEK NR. COLORADO UTAH STATE LINE		See 1941 pesk Q
MONTEZUMA MONTEZUMA SAN MIGUEL		9372000 9371500 9168500	371900 371900 375400	1090100 1084000 1083800	JUL	31 29	1953 1953 1953	459 694 1430		233	UNKNOWN UNKNOWN	. G R	12	9 9	MCELMO CREEK NR. CORTEZ COLORADO DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
ARAPAHOE DOUGLAS		6712500 6712000	393620 392130	1044915 1044550	AUG	15	1954 1954	450 2620	1	169	UNKNOWN FAIR UNKNOWN	R		6	CHERRY CREEK NEAR MELVIN, COLORADO CHERRY CREEK NEAR FRANKTOWN, COLORADO KIOWA CREEK AT KIOWA, COLORADO		No 1945 Predp. CO
ELBERT BENT EL PASO		6758200 7128000	392000 375500 390650	1042900 1031600 1041100	່ານເ	23	1954	15230 40300 44500	1	3376	NUKNOWN	P	† · - † ·	7	PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO BIG SANDY CRK AT STATE HIGHWAY NO. 208 AT RAMAH, COLORADO		
EL PASO LAS ANIMAS LAS ANIMAS		7106000	383608 371000 370911	1044013 1035613 1043222	JUL	30 22	1954 1954	6800 15500 3100	3	34.5	UNKNOWN GOOD UNKNOWN	P		7 7	FOUNTAIN CREEK NR. FOUNTAIN, COLORADO ALKALI ARROYO NR. TRINCHERA, COLORADO COLORADO CANYON NR. JANSEN, COLORADO		
LAS ANIMAS	-	7125100	371145 371200 371145	1041036 1041140	JUL	22 22 22	1954	13500		80	UNKNOWN UNKNOWN	P		77	DRAW NO. 2 AT U.S. HIGHWAY 180, NEAR TRINIDAD, COLORADO FRIJOLE CREEK NEAR ALFALFA, COLORADO NO. 1 DRAW AT U.S. HIGHWAY 180, NEAR TRINIDAD, COLORADO		
LAS ANIMAS LAS ANIMAS LAS ANIMAS		7126000 7125000	371130 371450	1040730 1042450	JUL	22	195	37890 5920	12	857	UNKNOWN UNKNOWN	P		7	PURGATOIRE RIVER NR. ALFALFA. COLORADO PURGATOIRE RIVER NR. HOEHNE, COLORADO SAN FRANCISCO CREEK NR. ALFALFA, COLORADO		
LAS ANIMAS LAS ANIMAS MONTEZUMA		7125500 9371500	391100 370745 371900	1040050	JUL	22 22 20	1954 1954	25100 1280	24	129	UNKNOWN	P		7 9	TRINCHERA CREEK NR. TRINCHERA COLORADO MCELMO CREEK NEAR CORTEZ, COLORADO DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
SAN MIGUEL ARAPAHOE WELD		9168500 6711500 6743500	375446 393908 402007	105015	AUG	11	1954 1955 1955	1170	.1	260	GOOD UNKNOWN POOR	R	. 2 .	6 6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO LITTLE THOMPSON RIVER AT MILLIKEN, COLORADO		
WELD BENT BENT		6753500 7124000 7128000	404600 380508 375500	1031250	MÄY	20		44000	i . j	14417	FAIR UNKNOWN UNKNOWN	Rip ip	,	8 7 7	LONE TREE CREEK MR. NUNN, COLORADO ARKANSAS RIVER AT LAS ANIMAS, COLORADO PURGATOIRE RIVER AT HIGHLAND DAM NR. LAS ANIMAS, COLORADO	13E	Peak Q indrect
BENT LAS ANIMAS		7129500	380000 371000	103040 103561	MAY MAY	19	195: 195:	4810 1260	4	345	UNKNOWN GOOD UNKNOWN	P P	1	7 7	RIUE CREEK NR. CADDOA, COLORADO. LALKALI ARROYO NR. TRINCHERA, COLORADO BURRO CANYON AT MADRID, COLORADO.	136 136	
LAS ANIMAS LAS ANIMAS LAS ANIMAS	-		370730 373310 371712	103370	MÂY 3 MAY	- 19	195 195 195	5 3170 5 1140	1 2	387 12	UNKNOWN	P		7 7	CHACUACO CREEK NR. LA JUNTA, COLORADO CHICOSA CREEK NR. HOEHNE, COLORADO COLORADO CANYON NR. JANSEN, COLORADO	136	
LAS ANIMAS LAS ANIMAS LAS ANIMAS	.		370911 371145 370904		6 MAY	- - 1 - - 1	195 195 195	375	2,3	1.49	I NKHOMH I NKHOMH I NKHOMH	P		7	DRÁW NO. 2 ÁT Ú S. HIGHWAY 160, NEÁR TRINIDÁD, COLORADO GRASMACK ARROYO NR. TRINIDÁD, COLORADO	130	
LAS ANIMAS LAS ANIMAS		· .	371215 370100	104271 104284	0 MAY 5 MAY			1960 5 642	3.	4.5	UNKNOWN UNKNOWN	P		7	GRAY CREEK NR. TRINIDAD, COLORADO JOE CREEK NR. MORELY, COLORADO LONG CANYON NR. SOPRIS, COLORADO	13i	
LAS ANIMAS LAS ANIMAS LAS ANIMAS	 		370720 371145 371200	104110 104290	O MAY	-	9 195 9 195	5 187 5 9000	3	0.8	UNKNOWN	P	11_	7	NO. 1 DRAW AT U.S. HIGHWAY 160, NEAR TRINIDAD, COLORADO POWELL ARROYO NR. EL MORO, COLORADO PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO	130)
LAS ANIMAS LAS ANIMAS LAS ANIMAS			370610 370732 370902	104415 104323	O MAY		9 195 9 195 9 195	5 4400 5 26400	2	48! 76	NUKNOWN	P		1-7-	PURGATOIRE RIVER AT DIVERSION DAM AT VALDEZ, COLORADO PURGATOIRE RIVER AT JANSEN, COLORADO	130	
LAS ANIMAS LAS ANIMAS LAS ANIMAS		7126000	370826 37171 371130	104184	3 MAY 2 MAY 0 MAY	- -	9 195 9 195 9 195	37900	2.4	101	UNKNOWN GOOD UNKNOWN	P P	2	7-	PURGATOIRE RIVER AT LOPEZ DIVERSION DAM, COLORADO PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO PURGATOIRE RIVER NR. ALFALFA, COLORADO	130	B
LAS ANIMAS			37065 370030 370750	104311	8 MAY 0 MAY 4 MAY	. . 1	9 195 9 195 9 195	5 9400 5 400	3	60 5.2	FAIR TUNKNOWN TUNKNOWN	P		7 - 7 -	RATON CREEK AT STARKVILLE, COLORADO RATON CREEK AT UPPER U.S. HWY 85, 87 CROSSING, COLORADO RELLY CANYON AT COKEDALE, COLORADO	13	8
LAS ANIMAS LAS ANIMAS LAS ANIMAS		7125500	371110 37072	104075	O MAY	-	9 195 9 195 9 195	5 15500 5 1460	3	16 36	UNKNOWN GOOD UNKNOWN	P 12. P 16		7	SAN FRANCISCO CPEEK NR. ALFALFA, COLORADO SARCILLO CANYON NR. SEGUNDO, COLORADO APISHAPA RIVER NR. FOWLER, COLORADO	13	8 8
OTERO OTERO		7119500 7126500	37422	103290	MAY MAY MAY	_ _ i	9 195 9 195	5 80000 5 5660	2	2 <u>90</u> 29	I UNKNOWN	P	!	7	PURGATOIRE RIVER AT NINEMILE DAM NR. HIGBEE, COLORADO SMITH CANYON NR. NINAVIEW, COLORADO CLAY CREEK NR. LAMAR, COLORADO	13	8
PROWERS PROWERS PUEBLO		7116000	38050 38023 38000	0 102203	MAY MAY MAY	. 2	0 195 0 195 9 195	5 1420	0 1	11	8 UNKNOWN 6 UNKNOWN 3 FAIR	P	_	7	WOLF CREEK NR. GRANADA, COLORADO HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO	13	8
PUEBLO PUEBLO SAN MIGUEL		7108500 9168500	38011 38122	2 10443 0 10431	31 MAY 10 MAY 58 JUL	· [* i	9 195 9 195 7 195	5 365 5 2060	Õ i	1 48	5 UNKNOWN 8 UNKNOWN 7 UNKNOWN			7 . 7 . 9	MUDDY CREEK NR. PUEBLO, COLORADO ST. CHARLES RIVER NR. PUEBLO, COLORADO DISAPPOINTMENT CREEK NR. CEDAR, COLORADO	13	8
ARAPAHOE CLEAR CREEK		671250 671650	39361	6 10449	96 JUN 19 JUL		1 199 4 199	6 531	0 1	36	D UNKNOWN	R	3	6 6	CHERRY CREEK NE LAWSON, COLORADO CLEAR CREEK NE LAWSON, COLORADO		0

COUNTY	STA	ATIONIL	ATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTION/LOCATION	CCC STORM LIST	COMMENTS
		MBER								AREA	-					NUMBER	
BENT	يد ا	131000	380340	1025505	lana		1956	(FT3/S) 11800	14	(SQ MI)	UNKNOWN			-	CADDOA CREEK AT CADDOA, COLORADO	łi	
BENT		131000	380340	1025505		19	1956	2090			POOR	<u>þ</u>		·- ·· ; · ·	CADDOA CREEK AT CADDOA, COLORADO		
BENT		129500	380000	1030400		19		2300	1.		FAIR	P.	1	<u>Z</u>	RULE CREEK NR. CADDOA, COLORADO		
OTERO	. [7]	121000	375720	1034320		23		15500	1_		FAIR	<u>R</u>	2	7	TIMPAS CREEK AT CATLIN SYPHON, COLORADO		
PROWERS	- 1		380509	1023146		19		3860 1170			POOR UNKNOWN	<u>P</u>			CLAY CREEK NR. LAMAR, COLORADO WOLF CREEK NR. GRANADA, COLORADO	·	
PROWERS MONTROSE	نه ا	177000	380230 382125	1022030		!9	1956 1956	3490	12		UNKNOWN			<u>′-</u>	SAN MIGUEL RIVER AT URAVAN, COLORADO		
SAN MIGUEL	9	168500	375446	1083858		26		2060	4 -		UNKNOWN -	Ř		<u>\$</u>	DISAPPOINTMENT CREEK NR. CEDAR, COLORADO		
ADAMS	_		394552	1044937		9	1957	6450	4		FAIR	R		6	SAND CREEK ABV. TOLL GATE CREEK NR. AURORA, COLORADO	142	
ADAMS			394600	1045000		9	1957	7660	6		FAIR	R	1	<u>6</u>	SAND CREEK NR. AURORA, COLORADO	142	
ARAPAHOE	. 67	712500	393618	1044919		26		9950			POOR	R		6	CHERRY CREEK NEAR MELVIN, COLORADO TOLL GATE CREEK AT E. 6TH AVE., NR. AURORA, COLORADO	142	
ARAPAHOE DENVER			394332	1044904		8	1957 1957	10400 25500	23		UNKNOWN			<u>6</u>	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	142	
DOUGLAS	· 67	712000	392130	1044550		30		5360	- i		GOOD	R		6	ICHERRY CREEK NEAR FRANKTOWN, COLORADO		
EL PASO		757600	390400	104345		30			1	3.2	GOOD	<u>R</u> .		<u>§</u>	KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	143	
PROWERS			380300	1024200		27		2750			UNKNOWN	P		∤ ′	DRY CREEK NR. LAMAR, COLORADO FLORIDA RIVER AT BONDAD, COLORADO		
LA PLATA		363000 353500	371940 372300	107444		26	1957 1957	13800			GOOD	8		ž	LOS PINOS RIVER NR. BAYFIELD, COLORADO	1	
LA PLATA		363100	370820	1074510		. 6	1957	713	23	16.7	FAIR	R		9	SALT CREEK NR. OXFORD, COLORADO		_ ·
OURAY	j	146600	360850	107550	O JUL	29	1957	500 1390	1		UNKNOWN	<u> </u>		<u>9</u>	PLEASANT VALLEY CREEK NR. NOEL, COLORADO	·	
SAN MIGUEL		172000	375800	108010		1 4	1957		1		FAIR	R		 	FALL CREEK NR. FALL CREEK, COLORADO FRIJOLE CREEK NR. ALFALFA, COLORADO	 	No 1958 Predo CO
LAS ANIMAS OTERO	7	125100	371200 380528	104120 103585		21	1958	2310 12100]		POOR	<u>P</u>		†·· '	APISHAPA RIVER NR. FOWLER, COLORADO		
OTERO	- 4.5	113300	375720	103363		§	1958				UNKNOWN	P	l	17	TIMPAS CREEK AT CATLIN SYPHON NR. ROCKY FORD, COLORADO		
PROWERS			380300	102200	O MAY	13	1958	17100		116	FAIR	R	1_1_	7	WOLF CREEK NEAR GRANADA, COLORADO	ļ	
PUEBLO		116000	380000	104280		<u>5</u>	1958			1673	FAIR	<u>P</u>	<u> </u>	} 7	HUERFANO R. BLW. HFNO VLY DAM NR. UNDERCLIFFE, COLORADO DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	 	
DOLORES		168100	375236	108345		1. 15	1958	824 854			FAIR	R	ļ -	ļ	FLORIDA RIVER AT BONDAD, COLORADO		
LA PLATA MESA	9:	363200	370320 390437	107521 108315		15	1956				UNKNOWN	··Ĝ	7	- ğ	INDIAN WASH AT GRAND JUNCTION, COLORADO		
EL PASO	+ 7	103700	385117	104523		5	1959			102	UNKNOWN	Р		77	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
LAS ANIMAS	ž	125500	371110	104075	O JUN	29					GOOD	<u> </u>	ļ <u>-</u>	ļ <u>7</u>	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	-	
DOLORES		168100	375236		AUG	1	1959				FAIR UNKNOWN	<u>R</u>		5	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
EAGLE DENVER		060800	395122 394020	104584	3 AUG	+	1959 1960				FAIR	R		 	HARVARD GULCH AT STATE CHILDRENS HOME, DENVER, COLORADO		No 1960 Predp. CO
OTERO	·-·- ··- -	119500	380528	103585		13					POOR	P		7 -	APISHAPA RIVER NR. FOWLER, COLORADO]	
GRAND		041100	401426		3 MAR	27		148	1 -		FAIR	R		9	ANTELOPE CREEK NR. KREMMLING, COLORADO		
LA PLATA		363100	370820		0 MAR						FAIR	R		9	SALT CREEK NR. OXFORD, COLORADO KIOWA CREEK AT BENNETT, COLORADO		
ARAPAHOE	6	758300	394454	104244		11			1		FAIR POOR			<u>6</u>	NORTH ST. VRAIN CREEK TRIB. NR. LYONS, COLORADO	·	
BOULDER DOUGLAS		712000	401344 392130	105165 104455		31	1961				FAIR		 		CHERRY CREEK NEAR FRANKTOWN, COLORADO	1	
DOUGLAS	[*		392217	104445		- 3i				16.9	POOR	R		6	RUSSELLVILLE GULCH NR. FRANKTOWN, COLORADO		
GILPIN			394548	105270	6 JUL	8	1961	727			FAIR	<u>R</u>		6	RUSSELL GULCH NR. BLACKHAWK, COLORADO		
YUMA		825000	393700		MAY_	13					POOR	<u>R</u>	ļ	- - - -	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	<u> </u>	
EL PASO FREMONT	3	103700	385117 382908	104523		<u>11</u>					UNKNOWN	 -	ļ		ARKANSAS RIVER TRIB. AT PARKDALE, COLORADO		
FREMONT	.		382908	105232		· 27					GOOD	P	ļ	7	ARKANSAS RIVER TRIB. NO. 2 AT PARKDALE, COLORADO		
FREMONT	· · · [382806	105224	io Jul	27	196	8500		4.6	POOR	P	I	17.	MCINTYRE GULCH NR. PARKDALE, COLORADO		
LAS ANIMAS		124500	371015	104303		12					FAIR	<u>P</u>	·	·	PURGATOIRE RIVER AT TRINIDAD, COLORADO ALKALI CREEK NR. WOLCOTT, COLORADO	· -	
EAGLE	. 9	067300	394500		O AUG	. 26					POOR GOOD	- R	ļ <u>1</u>	ļ š - ·	INDIAN WASH AT GRAND JUNCTION, COLORADO	-	
MESA BOULDER			390437 400336	105075		30					FAIR	R	1	6	IGUNBARREL HILL DRAW NR. NIWOT, COLORADO		
BOULDER	:		400336		2 OCT		196			0.5	FAIR	R	1	6	GUNBARREL HILL DRAW NR. NIWOT, COLORADO		
YUMA	. J.		395338	102134	IO JUL	17	196	2 17800	1		GOOD	R	1	6	BLACK WOLF CREEK NEAR WRAY, COLORADO		
YUMA		825500	393430		OJUN	24					FAIR FAIR	<u>R</u>	·		LANDSMAN CREEK NR HALE, COLORADO SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
YUMA PROWERS	. 6	6825000	393700 380307		NUL OK	- 13	196				FAIR	R			CHEYENNE CREEK AT COLORADO-KANSAS LINE		
ARAPAHOE	- 	6712500	393542		AUG	1 3	196	3 10800	1		GOOD	Ŕ	1	6	CHERRY CREEK NEAR MELVIN, COLORADO		
ARAPAHOE	- `		393617	104510	5 AUG	· [196	3 3330	1	7.8	GOOD	Ŕ	1	. 6	COTTONWOOD CREEK ABV. CHERRY CREEK RESERVOIR, COLORADO		·
ARAPAHOE			393543		52 AUG	3	196				5 GOOD	<u>R</u>	?	- §	COTTONWOOD CREEK TRIBUTARY AT ARAPAHOE ROAD, COLORADO KIOWA CREEK AT BENNETT, COLORADO		
ARAPAHOE		6758300	394454		6 AUG		196				6 GOOD	R		<u>e</u>	KIOWA CREEK AT BENNETT, COLORADO		1
ARAPAHOE ARAPAHOE	6	6758300	394454	104501	19 AUG	2	2 <u>. 196</u> 3 196				3 GOOD			6	LONE TREE CREEK AT ARAPAHOE ROAD, COLORADO		
ARAPAHOE	. 1.		394332	104490	04 JUN		196	3 3920	3	35.	GOOD	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO		
DENVER			394020	104584	IO JUN	1	196				5 FAIR	1 <u>R</u>	1	+	HARVARD GULCH AT STATE CHILDRENS HOME, DENVER, COLORADO		<u> </u>
DENVER			394648		04 JUN	!	196				7 GOOD	R		- 6 ···	SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO NEWLIN CREEK NR. PARKER, COLORADO	- 	
DOUGLAS		256300	393157 392000		35 AUG 00 AUG	<u>2</u>	3 196 5 196				6 FAIR	R	· · · · · · · · · · · · · · · · · · ·	e	KIOWA CREEK AT KIOWA, COLORADO		
JEFFERSON		6758200 6730300	395240		36 JUN	1					GOOD	<u>R</u>	T	<u>6</u>	COAL CREEK NR. PLAINVIEW, COLORADO		
JEFFERSON	- 1.		394256	10506	48 JUN	. 1	196	3 968	3	3.2	2 FAIR	R	I	<u>6</u>	MCINTYRE GULCH AT DENVER FEDERAL CENTER, COLORADO		<u> </u>
YUMA		6825500	393430	102151	10 MAY	1	6 196				FAIR	Ŗ		<u>§</u>	LANDSMAN CREEK NR HALE, COLORADO LANDSMAN CREEK NR HALE, COLORADO		
YUMA		6825500	393430	1/1/2154	10 AUG	1 :	7 196	3 2020	1 1	1 26	a GOOD	: R	1	. 6	ARKANSAS RIVER TRIB, NR. LAS ANIMAS, COLORADO	1	f

	1		<u></u>	611619775	Title tree	iii kaa ii	VETE T	Discussion .	TYDE	INDAMAGE LOATING	EU C	NOTE	PART	DESCRIPTIONLOCATION	CCC STORM LIST	COMMENTS
COUNTY	STATI		III NOE	LONGITUDE	MONTH	IDAY [TEAR	DISCHARGE	TYPE	DRAINAGE RATING	FILE	l incie	1.7201	OCCUPANT OF STREET	NUMBER	
	NOWE	5 m	1					(FT3/S)		(SQ MI)						
BÉNT	7129	500	380000	1030400		18	1963	4480	[] [435 UNKNOWN	P	1.2	ļ <u>₹</u>	RULE CREEK NR. CADDOA, COLORADO		
TERO	7119	soo	380528	1035852		13	1963	2730	1	1125 FAIR	-			APISHAPA RIVER NR. FOWLER, COLORADO KRAMER CREEK AT COLORADO 96 NR. NEPESTA, COLORADO		
PUEBLO		.]	381127	1040832		13	1963	4720	. 23	160 FAIR 155 FAIR	<u>P</u>		-	KRAMER CREEK NR. NEPASTA, COLORADO		
PUEBLO	9149	500	381240 384430	1080450		20	1963 1963	1540	 	1110 GOOD	Ġ		9	UNCOMPANGRE RIVER AT DELTA, COLORADO		
SARFIELD	9092		393710	1074545		ğ	1963	1720	1	140 FAIR	R		9	RIFLE CREEK NR. RIFLE, COLORADO		
MESA	9163		390900	1085700		31	1963	7000	5	17900 UNKNOWN	G.	12	J 9	COLORADO RIVER NR. COLORADO UTAH STATE LINE		
AEŠĀ	9177		383100	1090700	-	10	1963	349	- }	12 POOR 268 FAIR	8	 		LANDSMAN CREEK NR. HALE, COLORADO		
/UMA	6825 7103		393430 385117	1021510 1045239		13 29	1964 1964	1650 672		102 FAIR	· 🖁		-	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	155	7
EL PASO	7103		385117	1045239		1 4	1964	2630	 	102 POOR	P		Z.	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO		
AS ANIMAS	7125		371110	1040750	ÁUG	7	1964	6580		160 FAIR	<u>P</u>		<u>Z</u>	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO CLAY CREEK NR. LAMAR, COLORADO		
PROWERS	1	-l.	380509	1023146		21	1964	3530	 	226 GOOD	<u>P</u>			CLAY CREEK NR. LAMAR, COLORADO		
PROWERS	9168	ا أمَمَهُ	380509 375236	1023148		17 30	1964 1964	14400 2240	} ·}· ·	145 FAIR	Ř		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		
DOLORES MESA	3100	'~	395700	1082900		ž	1964	3630	<u>i i i i i i i i i i i i i i i i i i i </u>	112 UNKNOWN	Ğ	1	9	EAST CREEK NR. WHITEWATER, COLORADO	450	
ADAMS			394016	1040552		17	1965	145000	!	190 FAIR	В		6	MIDDLE BIJOU CREEK NR. DEER TRAIL, COLORADO	159	
ADAMS	T		394524	1044904		16	1965		ļ <u>ļ</u>	113 GOOD 4598 FAIR	<u>R</u>		6	SAND CREEK AT SABLE AVE. AURORA, COLORADO SOUTH PLATTE RIVER AT DERBY, COLORADO	159	}
ADAMS	6720	500	394952 395512	1045653 1045214			1965 1965	18800 29600	····	4713 UNKNOWN		2	6	SOUTH PLATTE RIVER AT HENDERSON, COLORADO	159	
ARAPAHOE	6711		393908	105015		25	1965	2900	5	260 UNKNOWN	R		6	BEAR CREEK AT MOUTH AT SHERIDAN, COLORADO	165	·
RAPAHOE	6712		393542	104464	JUN	16	1965	39900	4	336 UNKNOWN	R	J	6	CHERRY CREEK NEAR MELVIN, COLORADO	159	}
ARAPAHOE		[_	393700	104030		- !?	1965	274000	├ !	302 FAIR 236 POOR	- R	 !		EAST BIJOU CREEK AT DEER TRAIL, COLORADO KIOWA CREEK AT BENNETT, COLORADO		
ARAPAHOE ARAPAHOE	6758	300	394454 393635	104244		18	1965 1965	24900 14100	13	21.9 GOOD	R	i	6	PINEY CREEK NR. MELVIN, COLORADO	159 159	
ARAPAHOE	6710	000	393710	1050110		16	1965	110000	4	3069 UNKNOWN	R	1	6	SOUTH PLATTE RIVER AT LITTLETON, COLORADO	159	
ARAPAHOE	1		394332	104490	4 JUN	18	1965			35.8 UNKNOWN	R		6	TOLL GATE CREEK AT E. 6TH AVE., AT AURORA, COLORADO	159	}
ARAPAHOE			394223	104140		- 17	1965	75500 18900		277 FAIR 187 FAIR	R	·		WEST BIJOU CREEK AT BYERS, COLORADO SAND CREEK BELOW TOLL GATE CREEK AT DENVER, COLORADO	159	
DOUGLAS	6712		394605 392130	104530 104455		16	1965 1965	1730		169 UNKNOWN	R		š	CHERRY CREEK NEAR FRANKTOWN, COLORADO		
DOUGLAS	6712	,,,,,	392417	104522		16	1965	126000	i	108 POOR	R		6	EAST PLUM CREEK NR. CASTLE ROCK, COLORADO	159	
DOUGLAS	6709	500	392904	105000	7 JUN	16	1965		1.1.	302 UNKNOWN	R		. 6	PLUM CREEK NR. LOUVIERS, COLORADO	159	
DOUGLAS	1		392230	104573		16		36800	ļ <u>1</u>	108 POOR	R	1.4	5	WEST PLUM CREEK NR SEDALIA, COLORADO KIOWA CREEK AT K-79 RES. NR. EASTONVILLE, COLORADO	159	7
EL PASO	6757 8757		390400 390618	104345		. 17 17				3.2 GOOD 1.12 GOOD	- Ü		<u>e</u>	KIOWA CREEK SUB WATERSHED NO. J-33 NR. EASTONVILLE, CO.	159	?
EL PASO ELBERT	675		391235	104320		- 17	1965			28.6 GOOD	R	1	6	KIOWA CREEK AT ELBERT, COLORADO	159	
ELBERT	6758		392000	104290		17	1965	19700	1.14.	111 UNKNOWN	Ř	1.1		KIOWA CREEK AT KIOWA, COLORADO	159	· · · · · · · · · · · · · · · · · · ·
ELBERT	875		390920	104311		17	1965			2.82 GOOD	R.		. 6	KIOWA CREEK SUB WATERSHED NO. 0-51 NR. ELBERT, COLORADO KIOWA CREEK SUBWATERSHED NO. 0-51 NR. ELBERT, COLORADO	159	
ELBERT	675	800	391003	104311		- 17	1965			0.59 FAIR 85.7 POOR	K .	1	6 .	WEST BIJOU CREEK NR. KIOWA, COLORADO	159	7
ELBERT	6756	100	391600 391238	101321		1 17	1965			35.9 FAIR	R	ļ -	6	WEST KIOWA CREEK AT ELBERT, COLORADO	159	
LOGAN	(""	''''	103700	103270		15			4	629 FAIR	R	1	6	PAWNEE CREEK NR. STERLING, COLORADO	159	
LOGAN	8760	000	402424			18	196			16852 FAIR	R		- 6	SOUTH PLATTE RIVER AT BALZAC, COLORADO BEAVER CREEK NEAR BRUSH, COLORADO		· · · · · · · · · · · · · · · · · · ·
MORGAN	1	- -	400800	103350		18	196			946 GOOD 1314 POOR	K	- '-	-	BUOU CREEK NEAR WIGGINS, COLORADO	159	917
MORGAN	675	išnā Ì	401517	103580	5 JUN	19				13245 UNKNOWN	Ř	2	6	SOUTH PLATTE RIVER NR. WELDONA, COLORADO	159	17
MORGAN SEDGEWICK	676		405846			20				23138 UNKNOWN	R	2		SOUTH PLATTE RIVER AT JULESBURG, COLORADO	159	
WELD			403800	104300	MULO	15	196			73.1 FAIR	. R		·	COAL CREEK NR. BRIGGSDALE, COLORADO	159	
WELD			404300			. 15	1965			633 POOR		-11	·	CROW CREEK NR. KEOTA, COLORADO LONE TREE CREEK NR. NUNN, COLORADO	- 15	
WELD	675	1000	404600		SJUN OJUN		196			82.3 GOOD		- i	ě	NORTH PAWNEE CREEK NR. NEW REYMER, COLORADO	15	
WELD	+		404200		NULION	15	196			387 GOOD	R	1	6	PAWNEE CREEK NR. STONEHAM, COLORADO	15	
BACA	1	†	372600	102370	CJUN	17	196	13200		113 FAIR	P	. !_	·	BEAR CREEK NEAR SPRINGFIELD, COLORADO	159	
BACA	1 -		371900		O JUN	17				106 UNKNOWN	P	- !-		LONE ROCK DRAW NR. SPRINGFIELD, COLORADO TWO BUTTES CREEK NR. SPRINGFIELD, COLORADO	15	
BACA	ļ		373800		NUL DO	17				453 GOOD 589 GOOD	<u>P</u>		· /	ADOBE CREEK NR. LAS ANIMAS, COLORADO	15	9 7
BENT	712	inon	380523		O JUN	18				14417 GOOD	P	1	7	ARKANSAS RIVER AT LAS ANIMAS, COLORADO	15	
BENT	713		380340		5 JUN	18	196			131 GOOD	P]	Ĩ	CADDOA CREEK AT CADDOA, COLORADO	15	9 ?
BENT		1000	380340	102550	5 MAY	24	196	5 1784	1	131 UNKNOWN	P		7	CADDOA CREEK NR. CADDOA, COLORADO	· · · · · · · · · · · · · · · · · · ·	9
BENT	J		380504		IO JUN	18				1300 POOR 3503 UNKNOWN	<u>P</u>			HORSE CREEK AT HIGHWAY 194, NR. LA JUNTA, COLORADO PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	15	
BENT	712	9400	380202 374900		MULIO	18				435 FAIR	<u>-</u> -	13	7	RULE CREEK NR. TOONERVILLE, COLORADO	15	
EL PASO	1,48	340n	390500		- 401 00	17		5 6070		49 FAIR	P	1	7	BIG SANDY CREEK NR CALHAN, COLORADO	15	
EL PASO	i	t	384225	10423	25 JUN		196	5 14100	0 1	353 GOOD	P		7	BLACK SQUIRREL CREEK NR. ELLICOTT, COLORADO		
EL PASO	·		390105		00 ากม		196	5 1040		16.3 FAIR	P	. 4	. 7 -	BLACK SQUIRREL CREEK NR. PEYTON, COLORADO FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO		5800	384346		00 JUL	24		5 2500 5 288		488 POOR 488 GOOD	R P			FOUNTAIN CREEK AT SECURITY, COLORADO	15	9 ?
EL PASO EL PASO	. / /19	5800	384346		00 JUL 00 JUN	24	196	371		GOOD	- - -	1	7	FOUNTAIN CREEK TRIB. NR. COLORADO SPRINGS, COLORADO		
EL PASO		-	384320	104384	45 JUN	1		5 12400	01	54 3 FAIR 20 7 FAIR	R P		Ž.	JIMMY CAMP CREEK NEAR FOUNTAIN, COLORADO		
EL PASO			385825	10452	37 JUN .		196	5 51	51		Ē		- 7	W MONUMENT CREEK BL STANLEY CANYON NR. PIKEVIEW, COLORAD ARKANSAS RIVER NR. COOLIDGE, KANSAS	Y 15	9 ? 9 7
HAMILTON	713	7500	360133		00 JUN	. !!				25410 POOR	P	1	. 4	ALKALI ARROYO NR. TRINCHERA, COLORADO		9 7
LAS ANIMAS	_[_		371000	10357	NUL 00	17	196	5 260	01 1	34.5 GOOD	<u> </u>	1_1	1	TALKALI ARKOTO NK. TRINCHERA, COLORADO	_112	Y11

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COUNTY	STATION	ATITUDE	LONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRÁINAGE	RATING	FILE	NOTE	PART	DESCRIPTIONA OCATION	CCC STORM LIST	COMMENTS
	NUMBER								AREA						NUMBER	······
AS ANIMAS		370730	1043859	JUN	- 17	1965	(FT3/S) 3120		(SQ MI) 28.3	FAIR	P			BURRO CANYON AT MADRID. COLORADO	159	,
AS ANIMAS		373211	1033606		17	1965	38900	······ •		GOOD	P		7	CHACUACO CREEK NR. LA JUNTA, COLORADO	159	7
AS ANIMAS		370538	1043119		17		1720	3		GOOD	P		7	CLEAR CREEK NR. STARKVILLE, COLORADO	159	
AS ANIMAS	7125100	371200			- 17		10600			GOOD	P		<u>?</u>	FRIJOLE CREEK NEAR ALFALFA, COLORADO	159	
LAS ANIMAS LAS ANIMAS		370904	1043045		1 17	1965 1965	1090 3540			FAIR GOOD			· /	GRASMACK ARROYO NR. TRINIDAD, COLORADO GRAY CREEK NR. TRINIDAD, COLORADO	159	
LAS ANIMAS		370100	1042845		17	1965	760	3		POOR			7	JOE CREEK NR. MORELY, COLORADO	159	7
ÀS ANIMAS		370720	1043520		17	1965	4480			FAIR	P	<u> </u>	7	LONG CANYON NR. SOPRIS, COLORADO	159	
AS ANIMAS		370800	1045100		16	1965	1920			GOOD	<u>R</u>	!		NORTH FORK PURGATOIRE AT WESTON, COLORADO	159	
AS ANIMAS	7124500	370800 371015	1044800 1043031		1/2	1965 1965	3000 15700			UNKNOWN GOOD				PURGATOIRE R. ABV. LORENCITO CANYON, NR. WESTON, COLORADO PURGATOIRE RIVER AT TRINIDAD, COLORADO	159 159	
ĀŠ ĀNIMĀŠ	1 127302	371712	1041842		16	1965	20900			GOOD		2	' 7	PURGATOIRE RIVER AT U.S. HIGHWAY 350 BRIDGE, COLORADO	159	
AS ANIMAS	7126000	371130			18	1965	27300	1		GOOD	P		7	PURGATOIRE RIVER NR. ALFALFA, COLORADO	159	7
LAS ANIMAS	7125000	371450			16	1965	20000			POOR	<u></u>		<u>7</u>	PURGATOIRE RIVER NR. HOEHNE, COLORADO	159	?
LAS ANIMAS	· ;	372130 370653	1041642 1043118		15	1965 1965	47700 12900			FAIR FAIR	P	2		PURGATOIRE RIVER NR. THATCHER, COLORADO RATON CREEK AT STARKVILLE, COLORADO	159	
AS ANIMAS	<u> </u>	370030	1042650		16	1965	4660			FAIR	- -		7	RATON CREEK NR. MORLEY, COLORADO	159	
AS ANIMAS		370758			16	1965	3410		36.7	UNKNOWN	P		7	REILLY CANYON AT COKEDALE, COLORADO	159	7
AS ANIMAS	7125500	371110	1040750		. 18	1965	14000	4		FAIR	P		7	SAN FRANCISCO CREEK NR. ALFALFA, COLORADO	159	
LAS ANIMAS LAS ANIMAS	·	370100	1041200 1044525		J !!	1965	7960 1630	!		GOOD	P	1	ļ <u></u>	SAN ISIDRO CREEK NR. TRINCHERA, COLORADO	159 159	
LAS ANIMAS	··	370800	1045100		}! <u>{</u>	1965	1340			UNKNOWN GOOD	P			SARCILLO CANYON NR. SEGUNDO, COLORADO SOUTH FORK PURGATOIRE RIVER AT WESTON, COLORADO	159	
LAS ANIMAS		370745	1040050	JUN	17	1965	4500	24		FAIR	P	ļ1	7	TRINCHERA CREEK NR. TRINCHERA, COLORADO	159	7
LINCOLN	i	385100	1033200	JUN	17	1965	3710	1	188	FAIR	P	1	7	SOUTH RUSH CREEK NR. KARVAŁ, COLORADO	159	7
OTERO	7119500	380526	1035852		117	1965	11400	4		FAIR	P	 	7	APISHAPA RIVER NR. FOWLER, COLORADO	159	
OTERO OTERO	7119700	380735 380138	1035640 1034730		36	1965 1965	43200 31670	2	10901	UNKNOWN UNKNOWN	P		7	ARKANSAS RIVER AT CATLIN DAM NEAR FOWLER, COLORADO ARKANSAS RIVER AT SWINK, COLORADO	159 159	
OTERO	÷	374225	1032420		18	1965			291	FAIR	<u></u> -		7	SMITH CANYON NR. NINAVIEW, COLORADO	159	
OTERO		380040	1033830		17	1965		24		GOOD	P	·	7	TIMPAS CREEK AT MOUTH NR. SWINK, COLORADO	159	
PROWERS		380715	1022850		17	1965	3600		2840		P	1	7	BIG SANDY CREEK NR. LAMAR, COLORADO	159	
PROWERS		380044	1023426		16	1965	156000			FAIR	<u>-</u>		7	CLAY CREEK NR. LAMAR, COLORADO	159	
PROWERS PROWERS	:	375920 380425	1021650		<u> </u> / ₇	1965 1965	12600			FAIR GOOD			— / 7····	GRANADA CREEK NR. GRANADA, COLORADO SMITH ARROYO NR. GRANADA, COLORADO	159 159	
PROWERS	i	380140	1020520		17	1965	182000	·		GOOD	P		7	TWO BUTTES CREEK NR. HOLLY, COLORADO	159	
PROWERS	7136000	380245	1020705		17	1965	10600			UNKNOWN	P		7	WILD HORSE CREEK AT HOLLY, COLORADO	159	
PROWERS	·	380156	1023707		18		24300			FAIR	<u>P</u>			WILLOW CREEK NR. LAMAR, COLORADO	159	
PROWERS PUEBLO	7117000	375705 381054	1022605			1965 1965	35300 43100	24	9345	FAIR				WOLF CREEK NR. GRANADA, COLORADO ARKANSAS RIVER NR. NEPESTA, COLORADO	159 159	
PUEBLO	7117000	361442			18	1965	104000			POOR	<u></u>	·	7	ARKANSAS RIVER NR. NORTH AVONDALE, COLORADO	159	
PUEBLO	7099200	382019	1045627	AUG	21	1965	23900	1		UNKNOWN	P		7	ARKANSAS RIVER NR. PORTLAND, COLORADO		
PUEBLO	7099500	381602	1043926		22	1965	23500	4		FAIR	Р		7	ARKANSAS RIVER NR. PUEBLO, COLORADO		
PUEBLO PUEBLO	7106500	381633 381900	1043909 1045300		!/	1965 1965	47000 7000			GOOD FAIR	P	 	7	FOUNTAIN CREEK AT PUEBLO, COLORADO ORMÁN'S GULCH NR. SWALLOWS, COLORADO	159	
DOLORES	9168100	375236	1083457		13	1965	4360		145	FAIR		·	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO	ļ	
EAGLE	9067300	394500	1064000	JUL	18	1965	985	2.4	27	UNKNOWN	R	1	9	ALKALI CREEK NR. WOLCOTT, COLORADO		
RIO BLANCO		400950	1082417		25	1965	1050	1	<u>. </u>	UNKNOWN	R		9	YELLOW CREEK NR. RANGELY, COLORADO		
BENT	7128500	380202			27		17300	1	3503		R	<u> </u>	7	PURGATOIRE RIVER NR. LAS ANIMAS, COLORADO	-	
LAS ANIMAS LAS ANIMAS	7126100 7126200	371816 372045	1040054 1035727		- 26 - 52	1967 1967	1060 6240			FAIR FAIR	~-₽ ~-		<u>/</u>	LUNING ARROYO NR. MODEL, COLORADO IVAN BREMER ARROYO NR. MODEL, COLORADO		
EAGLE	9058900	394337	1062850		27	1967	10			UNKNOWN	1	7	j ģ [MONIGER CREEK NR. MINTURN, COLORADO	†	
SARFIELD	9095000	392712	1081859	AUG	31	1967	1220	1	321	POOR	G G	2	9	ROAN CREEK NR. DE BEQUE, COLORADO		
AS ANIMAS	7126100	371816			3	1966	4830	1		FAIR	R	ļ	7	LUNING ARROYO NR. MODEL, COLORADO	·	
COSTILLA RIO GRANDE	8249400 8220900	371053 373444	1051914		- 5	1968 1968	327 754			FAIR FAIR	R	<u>+</u>	<u>0</u>	CULEBRA CREEK NR. CHAMA, COLORADO SAN FRANCISCO CREEK NR. DEL NORTE, COLORADO		
SAGUACHE	8229500	375600	1053842		32	1968				GOOD	<u>R</u>		-	COTTONWOOD CREEK NEAR CRESTONE, COLORADO	· [
SAGUACHE		380437	1054546	AUG		1968				GOOD	R	1	ā	RITO ALTO CREEK NEAR MOFFAT, COLORADO	177	7
EAGLE	9058900	394347	1062850	JUN	5	1968	12	5		UNKNOWN	Ğ	2	9	MONIGER CREEK NR. MINTURN, COLORADO		
À PLATA	9363100	370820	1074510		10	1000	237			G000	Ğ	 	9	SALT CREEK NR. OXFORD, COLORADO	· · · · · · · · · · · · · · · · · · ·	
BOULDER JEFFERSON	6711000	400608 393122	1052033		ļ <u>₹</u>	1969 1969	1970			GOOD FAIR	<u>R</u>		8	JAMES CREEK AT MOUTH NR. JAMESTOWN, COLORADO TURKEY CREEK NR. MORRISON, COLORADO	1 <u>79</u>	
YUMA	6825500	393432	1021506		23		10600	; :		POOR	- R -	J	6	LANDSMAN CREEK NR. HALE, COLORADO	183	
/UMA	6821400	395424	1021608	AUG	23	1969	2280	1	17.1	UNKNOWN	1	3		NORTH FORK BLACK WOLF CREEK NR. VERNON, COLORADO	183	7
UMA	6825000	393659			23		14900			GOOD	R	2	<u>6</u>	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO	183	
OTERO PROWERS	7121500 7134300	380010 375230	1033918 1022854		22 23		2169 7880			GOOD UNKNOWN	R		7	TIMPAS CREEK AT MOUTH NEAR SWINK, COLORADO WOLF CREEK NR. CARLYON, COLORADO	183 183	
RAPAHOE	6758250	393647	1042701		19		2170			UNKNOWN	 	 		KIOWA CREEK TRIB. NR. BENNETT, COLORADO	162	,
VELD	8756200	405800	1043350	JUL	20		119	1		UNKNOWN	-	2	<u>*</u>	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO	1	
AS ANIMAS	7124700	370936	1042538	AUG	22	1970	2520		8 46	UNKNOWN	į į	2	7	GRAY CREEK NEAR ENGLEVILLE, COLORADO	Ţ	
AS ANIMAS	7126450	371143			22	1	843			UNKNOWN	<u> </u>			TOBE ARROYO NR. TOBE, COLORADO	-	ļ
MINERAL ARCHULETA	9339900	374600 372325	1064950 1065025		§	1970 1970	4660 1710			UNKNOWN POOR	P		5	RIO GRANDE AT WAGONWHEEL GAP, COLORADO E FK SAN JUAN ABV. SAND CREEK NR. PAGOSA SPGS., COLORADO	188	
RCHULETA	9340000	372210		SEP	ļ ģ	1970	2060			GOOD	- 8			E FK SAN JUAN NR. PAGOSA SPRGS., COLORADO	188	i

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COUNTY		LATITUÇE	ronditudi	MONTH	I DAY	YEAR	DISCHARGE	TYPE		RATING	FILE	NOTE	PART	DESCRIPTIONALOCATION		COMMENTS
-	NUMBER						(FT3/S)		(SQ MI)		} <u>-</u>			···	NUMBER	
MESA.		390949	108184		18	1974	12000		68.6	GOOD	G		9	JERRY CREEK NR. CAMEO, COLORADO		
MESA MESA	9153400	391118 391831	108063 108585		. 18	1974 1974	3590 1400	-1	9 23	POOR	<u>G</u>		9	JERRY GULCH NR. MESA, COLORADO WEST SALT CREEK NR. MACK, COLORADO	·	
ARAPAHOE	6711580	393934	104581		24		178	. 1		UNKNOWN	1 - 1		6	HARVARD GULCH TRIB AT ENGLEWOOD, COLORADO		
CHEYENNE	6857500	385918		0 JUN	23	1975	241	1.1	7 84	to the state of th			6	BIG TIMBER CREEK TRIB NEAR ARAPAHOE, COLORADO		
DENVER DENVER		395041 395030	104581 104570		14	1975	856 1126	}		UNKNOWN			6 -	NIVER CREEK AT DOWNING ST. AT DENVER, COLORADO NIVER CREEK AT STEELE ST. AT DENVER, COLORADO	ŀ	
JEFFERSON	6719630	394428	105084		20	1975	641		9	UNKNOWN			6	LENA GULCH AT LAKEWOOD, COLORADO		
JEFFERSON	6711642	394253	105074		20		403	!		GOOD	R		6.	MCINTYRE GULCH DFC 1 AT LAKEWOOD, COLORADO	[
YUMA YUMA	6825500 6826900	393432 394150		6 JUN 7 MAY	. 20		13000 4350	}		POOR	} !			LANDSMAN CREEK NR. HALE, COLORADO SAND CREEK NR. HALE, COLORADO		
LAS ANIMAS	7124200	370746	104382	O JUL	12	1975	4500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO		
PROWERS PROWERS	7134100	380651 380216	102290	O 1 JUN	23	1975 1975	121 475	3		GOOD	P		7 -	BIG SANDY CREEK NR. LAMAR, COLORADO WILLOW CREEK NR. LAMAR, COLORADO	 	
PROWERS	7133050	380216	102365	JUN	27 10		2460	··		FAIR				WILLOW CREEK NR. LAMAR, COLORADO	† -	
PUEBLO	7107900	375514	104572				340	1		FAIR	P		7	GREENHORN CREEK NR. RYE, COLORADO		
LARIMER LARIMER		402539 402552	105203 105193		31	1976 1976				POOR	- R		6	BIG THOMPSON ABV. DRAKE, COLORADO BIG THOMPSON RIVER BELOW DRAKE, COLORADO	198 198	
LARIMER	6738000	402518	105133	4 JUL	31	1976	31200	1	305	POOR	R		6	BIG THOMPSON RIVER AT MOUTH OF CANYON NR. DRAKE, COLORADO	198	
LARIMER		402259	105281		31	1976	4330	1	164	GOOD	R		6	BIG THOMPSON RIVER BELOW ESTES PARK, COLORADO	198	
LARIMER LARIMER		402505 402433	105120 105250		31	1976 1976	27000 6950		0.53	POOR	R		6	BIG THOMPSON RIVER BELOW GREEN RIDGE GLADE, COLORADO BIG THOMPSON RIVER TRIB. BLW. GLEN COMFORT, COLORADO	198 198	
LARIMER		402344	105273	4 JUL	31	1976	8700		1.37	POOR	Ř		6	BIG THOMPSON RIVER TRIB. BLW. LOVELAND HEIGHTS, COLORADO	198	
LARIMER LARIMER	6752260	402704 403517	105252	B AUG	31	1976 1976		1	3.17	POOR	R		. 5	BLACK CREEK NEAR GLEN HAVEN, COLORADO	198 198	
LARIMER	6752000	403952		6 AUG	 	1976				FAIR	<u>R</u>		6	CACHE LA POUDRE RIVER AT FORT COLLINS, COLORADO CACHE LA POUDRE RIVER AT MOC NR. FORT COLLINS, COLORADO	198	
LARIMER		405736	105213		31	1976	727	3		GOOD	R		6	DALE CREEK TRIB. AT VIRGINIA DALE, COLORADO	198	
LARIMER		402344 405550	105261 105205		. 31	1976 1976	7210			POOR	R			DARK GULCH AT GLEN COMFORT, COLORADO DEADMAN CREEK NR. VIRGINIA DALE, COLORADO	198 198	
LARIMER	-	402624	105273		31	1976		1		POOR			6-	DEVILS GULCH NR. GLEN HAVEN, COLORADO	198	
LARIMER		402242	105291		31		4460	1		POOR	R		6	DRY GULCH AT ESTES PARK, COLORADO	198	
LARIMER LARIMER		402422 402717	105283 105271		31	1976	3210 1300			POOR	R		, 5 6	DRY GULCH NR. ESTES PARK, COLORADO FOX CREEK AT GLEN HAVEN, COLORADO	198	
LARIMER		402006	105254	8 JUL	31	1976	1940	<u>i</u> .		FAIR	R		6	LITTLE THOMPSON RIVER NR. ESTES PARK, COLORADO	198	
LARIMER LARIMER		404744 402346	105172		31	1976	2590 5500	1		POOR	- R		6	LONE PINE CREEK NR. LIVERMORE, COLORADO LONG GULCH NR. DRAKE, COLORADO	198	
LARIMER		402747	105251		- 31	1978	2060			POOR	<u>R</u>		6	MILLER FORK NR. GLEN HAVEN, COLORADO	198	
LARIMER		402620	105215	2 JUL	31	1976	8710		80 2	FAIR	R		. 6	NO. FK. BIG THOMPSON RIVER ABV. DRAKE, COLORADO	198	
LARIMER LARIMER		402717 402655		S JUL 1 JUL	. 31	1976 1976				POOR	<u>R</u>		- · · ·	NO. FK. BIG THOMPSON RIVER AT GLEN HAVEN, COLORADO NO. FK. BIG THOMPSON RIVER TRIB. NR. DRAKE, COLORADO	198	
LARIMER		404715	105150		31		9460	1	539	POOR	R			NO. FK. CACHE LA POUDRE RIVER NR. LIVERMORE, COLORADO	198	
LARIMER		402325	105260		31					POOR	R		6	NOELS DRAW AT GLEN COMFORT, COLORADO	198	
LARIMER LARIMER		402714 402423	105260 105241		31					POOR	<u>R</u>		- 6	NORTH FORK BIG THOMPSON TRIB, NR. GLEN HAVEN, COLORADO RABBIT GULCH NR. DRAKE, COLORADO	198	
LARIMER	· · [· · · · · · · · · · · · · · · · ·	403019	105114	9 JUL	31	1976	2640	1	29.1	POOR	R		8	REDSTONE CREEK NR. MASONVILLE, COLORADO	198	
LARIMER		403743	105124		31					POOR	<u>R</u>		<u>6</u>	RIST CANYON NR. BELLVIEW, COLORADO	198	
LARIMER LARIMER		404637 402632	105150		31	1976 1976				GOOD POOR	- R		8-	STONEWALL CREEK NR. LIVERMORE, COLORADO WEST CREEK NR. GLEN HAVEN, COLORADO	198	
LAS ANIMAS	7124300	370653	104361	7 JUL	19	1976	2480	1	100	GOOD	P		7	LONG CANYON CREEK NR. MADRID, COLORADO		
OTERO PROWERS	7122400	375856 380651		2 JUL 10 SEP	20	1976		1-1-		POOR	P	2	7	CROOKED ARROYO NR. SWINK, COLORADO BIG SANDY CREEK NR. LAMAR, COLORADO	 	
PUEBLO	7108050	375706	104474	2 AUG		1976		1		POOR		-		GREENHORN CREEK NR. COLORADO CITY, COLORADO	<u> </u>	7 Same date as 198 ?
PUEBLO	7099250	381146	104504	4 AUG	2	1976	860		8 35	UNKNOWN			7	SODA CREEK TRIB. NR. LIVESEY, COLORADO	I	7 Same date as 198 7
PUEBLO DELTA	9144200	380405 384716		AUG 1 SEP	<u>1</u>	1976 1976	967 221	1		GOOD	 		7 .	ST. CHARLES TRIB. NR. GOODPASTURE, COLORADO TONGUE CREEK AT CORY. COLORADO	{·	7 Same date as 198 7
EAGLE	9061450	394312	107023		12	1976	7390	1	105	FAIR	R		9	SWEETWATER CREEK AT MOUTH NR. DOTSERO, COLORADO	<u> </u>	
GARFIELD	9095400	392208	108154		25	1976	712	1		FAIR	G		9	DRY FORK NR. DE BEQUE, COLORADO		20
GARFIELD MESA	9093500	392711 391831	108033	3 JUL 9 AUG	31	1976				POOR	R		9-	PARACHUTE CREEK AT GRAND VALLEY, COLORADO WEST SALT CREEK NR. MACK, COLORADO	{	7 Same date as 198 7
RIO BLANCO	9306036	394930	108115	4 JUL	31	1976	40	1	3.62	UNKNOWN			- <u>š</u> -	SORGHUM GULCH AT MOUTH NR. RIO BLANCO, COLORADO		7 Same date as 198 ?
ELBERT	6758700	392933		6 JUN	19			!		UNKNOWN	ļ <u>.</u>		6	MIDDLE BIJOU CREEK TRIB. NR. DEER TRAIL, COLORADO		
JEFFERSON JEFFERSON	6711642	394253 394253		I4 JUN I4 JUL	- 20	1977		1		FAIR	R		· 6	MCINTYRE GUICH DFC 1 AT LAKEWOOD, COLORADO MCINTYRE GUICH DFC 1 AT LAKEWOOD, COLORADO	···	
MORGAN	6759100	401658	103523	II JUL	26	1977	2200	1	1500	UNKNOWN	1 1		<u>.</u>	BIJOU CREEK NR. FORT MORGAN, COLORADO	1	
YUMA	6825000	393059		2 MAY	. 2	1977				GOOD	R	2	. 6	SOUTH FORK REPUBLICAN RIVER NR. IDALIA, COLORADO		
EL PASO LAS ANIMAS	7104000 7129200	385504 373556		S AUG	14 20	1977 1977				FAIR UNKNOWN	[MONUMENT CREEK AT PIKEVIEW, COLORADO MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO	·	
LAS ANIMAS	7126300	372130	103534	4 AUG	1	1977	12200	1	1935	FAIR	R		7	PURGATOIRE RIVER NR THATCHER, COLORADO		
DÉL ŤĀ	9134200 9151500	384822 384524		M NOF	20	1977				POOR	R G		9	COTTONWOOD CREEK NR. HOTCHKISS, COLORADO ESCALANTE CREEK NR. DELTA, COLORADO		
DELTA DELTA	9150500	384406	108094		24	1977	799	i	242	POOR	, Ř		و ا	ROUBIDEAU CREEK AT MOUTH NR. DELTA, COLORADO	1	
DOLORES	9168100	375236	108345	i7 JüL	24	1977	7270	<u>i</u>	147	FAIR	R	L	9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		

I A STUDEN		CTATION!	ATITUDE	LONGITUDE	INCOUTU	IGAS	IVETO	DISCUARCE	TVOE	DRAINAGE	DATING	FILE	NOTE	PART	DESCRIPTIONALOCATION	CCC STORM LIST	COMMENTS
COUNTY		NUMBER	ryiiinhei	LONGITUDE	MONIT	יבטוי	TEAR	DISCHARGE	TYPE	AREA	MATING		HOIE	- FAR!	DESCRIPTIONS CONTION	NUMBER	COMMENTO
	. "					1		(FT3/S)		(SQ MI)							
ARCHULETA			370440	1064834	SEP	6	1970	132	<u>1</u>		GOOD	<u>R</u>		9	LITTLE NAVAJO RIVER NR. CHROMO, COLORADO	188	?
ARCHULETA ARCHULETA	}	9344300	370155 371320	1064356	SEP	6	1970 1970	7980		371		<u>R</u> _		9	PIEDRA RIVER NR. PIEDRA, COLORADO	168	
ARCHULETA	٠٠	9343000	371246	1064738	SEP	ě	1970	2500	23		GOOD	R	2	9	RIO BLANCO NR. PAGOSA SPRINGS, COLORADO	188	
ARCHULETA]	9342500	371558	1070037		. 6	1970	6580			GOOD	. <u>R</u>		9 .	SAN JUAN RIVER AT PAGOSA SPRINGS, COLORADO	188	
DELTA		9149500	384431 374742	1080449 1085126		6	1 <u>97</u> 0 1970	2250 2400	· ·		FAIR POOR	<u>R</u>		9	UNCOMPAHGRE RIVER AT DELTA, COLORADO BIG CANYON CREEK NR. DOVE CREEK, COLORADO	188	
DOLORES		9165000	373820	1080335		6	1970	1930			GOOD			·	DOLORES RIVER BELOW RICO, COLORADO	188	
DOLORES			374544	1085403	SEP	. 5	1970	630	1		POOR	R	2	9	DOVE CREEK AT DOVE CREEK, COLORADO	188	
HINSDALE		9347200	372912	1070946		_ 5	1970	2520 1150			POOR	R		9	MIDDLE FORK PIEDRA RIVER NR. PAGOSA SPRINGS, COLORADO	188	
LA PLATA LA PLATA		9366500 9352900	375959 372839	1081117 1073235		- 3	1970 1970	7050	·		GOOD	R	:		LA PLATA RIVER AT COLORADO, N. M. LINE VALLECITO CREEK NR. BAYFIELD, COLORADO	188	
MESA		9179500	384055	1085850		Ē	1970	6350	[4350	POOR	R		9	DOLORES RIVER AT GATEWAY, COLORADO	188	
MINERAL	<i>.</i> .	9341200	372647	1065300		. 6	1970	585			GOOD	<u>₽</u>		9	WOLF CREEK NR. PAGOSA SPRINGS, COLORADO	188	
MONTEZUMA MONTEZUMA		9166500	372615 370139	1083015		. 6	1970	5190 4530			POOR	. R		9	DOLORES RIVER AT DOLORES, COLORADO IMANCOS RIVER NR. TOWAGC, COLORADO	188	
MONTEZUMA		9372000	371927	1090054		š	1970	2880	· · · · ·		FAIR	R		ğ	MCELMO CREEK NR. COLORADO-UTAH LINE	185	
MONTROSE		9169500	381837	1085305		6	1970	5710	11		GOOD	R		. 9	DOLORES RIVER AT BEDROCK, COLORADO	188	
MONTROSE		9169800	381653 382125	1084821		ءِ …ٰ	1970	386 8910	3		UNKNOWN	k		9	EAST PARADOX CREEK TRIB. NR. BEDROCK, COLORADO SAN MIGUEL RIVER AT URAVAN, COLORADO	188	Uare/
MONTROSE SAN JUAN		9358900	382123	1074331		3	1970	750			FAIR	K		9	MINERAL CREEK ABV. SILVERTON, COLORADO	188	
SAN JUAN		L	374827	1074039	SEP	5	1970	3070	i	51.7	GOOD	R		9	MINERAL CREEK AT SILVERTON, COLORADO	188	
SAN MIGUEL		9175800	380237	1083438			1970	613	3		UNKNOWN	ļ	2	<u>9</u>	DEADHORSE CREEK NR. NATURITA, COLORADO		Date?
SAN MIGUEL		9168700	380133 380532	1084851 1083717		· <u>-</u>	1970 1970	215 5660	3		POOR	 -		9	DISAPPOINTMENT CREEK TRIB. NR. SLICK ROCK, COLORADO DRY CREEK NR. NATURITA, COLORADO	188	Date?
LOGAN		6760300	405248	1031912		30		1740			UNKNOWN	t		6	DARBY CREEK NR. BUCHANAN, COLORADO	† · · · · · · · · · · · · · · · · · · ·	
LOGAN		6760430	405812	1030034	JUL	4	1971	177	11	22.3	UNKNOWN			6	SPRING CANYON NR. PEETZ, COLORADO		
WELD		6756200	405800	1043350	AUG	19		192			UNKNOWN	<u>L</u>		<u>6</u>	GEARY CREEK TRIB. NEAR ROCKPORT, COLORADO	.	
WELD LAS ANIMAS		7129200	405438 373556	1045414		27 iš	1971 1971	3120 1260			FAIR UNKNOWN	<u>R</u>			LONE TREE CREEK NEAR CARR, COLORADO MUDDY CREEK TRIB. NR. NINAVIEW, COLORADO		
LAS ANIMAS		7126400	373324	1035020		7	1971	1410			UNKNOWN	1		····· ;	RED ROCK CANYON NR. BLOOM, COLORADO		
LAS ANIMAS		7129100	373357	1031026		28		5040			UNKNOWN	ι		7	RULE CREEK NR. NINAVIEW, COLORADO		
PROWERS		7135800	381545	1020933		30	1971 1971	2411			UNKNOWN	L		7	WILD HORSE CREEK TRIB, NR. HARTMAN, COLORADO PICEANCE CREEK AT WHITE RIVER, COLORADO	1	
ARAPAHOE		9306222 6711560	400439 393934	1081408 1045816		+	1972	63			UNKNOWN	<u> </u>		- 6	HARVARD GULCH TRIB. AT ENGLEWOOD, COLORADO	 	
LINCOLN		6821300	393112	1032635		23	1972	420	i i		UNKNOWN	1 1 1		6.	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO		
WELD		6758400	400210	1041306		3	1972	874			UNKNOWN	L.		. 6	GOOSE CREEK NR. HOYT, COLORADO		
WELD		6753800	405507 383908	1044601 1060302		23	1972			4.56	UNKNOWN	.L		5	OWL CREEK TRIB, NR. ROCKPORT, COLORADO UNNAMED ARKANSAS RIVER TRIB, NEAR NATHROP, COLORADO		
EL PASO		7105800	384346	1044400		111	1972	*** ** **		488	FAIR	۱ ۵۰۰		j	FOUNTAIN CREEK AT SECURITY, COLORADO		
FREMONT		7099100	382227	1045749		1	1972	1 2 7 7 7		214		P		~ ?	BEAVER CREEK NR. PORTLAND, COLORADO		
HUERFANO LA PLATA		7111000 9363200	374340 370324	1052103 1075209		. 3	1972 1972			73	GOOD	P		7	HUERFANO R. AT MANZANARES CROSSING NR. REDWING, COLORADO FLORIDA RIVER AT BONDAD, COLORADO	193	
LÀPLATÀ		3303500	371723			19	1972				GOOD	R		9	HUNCTION CREEK AT DURANGO, COLORADO	193	
LAPLATA		9362000	371613	1075358	OCT	19	1972	2830		62.9	GOOD	R		9 .	LIGHTNER CREEK AT DURANGO, COLORADO	193	
LÁ PLÁSA		9363100	370823 371556			19	1972	1		16.7	GOOD	R			SALT CREEK NEAR OXFORD, COLORADO WILDOAT CREEK NEAR DURANGO, COLORADO	193	
LA PLATA		9153270	390950	1075515		19				147	GOOD				BIG SALT WASH AT FRUITA, COLORADO		
MESA		9163490	391318	1005332		19	1972			436	FAIR	Ř		9	SALT CREEK NEAR MACK, COLORADO		
ADAMS			395935	1045627		6	1973			65		L		6	BIG DRY CREEK AT U.P.R.R. CULVERT AT DENVER, COLORADO	194	
ADAMS ADAMS		k	395028 394446	1045753 1045246		<u>6</u>	1973 1973	550 290		-	UNKNOWN	∤ ∤		<u>6</u>	NIVER CREEK NR. MOUTH AT DENVER, COLORADO WESTERLY CREEK AT 19TH STREET AT DENVER, COLORADO	194	l
ARAPAHOE			393745	1050003		8	1973	4400		19	UNKNOWN		···	- š	BIG DRY CREEK AT SANTA FE BLVD. AT DENVER, COLORADO	194	
ARAPAHOE			393911	1045914	MAY	5	1973	1510		15	UNKNOWN	1		<u>6</u>	LITTLE DRY CREEK AT BROWY AND ACOMA AT DENVER, COLORADO	194	
DENVER			394707	1045413		6	1973	5630		187	UNKNOWN	<u>L</u>		···- ĕ	SAND CREEK AT 49TH STREET BRIDGE AT DENVER, COLORADO	194	
DENVER			394129 394350	1050020		- 불	1973	320 430			UNKNOWN	ļ	 	6	SANDERSON GULCH AT ARKANSAS AVE. AT DENVER, COLORADO WEIR GULCH AT DECATUR AT DENVER, COLORADO	194	
DOUGLAS		†	390506	1050941		7	1973			16.7	GOOD	R		6	TRAIL CREEK NR. WESTCREEK, COLORADO	194	
DOUGLAS			390922	1050945	MAY	7	1973	2020	1_1_	60	FAIR	R	3	6	WEST CREEK AT WESTCREEK, COLORADO	194	
DOUGLAS			391032	1050956		7	1973	3080			FAIR	R	3	<u>6</u>	WEST CREEK BELOW WESTCREEK, COLORADO LENA GULCH NR. SWADLEY AND 34TH AT DENVER, COLORADO	194	
JEFFERSON TELLER		···	394553 390744	1050749			1973	820 240			GOOD	 	}		WEST CREEK ABY, WESTCREEK, COLORADO	194	
WELD			402230	1043625	APR	12	1973	13600	1		FAIR	R	3	6	BEEBE DRAW NR. AUBURN, COLORADO	1	
WELD		6753800	405507	1044601		28					UNKNOWN	_ <u> </u>		<u>6</u>	IOWL CREEK TRIB. NR. ROCKPORT, COLORADO	ļ	
FREMONT		7099100	394150 382227	1021037		11	1973				UNKNOWN	<u> </u>	ļ		SAND CREEK NR. HALE, COLORADO BEAVER CREEK NR. PORTLAND, COLORADO	-	
FREMONT		7096500	382611	1051127		ž	1973				GOOD	<u> </u>		1 7	FOURMILE CREEK NR. CANYON CITY, COLORADO	1	
DOLORES		9168100	375236	1083457	JUL	16	1974	2350	11	147	UNKNOWN	R		9	DISAPPOINTMENT CREEK NR. DOVE CREEK, COLORADO		No 1974 Predp. CO
GARFIELD		9095400	392208	1081541		27					UNKNOWN	Ğ		9	DRY FORK NEAR DE BEQUE, COLORADO		
MESA MESA		ļ:	391150 390918			18					FAIR	<u>G</u>		9 .	ATWELL GULCH NR. MESA, COLORADO		
MESA.		9163310	390918	1081935		18					POOR	<u> </u>		9	EAST SALT CREEK NR. MACK, COLORADO		

COUNTY	STATION	LATITUDE	LONGITUDE	MONTI	HIDAY	YEAR	DISCHARGE	TYPE	DRAMAGE	RATING	FILE	NOTE	PART	IDESCRIPTIONACCATION	ICCC STORM LIST	COMMENTS
	NUMBER	m as or attach	1	1,97,	7	1,022	1919913 2102		AREA	1::::::::::::::::::::::::::::::::::::::	1155	119.15	COL!	DESCRIPTION LOCATION	NUMBER	COMMENTS
			1	17 "	1	†· -··	(FT3/S)	·	(SQ MI)			··		T OF TOO TO THE TOTAL THE TOTAL TO THE TOTAL	- UGANDEA	
JEFFE RSON	1	394958	1050305	NIN "	···	1981	11:15:27		199 001	FAIR	14.5	· · · · · ·		LITTLE DRY OR AT 7570 AND CUPPIDAY AT HAVE AT DIDOT OF	-	
JEFFERSON	1	393917	1051821			1981	· · · · · · · · · · · · · · · ·		·	UNKNOWN	<u>-</u>	···	<u>₽</u>	LITTLE DRY CR AT 75TH AND SHERIDAN AT WHEATRIDGE, CO	205	/
EL PASO	7105780	384509	1044543			1981	2700		·	FAIR		2	·	TROUBLESOME CREEK AT KITTEREDGE, COLORADO		
EL PASO	7105500	384859	1044920		ۋا [ء	1981	3950			FAIR			<u>. </u>	B-DITCH DRAIN NR. SECURITY, COLORADO	_	
EL PASO	7105500	384859	1044920		1 5	1981	3950			POOR	<u>r</u>	i	/	FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO		
EL PASO	7105800	384346			5	1981	4330	}		FAIR	<u></u>		. <u>.</u> .	FOUNTAIN CREEK AT COLORADO SPRINGS, COLORADO		
EL PASO	7103700	385117	1045239		1 - 5	1981	650			FAIR	· - 2 - ·			FOUNTAIN CREEK AT SECURITY, COLORADO		
EL PASO	7103950	390014	1044421			1981	2300						<u>-</u>	FOUNTAIN CREEK NR. COLORADO SPRINGS, COLORADO	- 	
EL PASO	7105920	384055	1045130		;	1981	512	!		FAIR	🖫			KETTLE CK. NEAR BLACK FOREST, COLORADO		
EL PASO	7104000	385504	1044905		· · · · · · · · · · · · · ·	1981			14.	FAIR	· · - <u>P</u> · · · ·		<u>Z</u>	LITTLE FOUNTAIN CK. ABV. KEATON RES., NR. FT CARSON, CO.		
EL PASO	7124220	370843	1043707		J3		3750			FAIR.	. <u>P</u> .			MONUMENT CREEK AT PIKEVIEW, COLORADO		·
FREMONT	7093740		1054845		_ 26	1981	320	···		GOOD	<u>P</u>		I	REILLY CANYON AT COKEDALE, COLORADO		
		383925			.l 2	1981	254	!		GOOD	<u>P</u>		<u>Z</u>	BADGER CK (UPPER STATION) NEAR HOWARD, COLORADO		
FREMONT	7093775	385759	1055106		<u>.</u> ≥	1981 1981	950 254 267 2730	1		GOOD	Р	l		BADGER CREEK (LOWER STATION) NEAR HOWARD, COLORADO	.l	
FREMONT	7099100	362227	1045749		1 17		2730	1		FAIR	P			BEAVER CREEK NR. PORTLAND, COLORADO		
LAS ANIMAS	7124350	370913	1043411		26	1981	2790	1		FAIR	P		7	CARPIOS CANYON NR. JANSEN, COLORADO		
LAS ANIMAS	7124350	370913	1043402		10	1981	5300	1		FAIR	Р.		7	CARPIOS CANYON NEAR JANSEN, COLORADO	1	
LAS ANIMAS	7125100	371200	1041140		3	1981	28400	24		FAIR	P		7	FRIJOLE CREEK NEAR ALFALFA, COLORADO	207	
LAS ANIMAS	7124100	370756	1044824		. 10	1981	5100	[POOR	P		7 .	MOLINO CANYON NR. WESTON, COLORADO	210	7
LAS ANIMAS	7124100	370756	1044824		10	1981	5100			POOR	P	1	7	MOLINO CANYON NR. WESTON, COLORADO	210	7
LAS ANIMAS	7124200	370746	1043820		10	1981	11500	1	550	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO	210	7
LAS ANIMAS	7124200	370746	1043820	L	26	1981	3250	1	505	FAIR	P		7	PURGATOIRE RIVER AT MADRID, COLORADO		· · · · · · · · · · · · · · · · · · ·
PUEBLO	7108900	381500	1042900	AUG	3	1981	2400	1	4.74	FAIR	P	1	7	ST. CHARLES RIVER AT VINELAND, COLORADO	· · · · · · · · · · · · · · · · · · ·	
GARFIELD	9153330	392347	1085851	AUG	30	1981	2400 871	1	95.6	FAIR	R		9	WEST SALT CREEK NR. CARBONERA, COLO		
GARFIELD	9153330	392327	1085851	AUG	31	1981	871	1	168	FAIR	~ G		9	WEST SALT CREEK NR. CARBONERA, COLORADO		· · · · · · · · · · · · · · · · · · ·
MESA	9179200	363159	1085813	JÜL	12	1981	2610	1		GOOD	G		9	SALT CREEK NR. GATEWAY, COLORADO	208	2
MESA	9153400	391831	1085859	ÂUG	31	1981	681	i	168	GOOD	<u>₹</u>		9	WEST SALT CREEK NR. MACK, COLORADO		·
MESA	9153400	391831	1085859	AUG	30	1981	681	1	168	FAIR	·····Ř ····	~ .~	9	WEST SALT CREEK NR MACK, COLORADO	. [
MONTEZUMA	9370820	370557	1082756	JUL	13	1981	3020	i		FAIR	Ğ		·· š ···	MANCOS RIVER BLW. JOHNSON CAN. NR. CORTEZ, COLORADO	· 	
MONTEZUMA	9370820	370557	1082758	JUL	1 13	1981	3020			FAIR	· · · · Ř		ă	MANCOS RIVER BLW. JOHNSON CANYON NR. CORTEZ, COLORADO		
RIO BLANÇO	9306241	395450	1082906		9	1981	3020 76		2.39		mi -			BOX ELDER GULCH TRIB. NR. RANGELY	-	····
ARAPAHOE		392855	1041126	NUL	25	1982			312		. R		6	SOUTH FORK OF WILLOW GULCH NR, DEER TRAIL, COLORADO	 	
ELBERT		392855	1041126		25		355 355			FAIR	- Ř			SOUTH FORK WILLOW GULCH NR. DEER TRAIL, COLORADO	+	TEC NUMBER 1188
ARIMER	6733000	402242	1053048		1 15	1982		5		POOR			ě	BIG THOMPSON RIVER AT ESTES PARK, COLORADO	· · · · · · · · · · · · · · · · · · ·	ran galagaaraan
ARIMER	1	402405	1053618		1 15	1982	5500 7210	· 🛊 · · ·		POOR	- 늄		. 🔅 .		·	Lawn Lake Felkre
LARIMER	# ····· t	402301	1053258		15		8520	···		POOR		···		FALL CREEK ABV. CASCADE DAM ABV. ESTES PARK, COLORADO	·	Lawn Lake Falkre
ARIMER	1	402403	1053608		1 12	1982	4500			POOR				FALL RIVER ABV. ESTES PARK, COLORADO	4	Lawn Lake Falkre
ARIMER	1:	402359	1053505		15		13100			POOR	<u>1</u> 2		· <u>\$</u> - ·	FALL RIVER AT CASCADE DAM ABV. ESTES PARK, COLORADO	.	Lawn Lake Fallure
REMONT	7096500	382611	1051127		1 12	1982	13100	-			<u>R</u>			FALL RIVER BLW. CASCADE DAM ABV. ESTES PARK, COLORADO		Lawn Lake Falture
GARFIELD			1085851		1				434	FAIR	<u>P</u>	i	7	FOURMILE CREEK NR. CANON CITY, COLORADO	ļi	
GARFIELD	9153330	392327			!3	1982	1/60	. !		FAIR	<u>G</u>		9	WEST SALT CREEK NR. CARBONERA, COLORADO	. 	
	9153330	392347	1085851		1 13	1982	1080 1760 1760 1050	1	95 6			ļ	9	WEST SALT CREEK NR. CARBONERO, COLORADO		
MESA	9179200	383159	1065813		1 17		1050	1	31.2		G		9	SALT CREEK NR. GATEWAY, COLORADO		
MESA	9153400	391831	1085859		1 15	1982	1430	1		FAIR	G	l	9	WEST SALT CREEK NR. MACK, COLORADO	1	
MONTEZUMA	9371500	371923	1084022		24		730 731	. 1	233	POOR	G		9	MCELMO CREEK NR. CORTEZ, COLORACO	1 1	
MONTEZUMA	9371492	371846	4083938		24				33.6	POOR	G		9	MUD CREEK AT HWY 32 NR. CORTEZ, COLORADO	1	
MONTROSE	l	382904	1075947		27		5030	. 1	30.4	POOR	<u>G</u>	Ì	9	COAL CREEK WEST OF MONTROSE, COLORADO	1	
MONTROSE	9149450	383319	1080243	JUL	27	1982	1040	1	102	POOR			<u>5</u>	DRY CREEK NR. OLATHE, COLORADO	1	
MONTEZUMA	9167450	373557	1082944	APR	25	1983	2000	1	A3	FÁIR	G			PLATEAU CREEK NR. MOUTH, NR. DOLORES, COLORADO	• • • • • • • • • • • • • • • • • • • 	

COUNTY	· · · · · · · · · · · · · · · · · · ·	STATION	ATITUDE	ONGITUDE	MONTH	DAY	YEAR	DISCHARGE	TYPE	DRAINAGE	RATING	FILE	NOTE	PART	DESCRIPTIONALOCATION	CCC STORM LIST	COMMENTS
	. [NUMBER						1		AREA						NUMBER	
LIENE, HT	-	4655165	- 22222			أمما		(FT3/S)		(SO MI)	200	R			DRY FORK NR. DE BEQUE, COLORADO	···	
GARFIELD GARFIELD		9095400	392208 393402	1081541 1080637		- (4)	1977	623 2310			POOR POOR	: G			PARACHUTE CREEK NR. GRAND VALLEY, COLORADO		
GARFIELD	- 1	9093000	393402	1080637		25		431	·		FAIR	Ğ		<u>\$</u>	PARACHUTE CREEK NR. GRAND VALLEY, COLORADO		
MESA	1	9151700	385130	1081853		24			3	4	UNKNOWN	T T		9	DEER CREEK TRIBUTARY NR. DOMINGUEZ, COLORADO		
MESA	}	9163300	392124	1084858		7	1977	580	1		UNKNOWN	1		9	EAST SALT TRIBUTARY NR. MACK, COLORADO		
MOFFAT		9250400	401724	1074721		21		56	3		POOR	R		9	GOOD SPRINGS CREEK AT AXIAL, COLORADO		
MOFFAT MONTEZUMA		9306400	401434 372051	1085716		24	1977 1977	260 1750			UNKNOWN		2		WEST TWIN WASH NR. DINOSAUR, COLORADO MCELMO CREEK TRIB. NR. CORTEZ, COLORADO		
RIO BLANCO	`	9306240	395318	1083140		25	1977				POOR	M	` -	9	BOX ELDER GULCH NR. RANGELY, COLORADO		
RIO BLANCO		9306241	395450	1082906		[1977	5	1		POOR	R		9	BOX ELDER GULCH TRIB. NR. RANGELY, COLORADO		
RIO BLANCO		9306244	395604	1082538		11	1977		1_		FAIR	М		9	CORRAL GULCH AT 84 RANCH NR. RANGELY, COLORADO		
RIO BLANCO		9306235	395422	1083156		23	1977	272	! -		POOR	<u>M</u>		9	CORRAL GULCH BELOW WATER GULCH NR. RANGELY, COLORADO	·	<u></u>
RIO BLANCO		9306242	395513 394936	1082820 1081225		-23	1977	183	1		POOR FAIR				CORRAL GULCH NR. RANGELY, COLORADO COTTONWOOD GULCH NR. RIO BLANCO, COLORADO	 	
RIO BLANCO		9306380	400517	1084631		' <u> </u>	- 1977	1170	·	425		₩		-	DOUGLAS CREEK AT RANGELY, COLORADO		
RIO BLANCO	· 1	9306380	400517	1084631		24	1977	3250	1	425		M	l	9	DOUGLAS CREEK AT RANGELY, COLORADO		
RIO BLANCO	[9306246	395855	1082710		23	1977	62	1		FAIR	<u>M</u>		9	DUCK CREEK AT UPPER STATION, NR 84 RANCH, COLORADO		
RIO BLANCO		9306203	395612	1081753	1	24			<u>†</u>		POOR	<u>M</u>	·	9	HORSE DRAW AT MOUTH NR. RANGELY, COLORADO		
RIO BLANCO RIO BLANCO		9306203 9306202	395612 395559	1081753 1081859		2	1977 1977				POOR	M			HORSE DRAW AT MOUTH NR. RANGELY, COLORADO HORSE DRAW NR. RANGELY, COLORADO		
RIO BLANCO		9306007	394934	1081057		19		520	3		FAIR	 	†	- š	PICEANCE CREEK BELOW RIO BLANCO, COLORADO		
RIO BLANCO		9306042	395001	1081312	SEP	3	1977	451	1	1.06	POOR	M		9	PICEANCE CREEK TRIB. NEAR RIO BLANCO, COLORADO		
RIO BLANCO		9306230	395537	1082514		1	1977	245			GOOD	M	ļ	9	STAKE SPRINGS DRAW NR. RANGELY, COLORADO		
RIO BLANCO		9306028	394845	1081100		J3	1977	38			FAIR	M R		- · · · · · · · · · · · · · · · · · · ·	WEST FK STEWARD GL. AT MOUTH, NR. RIO BLANCO, COLORADO		
RIO BLANCO RIO BLANCO		9306058 9306255	395014 401007	1081437 1082402		3	1977	23	-		POOR		·		WILLOW CREEK NR. RIO BLANCO, COLORADO YELLOW CREEK NR. WHITE RIVER, COLORADO		
SAN MIGUEL		9175600	380237	1083438		23		756 1250	23		UNKNOWN	∤· । "	 	- -	DEADHORSE CREEK NR. NATURITA, COLORADO		
EL PASO		7099220	383736	1045155		28		284	_1		FAIR	R		7	TURKEY CREEK ABV. TELLER RES. NR. STONE CITY, COLORADO		
FREMONT	·		383000	1055100		29	1978	9960	1_		POOR	R	1	7	BADGER CREEK NR. HOWARD, COLORADO		
LAS ANIMAS		7153450	370524	1034109		7	1978		!		пикиоми			<u></u>	LONGS CANYON CREEK NR. TOBE, COLORADO	·	
LAS ANIMAS LAS ANIMAS		7124100	370756 370843	1044824 1043707		27					GOOD FAIR	P		· /	MOLINO CÁNYON NR. WESTON, COLORADO REILLY CANYON AT COKEDALE, COLORADO	· · · · · · · · · · · · · · · · · · ·	
LAS ANIMAS	İ	7124120	370726	1044549	JUN	27			i		FAIR	ip '		7	SARCILLO CANYON NR. SEGUNDO, COLORADO		
OTERO	· {	7119500	380526	1035652		10			24	1125	FAIR	P	l	7	APISHAPA RIVER NR. FOWLER, COLORADO		***************************************
OTERO		7119700	360733	1035441		10			23		POOR	R	2.	1	ARKANSAS RIVER AT CATLIN DAM NR. FOWLER, COLORADO		
PUEBLO EAGLE		7109500 9058900	381453 394337	1042355 1062850		30			1		POOR	p		7	ARKANSAS RIVER NR. AVONDALE, COLORADO MONIGER CREEK NR. MINTURN, COLORADO		
MESA		âñacarii	390328	1083530		7	1978	6.8 9290	1		FAIR	G	? .	9	NO THOROUGHFARE CREEK NEAR GRAND JUNCTION, COLORADO	202	
MESA	1	. 1	390413	1083657		7	1978		3		POOR	G	1 .	9	RED CANYON CREEK NEAR GRAND JUNCTION, COLORADO	202	
RIO BLANCO		9306255	401007	1082402		7	1978	6800	24	262	POOR	M		9	YELLOW CREEK NR. WHITE RIVER, COLORADO	202	
DENVER .	f	· [394006	1045625		ļ <u>.</u>	1979				UNKNOWN	} !	2	6	HARVARD GUICH AT COLORADO BLVD. AT DENVER, COLORADO HARVARD GUICH AT HARVARD PARK, COLORADO		
DENVER JEFFERSON	*-		394004 394544	1045710		17	1979			· ·	POOR	R	3	8	LENA GULCH AT 32ND AVE LAKEWOOD, COLORADO		
JEFFERSON	1		394620	1050632		17				li.	. 252	";"	1	š	LENA GULCH AT KIPLING ST. AT WHEATRIDGE, COLORADO		
JEFFERSON	.		394606	1050703		17	1979	380		1] ` .		<u>é</u>	LENA GULCH AT NELSON STR AT WHEATRIDGE, COLORADO		
JEFFERSON			394119	1050454		4	1979		1		UNKNOWN	ļ <u>Ļ</u>	2	6	SANDERSON GULCH TRIB. AT LAKEWOOD, COLORADO		
LINCOLN		6821300 6822600	393112	1032635		19	A		-		UNKNOWN	 	ļ	<u>6</u>	NORTH FORK ARIKAREE TRIB. NR. SHAW, COLORADO PATENT CREEK NR. ST. PETERSBURG, COLORADO	· · · · · · · · · · · · · · · · · · ·	
LOGAN PARK		6698500	402950 391742	1024630 1054305		- 22	1979		<u>-</u>		ONKNOWN	} 	t ·	6	TARRYALL CREEK NR. JEFFERSON, COLORADO		
EL PASO		7105940	383833	1044449		26					POOR	R		7	LITTLE FOUNTAIN CREEK NR. FOUNTAIN, COLORADO		
LAS ANIMAS	. []	7118500	372400	1043829		31	1979		1	147	POOR	↓ <u>P</u>	ļ	<u> </u>	APISHAPA RIVER AT AGUILAR, COLORADO		
LAS ANIMAS	}	7124300	370653	1043617		17					FAIR	∤ <u>R</u>		ļ 7	LONG CANYON CREEK NR. MADRID, COLORADO PURGATOIRE AT MADRID, COLORADO		
LAS ANIMAS LAS ANIMAS		7124200 7124220	370746 370843	1043620 1043707		31			- -		FAIR POOR	├──ह ै─-	·	/-	REILLY CANYON AT COKEDALE, COLORADO		- 41
LAS ANIMAS		7124220	370843	1043707		31					FAIR	<u>ተ ~ ፟፟</u>	l	7	REILLY CANYON AT COKEDALE, COLORADO	· · · · · · · · · · · · · · · · · · ·	
LAS ANIMAS		7124120	370726	1044549		18			1		FAIR	P	1	1	SARCILLO CANYON NR. SEGUNDO, COLORADO	.I	
LAS ANIMAS		7126200	372045	1035727	AUG	9	1979	6050	1		POOR	R			VAN BREMMER ARROYO NR. MODEL, COLORADO		
GARFIELD		9095400	392208	1081541	AUG	16	1979		ļ <u>ļ</u>		FAIR	ļ <u>Ŗ</u>		§	DRY FORK NR. DE BEQUE, COLORADO		
MESA		9179200	383159	1085813		 2	1979		4 4 2	31.2	POOR	G R	 	- 3	SALT CREEK NR. GATEWAY, COLORADO 74TH AND WINONA DITCH, DENVER, COLORADO	+	
ADAMS ADAMS			394952 394948	1050248		26 26			13		FAIR		t	<u>8</u>	LITTLE DRY CRK. AT 74TH AND WINONA CT AT WESTMINSTER, CO		
DENVER	··· ·		394914	1050059		26			3		POOR		I	6	LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO		
JACKSON		6619420	404418	1060649	APR	21	1980	22	2	3.95	GOOD			6	WILLIAMS DRAW NR. WALDEN, COLORADO	.}	
JEFFERSON]		394451	1050807		5			3	_	FAIR	R	ļ	6	LENA GULCH AT 201H AVE., LAKEWOOD, COLORADO	·	
JEFFERSON	!	6710400	394543	1050810		5	1980				FAIR				LENA GULCH AT 32ND AVE. LAKEWOOD, COLORADO CEDAR CREEK AT CEDAR COVE, COLORADO		
LARIMER PUEBLO		6710400 7107500	402508 380306	1051553	MAY	30	1980			1.66				<u>├</u>	ST, CHARLES RIVER AT BURNT MILL, COLORADO		<u> </u>
ADAMS			395111	1045916		1 3	1981			1	FAIR	t ï	1	6	L TRIBUTARY OF NIVER GULCH NR. THORNTON, COLORADO	205	7
DENVER		6711570	394006	1045632	MAY	20	1981	670	1		FAIR	ŢŢŢ.]	6	HARVARD GULCH AT COLORADO BLVD. AT DENVER, COLORADO		
DENVER		6711575	394020	1045834	MAY	28	1981	914] .]	-4	FAIR	J		<u>6</u>	HARVARD GULCH AT HARVARD PARK, AT DENVER, COLORADO	_]	J
DENVER		6711575	394021 394958	1045835 1050305	YAMIS	28	1981	1040	<u>-</u> <u>1</u>		GOOD	ļ ļ	ļ	<u>6</u>	HARVARD GULCH AT HARVARD PARK, COLORADO LITTLE DRY CR AT 70TH AND FEDERAL NR. DENVER, COLORADO	200	7
			3949301	1000300	AIN OF THE	. 13	1901	/20			IL VIL		1	1 6	TOTALE DEL CALVATA ANTI- TOTAL PROPERTY OF CALCADO	200	

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Appendix D. Reports and Publications given at conferences and workshops during the Colorado Extreme Storm Precipitation Data Study

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Department of Atmospheric Science
Colorado State University
Fort Collins, CO 80523-1371

Introduction

How heavy it has rained and how heavy it could conceivably rain are questions that are continually wrestled with in Colorado. While much of Colorado is known for its dryness, reports of devastating flooding are a routine part of our history.

An accurate understanding of how heavy it can rain is important for the design, placement and construction of roads, bridges, homes and businesses. Dams, spillways and water diversion and delivery systems are an especially important part of Colorado's infrastructure. During the past century, dozens of large reservoirs and hundreds of small dams and man made lakes have been built high in the Rocky Mountains to help provide a reliable year-round water supplies. Few new structures have been built in recent years, but there is continued concern regarding the risk existing structures may pose to downstream residents and property owners should they be overtopped or fail during flood events.

To help provide guidance for the design, construction and operation of dams and spillways, an approach was developed many years ago (U.S. Weather Bureau, 1947) for estimating the maximum precipitation rates, durations, and areal extents that might be possible in watersheds throughout the United States. Estimates of Probable Maximum Precipitation (PMP) for areas of Colorado have been published by Hansen et al. (1977, 1988). People unfamiliar with PMP are sometimes overwhelmed by the large numbers which, in Colorado, range as high as 36" in 24 hours at the eastern base of the Front Range foothills. it must be remembered that PMP estimates are intentionally conservative and are designed to provide an objective evaluation of the absolute most extreme rainfall that nature can provide. It is not just a statistical extrapolation of a 50 or 100-years storm, but instead it is a meteorological estimate of how much rain could conceivably fall in an area if meteorological conditions associated with known heavy rains were maximized to reasonable physical limits.

Two factors have helped raise some level of doubt concerning the validity of current PMP estimates in parts of Colorado. Hydrologic and paleoflood research by Jarrett

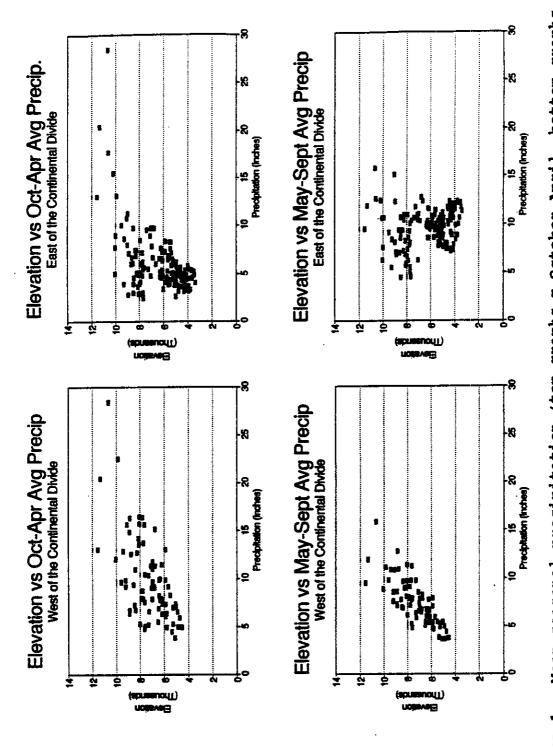
(1989) pointed out that most observed peak stream flows at high elevations (above about 7500 feet) have been the result of snowmelt and not intense rains. Very little evidence of large floods at high elevations can be found. The second factor is data. Using traditional precipitation data from locations in the mountains one finds that 2 inches of rain in 24 hours is rare. Amounts of 3" or greater have been observed but most of these fell as wet snow that did not present a significant flood hazard. Many of the reports of heavier rains appear suspect when closely scrutinized by climatologists. In light of these factors, a strong motivation has developed to carefully re-evaluate PMP estimates and the data used to produce them.

In 1994, the Colorado legislature provided funding to the Colorado Department of Natural Resources, Division of Water Resources, to begin a study of extreme rainfall characteristics in Colorado with a particular focus on the higher elevation areas. This paper describes some of the early results of this work.

Data Study

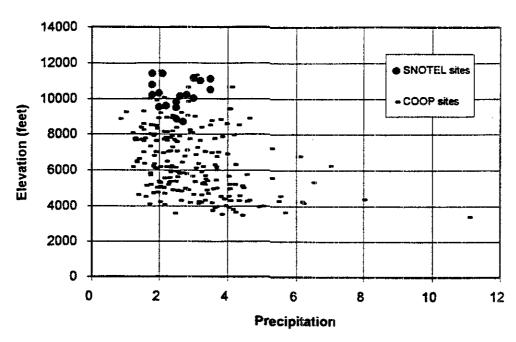
All available recorded daily precipitation totals from official National Weather Service and cooperative weather stations throughout Colorado have been examined in an effort to document the heaviest recorded rains and to describe elevational effects on precipitation. Figure 1 shows mean seasonal precipitation totals based on many years of data plotted as a function of elevation for winter and summer with data separated for areas east and west of the Continental Divide. Not surprisingly, there is a systematic increase of mean seasonal precipitation with elevation. The increase is greater and more consistent west of the Continental Divide. The effect is less east of the Continental Divide where downslope winds and "rain shadow" effects complicate the pattern. There is very little increase of total growing season (May - Sept.) precipitation with elevation east of the Continental Divide.

Perhaps it is the knowledge that annual and seasonal precipitation normally increases with elevation that tempts us to believe that rainfall for other time periods should behave similarly. However, when you look at the maximum precipitation ever measured in one day plotted as a function of elevation (Figure 2), it is apparent that precipitation on this time scale decreases with elevation. This is not a totally fair comparison since maximum one-day precipitation at lower elevation stations typically occurred during the warm season of the year while many of the maximum one-day precipitation totals at high elevations occurred during winter or spring and fell as snow.



(left graphs) and east of the Continental Divide (right). Values are averages for the 1961-1990 period. Figure 1. Mean seasonal precipitation (top graphs = October-April, bottom graphs = May-September) versus elevation for Colorado weather stations west of the Continental Divide

Maximum 1 day Precipitation vs Elevation



<u>Figure 2.</u> Maximum one-day precipitation totals versus elevation for Colorado stations with at least 12 years of complete daily observations. (This figure is revised in main text page 30.)

Maximum observed precipitation for one-hour time periods (Figure 3) provides a better comparison since at all elevations the maximum rainfall rates in Colorado occur during the summer season. Maximum one-hour rainfall clearly and systematically decrease with elevation. The figure does not distinguish between locations east and west of the Continental Divide, but is well known that areas east of the Divide at a given elevation are more likely to receive high-intensity rainfall than areas west of the Divide due to a more abundant and reliable source of low-level moisture from the Gulf of Mexico and the humid plains states. Hourly rainfall totals in excess of 1.5" have not been observed at elevations above 9,000 by the network of recording precipitation gages operated by the National Weather Service. The number of stations at that elevation with many years of recorded data are so few, however, that the statistical significance can be challenged.

When investigating heavy precipitation based on recorded data, we regularly run into suspicious or outright "bad" data. Key punch errors, decimal point errors, undocumented multi-day accumulations, illegible writing, clock problems on recording gages, human errors reading measuring sticks, etc. all degrade the accuracy of our climate records to some extent. But they especially damage analyses of extreme events. The data for Figures 2 and 3 have been closely scrutinized. Several bad data points have been identified and removed from the graphs.

Max. 1-hour Precipitation vs. Elevation

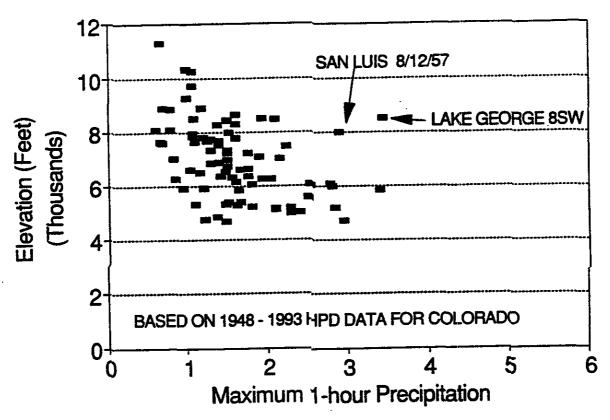


Figure 3. Maximum observed one-hour precipitation totals versus elevation based on National Weather Service recording precipitation gage stations in Colorado with data for all or the majority of the 1948-1993 period.

We are relatively but not absolutely confident about the remaining data.

There are two data points in Figure 3 that need to be mentioned for they epitomize the challenge of extreme precipitation. The large values for maximum one-hour rainfalls at San Luis and Lake George 8SW are outliers and might easily be considered flawed data since they don't fit the pattern produced by other stations. But close scrutiny shows that both precipitation events were real and both caused major flooding. Similarly, Figure 4 shows a time series of maximum one-day precipitation at Denver, one of the longest station records in Colorado. Were it not for the 6.53" rainfall in May 1876 we might be led by the other data to think that any rainfall above 4 or 5 inches in a day would be close to an upper limit.

The true problem and challenge of extreme precipitation evaluations in Colorado is that data alone and especially point data (-- and it is so tempting to rely on data --) may not provide a very good answer to the question of how heavy has it rained and how heavy might it rain in the future. As such, the traditional approach to developing estimates of PMP makes sense. That approach includes a thorough investigation of any and all documented extreme storms that occurred anywhere close to the point of interest where "close" may be several hundred miles away. Hence, a key component of our current data study is the development of a comprehensive list of all of the heaviest storms to hit the Rocky Mountain region anytime in recorded history.

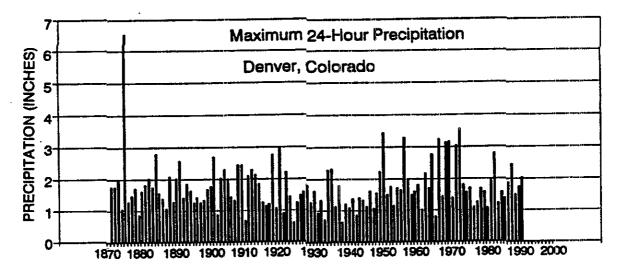


Figure 4. Time series of maximum one-day precipitation totals each for Denver, CO 1872-1993.

Currently about 200 storms have been identified that are candidates to help us understand how heavy it has rained, how heavy it might be able to rain, and how rainfall may increase or decrease as a function of elevation and topography. Of these 200 storms, most exceeded the 100-year storm (as defined by the NOAA Atlas 2) either in terms of intensity, duration or areal extent. Of these storms nearly one-third occurred outside of Colorado but are thought to be potential applicable to understanding Colorado storms. Figure 5 graphically shows the time of year when these heaviest storms have occurred. Two periods account for a large percentage of the storms; May through mid June and late July through early September. Storms have been identified according to a simple geographic classification. Some overlap is allowed when classifying storms and not all storms have been classified yet.

	Geographical Classification	Number of Storms
1)	Great Plains	30
2)	Front Range and Eastern Foothills	73
3)	Southwestern Rocky Mountains	28
4)	Northern Rocky Mountains	20
5)	Colorado Plateau	18
6)	Northern Basin	12
	Storms Not Yet Classified	45

It is worth noting that there may be a population bias and a weather station density bias affecting these statistics. Also, the criteria for storm selection varies regionally. Many Great Plains storms that dropped precipitation in excess of what has been recorded at mountains locations were not included since their local impacts were small. Still, local experience that shows the Colorado Front Range foothills and adjacent plains to be particularly vulnerable to intense storms and flash floods is consistent with these results.

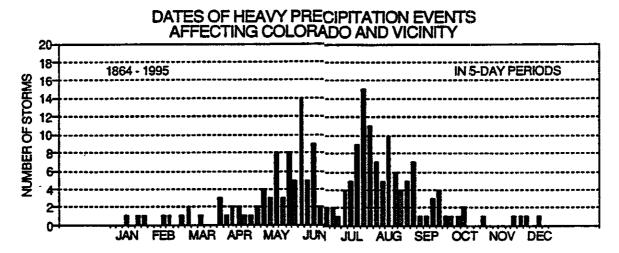


Figure 5. Date of occurrence of very heavy precipitation events in and around Colorado.

As of early September 1995, the storm list is still in draft form, is still being added to and is about to be reviewed by a number of professionals familiar with extreme precipitation in Colorado. It is not appropriate to publish it at this time, but it will be available as a public reference later in 1996 as the data study draws to a close. It is interesting that of all the storms, just a few stand out

as truly remarkable and are listed below. What we learn from these few storms will likely have the greatest impact on our future understanding of extreme precipitation in Colorado.

Conclusions and Future Work

Precipitation data available at this time suggest strongly that intense precipitation decreases with elevation. This is an expected result since the atmosphere's capacity to hold water vapor decreases with elevation. However, the decrease appears to be greater than would be indicated from Convergence, orographic moisture considerations alone. lifting and thermal instability tend to increase precipitation potential with elevation in preferred topographic regions, so other physical factors must be responsible for explaining the large decreases with elevation suggested by the data. challenge of the future is to use additional tools such as numerical mesoscale models and the new National Weather Service radar products and to give priority to high elevation precipitation data collection in order to gain more insight into precipitation processes over the Rocky Mountains, particularly those related to extreme precipitation.

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Heaviest Storm Events in/near Colorado						
Location	Date	Description				
Front Range	22 May 1876	6.53" at Denver - probably more elsewhere - widespread				
Ward District	29-31 May 1894	Widespread 3-6"/day, Boulder flooding				
Larimer County	May 1904	8" or more near Boxelder				
San Juan Mtns	4-6 Oct. 1911	8.05"/day at Gladstone (??)				
Front Range	14-16 April 1921	Extreme snowstorm, 76"/day at Silver Lake, rains below				
Penrose, CO	2-6 June 1921	12"+ near Canon City				
Savageton, WY	27-30 Sep. 1923	17" in 2 days				
Southwest CO	26-29 June 1927	3-6" rains in San Juans				
Eastern CO	30-31 May 1935	est 24" near Hale and Elbert				
Front Range	31 Aug-3 Sep. 1938	7*/6 hrs Morrison, 8*+ near Masonville				
Masonville, CO	10 Sep. 1938	5-7" in 1-3 hours				
Morgan, UT	16 Aug. 1958	> 6"/day				
Gibson Dam, MT	6-8 June 1964	16.2" Gibson Dam				
Plum Creek, CO	13-20 June 1965	Multi-day convective outbreak 11"/day Holly same Plum Creek, Bijou Creek				
Big Elk Meadows	4-8 May 1969	13"/4 days Boulder - more in Colorado foothills				
Dove Creek, CO	5 Sep. 1970	6"/12 hours also Bug Point, UT				
Southwest CO	19-20 Oct. 1972	5*/2 days Durango, widespread				
Front Range	5-6 May 1973	Widespread 3-6" storm - flooding				
Big Thompson, CO	31 July 1976	12"/6 hours near Drake				
Frijole Creek, CO	3 July 1981	16"(est) 4 hours east of Trinidad				
Cheyenne, WY	1 Aug. 1985	7"/3 hours				
Opal, WY	16 Aug. 1990	7*/2 hours				

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EXTREME PRECIPITATION IN THE COLORADO MOUNTAINS

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1. INTRODUCTION TO THE PROBLEM

Dozens of large reservoirs and hundreds of small dams and man-made lakes have been built high in the Rocky Mountains of Colorado since the late 1800s. Few new structures have been built in recent years, but there is continued concern regarding these structures and the risk they may pose to downstream residents and property owners should they be overtopped or fail during flood events. To help provide guidance for the design, construction and operation of dams and spillways, an approach was developed many years ago (U.S. Weather Bureau, 1947) for estimating the maximum precipitation rates, durations, and areal extents that might be possible in watersheds throughout the United States. This methodology, now known as the Probably Maximum Precipitation (PMP), has been steadily refined and updated. The most recent estimates of PMP for areas of Colorado have been published by Hansen et al (1977, 1988).

Published figures of the PMP for Colorado provide precipitation values that initially seem excessive. Estimates of the 24-hour PMP for 10 square mile areas east of the Continental Divide range from a minimum of 15 inches at Leadville to a maximum of 36 inches at the eastern base of the Front Range foothills near Boulder. In Colorado, the PMP for a small area is often 5 to 12 times greater than the heaviest rainfall actually observed during the past century. Maps of PMP estimates in the Colorado High Country show PMP values to decrease with elevation at a rate that appears comparable to the decrease in the atmosphere's water-holding ability as a function of decreasing temperature and atmospheric depth (moist adiabatic Before judging PMP values to be excessive, it is important to understand what PMP is It is not derived solely from intended to be. observed rainfall rates. However, it must be noted that the PMP is intentionally conservative and is designed to provide an objective evaluation of the worst case scenario. In concept, the PMP is not a statistical extrapolation of a 100-year storm but is rather a meteorological estimate of how much rain could conceivably fall in an area if meteorological conditions associated with known heavy rains were maximized to reasonable physical limits.

Considerable debate has taken place in Colorado during the past 20 years concerning PMP and its application. Three factors have helped raise some level of doubt concerning the validity of PMP estimates. Hydrologic and paleoflood research by Jarrett (1989) pointed out that most high elevation (above about 7500 feet) observed peak stream flows have been the result of snowmelt and not intense rains. Almost no geologic evidence of large floods at high elevations is found in Colorado has been found. The second factor is data. Using traditional precipitation data from locations in the mountains, there is very little indication of high elevation rainfalls of 3 inches or more in 24 hours. Even 2 inch 24hour totals are rare. Many of the reports of heavier rains either appear suspect to some meteorologists when closely scrutinized or else come from secondary data sources. The third factor is money. The cost to build or modify dams and spillways that would not be overtopped by flooding associated with the PMP is extremely high. While the concept of no risk dams is appealing, the cost to construct or modify structures to safely accommodate the Probable Maximum Flood (PMF - the flood expected to result from a PMP storm) is high. Changnon (1986) showed that the cost in 1984 dollars would be approximately \$184 million to modify just the existing high risk structures in the area of Colorado east of the Continental Divide. In light of these three factors, a strong motivation has developed to carefully re-evaluate extreme precipitation.

The Colorado Department of Natural Resources, Division of Water Resources, has been actively pursuing opportunities to objectively evaluate the extreme precipitation in light of the expanding set of precipitation data from high elevation areas that have been gathered since PMP reports for Colorado were first prepared. In 1994,

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the Colorado legislature approved funding to begin a study. The remainder of this paper outlines the work that is underway at the Colorado Climate Center and planned in the coming years.

2. DATA STUDY

Precipitation, streamflow and meteorological conditions associated with very large or potentially large precipitation events is the foundation of the first stage of this research project. The following data are being gathered to support basic research on extreme precipitation and subsequent local or regional investigations or reanalyses of extreme precipitation or PMP estimates.

- A complete set of maximum 1-day, 2-day and 3day and hourly precipitation, by month, for the period of record for all available weather stations with emphasis on areas above 5,000 feet in elevation.
- 2. An inventory for known large storms dates, locations, and any supportive documentation.
- 3. Upper air climatology associated with extreme precipitation.
- 4. Streamflow data for large flood events.
- Site specific studies of extreme precipitation from any sources in or near Colorado.

The best available data sets for updated analysis of statistical values and probabilities for extreme precipitation will be prepared. The inventory of storms will be reduced to a small set, probably less than 20 storms from the past 100 years, that will be judged to be of greatest value in understanding the meteorology of extreme precipitation at higher elevations in Colorado. A panel of experts from various fields will be convened to review the work of the Colorado Climate Center and to make the final selection of storms to be included in future PMP studies in Colorado.

3. FUTURE WORK

The overall goal of this project is to gain more confidence in estimates of extreme precipitation so decision makers can apply the results with an appropriate but not excessive margin of safety. To meet this goal, a better physically-based scientific understanding of precipitation processes in extreme events at high elevations is needed. Cloud scale and mesoscale modeling

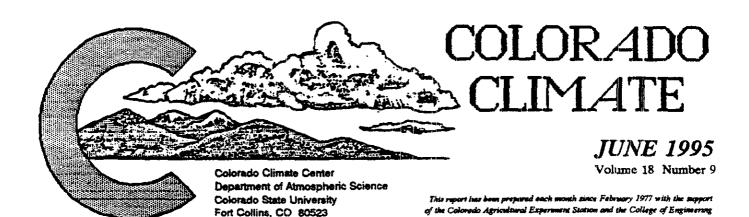
expertise needs to be focused on this problem. A workshop on modeling applications to extreme precipitation will be convened in 1996. Radar data collection and analysis will be planned to better document point-area relationships of heavy precipitation in the mountains and to more accurately define duration characteristics of local storms in mountainous terrain.

ACKNOWLEDGMENTS

This research was supported by the State of Colorado, Department of Natural Resources, under contract number C154204.

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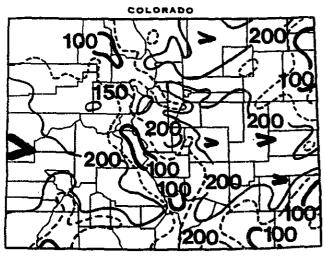


June Climate in Perspective - Cool and Wet Again

June weather conditions were cloudier, cooler and wetter than usual for the third month in a row. Strong thunderstorms with local downpours, some damaging hail and a few tornadoes were also numerous. At last, there were some hot, dry summer days to help corn grow and wheat ripen, but with that came rapidly melting mountain snowpack causing many rivers and streams to run near flood stage. Although water levels were very high, actual damage from flooding was fairly minor. Unfortunately, several river recreationalists lost their lives.

Precipitation

Big thunderstorms were the rule early in June, especially east of the mountains. Then a strong mid-June weather system bought widespread rainfall to western



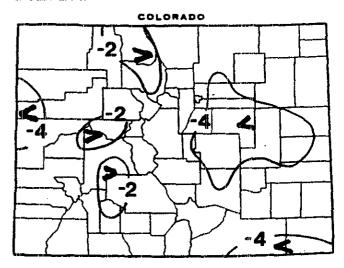
June 1995 precipitation as a percent of the 1961-1990 average.

Colorado. The month ended with three days of gloomy, drizzly weather that even included some high elevation snow. Total June precipitation ended up less than May 1995 but still much above average across most of the State. Monthly

totals exceeded 200% of average over much of the Front Range and Eastern Plains and over portions of western Colorado. New Raymer's 9.50' monthly total was the wettest in the State. Just a handful of locations received less June precipitation than average including Steamboat Springs, the Collegiate Valley near Salida, and a few small areas in extreme eastern and southern Colorado.

Temperatures

June temperatures were cooler than average in all areas of Colorado. Most locations ended up a modest 2 to 3 degrees F cooler than normal for the month. Portions of eastern Colorado and an area near Grand Junction on the Western Slope were more than 4 degrees below average. These temperatures were very comfortable at lower elevations. Only one heatwave in mid June took the mercury up into the 80s and 90s. In the mountains, cool June temperatures continued to retard snowmelt rates. Readings finally made it up close to 60 degrees June 11-16th and 19-28th bringing surging runoff. Denver's high temperature only reached 90° one time compared to 16 days of 90 or greater in June 1994.



Departure of June 1995 temperatures from the 1961-90 average.

<u> </u>								
Inside This Issue								
June 1995 Daily Weather	Comparative Heating Degree Day Data							
June 1995 Temperature Comparison	June 1995 Climate Data							
June 1995 Precipitation	Special Feature: How Hard Can It Rain?							
	JCEM WIRHNET June 1995 Data							
1995 Water Year Precipitation								

At any location in Colorado, precipitation typically falls 200 to 400 hours per year. This increases to over 500 hours per year in high mountain areas in northern and central Colorado. But of these hundreds of hours, most of them bring light precipitation (0.10" or less of precipitation per hour). In most years and at most places, only a handful of hours per year bring heavy precipitation (more than 0.30" of precipitation per hour). Occasionally, much more rain can fall in an hour. These intense rains happen infrequently, but for certain applications, they are the most important hours of the year.

Whenever a dam, a bridge, a highway, an office building, a parking lot, a subdivision, or even a house is built, it is important to have a good idea of how hard it can rain. How we handle runoff from heavy storms is often taken for granted, but it can make all the difference in the world. It may be a minor inconvenience if it rains so hard that the gutters on your roof can't carry the water away as fast as it falls. That inconvenience turns into a problem if the water in a subdivision flows into someone's basement instead of into a detention pond, ditch or storm sewer. That problem turns into great frustration if the water floods an intersection or underpass during rush hour, stalling dozens of cars. That frustration turns into a nightmare when water sweeps over culverts, cuts across roads, destroys bridges and carries away cars or homes. The nightmare becomes a total disaster if one of Colorado's many dams were to give way to the flood waters. Since 1900, about 320 Coloradans have been killed by flash flooding.

By knowing how hard it can rain, and by having a reasonable idea of how often it rains that hard, engineers and planners can do a pretty good job of designing homes, buildings, parking lots, roads, bridges, dams and spillways that will safely carry away the water from most storms. If money was no object, we could do even better and hardly ever suffer flood damage. But the cost of total safety is high. To accomplish total safety would mean that we humans would have to overcome our natural desire to live, work and play close to water. When left to our own devices we reliably choose to build and develop in flood plains.

The Colorado Climate Center is currently working on a fascinating research project for the State of Colorado, Department of Natural Resources, Water Resources Division examining heavy rains in Colorado. By investigating tons of data from all over the State, we hope to be able to better answer the question, "How hard can it rain?"

This study began early this year. In recent months we have assembled information from as many weather stations as possible to help identify the times, places and intensities of the heaviest rains in Colorado. We are examining maximum precipitation totals from recording raingages for 1-hour, 2-hour, 3-hour, 6-hour, 12-hour and 24-hour periods. Many of Colorado's weather stations only measure precipitation totals once each day. For these many stations we are identifying the maximum 1-day, 2-day and 3-day precipitation totals for each year since data collection began.

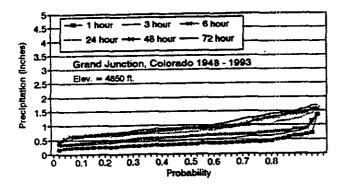
A list of the heaviest rainstorms that have been historically documented is now being assembled. We will be studying these storms in more detail to see how large, how intense, and how long-lasting extreme precipitation has been.

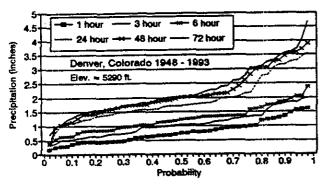
We will be working on this project for another full year, but let me show you a few things that we have found so far. For starters, here is an updated list of the largest one-day precipitation totals at selected locations in Colorado. (We showed similar information back in the June 1985 issue of Colorado Climate).

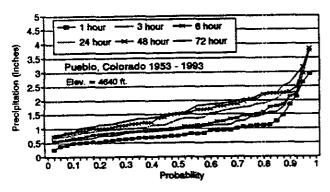
Ma	Maximum Observed One-Day						
Precipitation (Inches)							
Location	Amount	Date	Yrs of Record				
Alamosa	1.78	Jul 28, 1939	61				
Aspen	2.87*	Mar 14, 1960					
Boulder	4.80	Jul 31, 1919	100				
Burlington	4.00	Oct 19, 1908	101				
Canon City	4.31	May 30, 1894	101				
Colorado Spr	3.64	Jul 7, 1947	53				
Cortez	2.20	Dec 16, 1908	86				
Craig	1.96	Aug 7, 1970	63				
Denver	6.50	May 22, 1876	125				
Dillon	2.34	Dec 1, 1909	8 6				
Durango	3.65	Oct 19, 1972	98				
Eagle	1.75	Jun 2, 1943	63				
Fort Collins	4.43	July 25, 1977	117				
Grand Junction	1.87	Sep 22, 1941	104				
Gunnison	1.60	Feb 21, 1894	101				
Lamar	5.64	May 29, 1964	100				
Leadville	2.10	Dec 24, 1983					
Мескет	3.24	Aug 10, 1925	59				
Montrose	1.70	Oct 20, 1963					
Pueblo	2.95	Aug 29, 1955	40				
Silverton	4.05	Oct 5, 1911	88				
Steamboat Spr	2.71	Mar 2, 1929	93				
Sterling	4.88	Aug 15, 1968	85				
Trinidad	4.52	Jul 3, 1981	46				
	* = qu	estionable data					

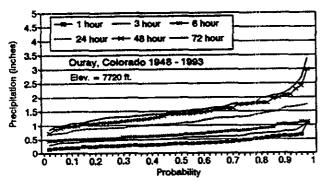
The heaviest rainfall rates (rainfall per hour or day) in Colorado occur east of the mountains. Holly, in extreme southeastern Colorado reported 11.08" of rain in 24 hours back on June 17, 1965, the heaviest rainfall in Colorado at an official weather station. There have been heavier unofficial reports, however, and some of these are likely true. The storms that caused the devastating flood in the Big Thompson Canyon the evening of July 31, 1976 dropped approximately 12" in 5 hours. A similar amount of rain fell near Penrose, Colorado the night of June 3, 1921 during an 18-hour period. The infamous Plum Creek storm of June 16-17 of 1965 dropped more than 14" of rain in several areas north and east of Colorado Springs. Although very localized, the "Daddy of 'em all" was the day and night of May 30, 1935. A system of storms managed to miss nearly every official raingage, but results of special post-storm surveys known as "bucket surveys" suggested that close to 24" of rain may have fallen in two small areas of eastern Colorado, one near Elbert and the other north of Burlington. It is possible that these estimates could be off by several inches, but even if they were — imagine what your neighborhood would be like if you got more than 15" of rain in less than 24 hours. It would not be pretty.

Maximum Observed Precipitation Amounts for Specified Durations









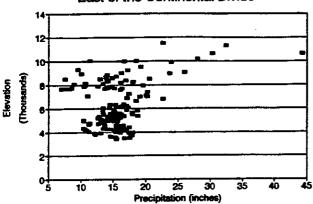
Our primary focus in this study is on the really big storms, but in the process we are examining the heaviest precipitation that has fallen in every month of every year at every station in Colorado as far back as data have been collected. In so doing, you can see why it is easy for us to get complacent and not be too careful in where we put our structures and how well we build them. In Grand Junction, for example, in 75% of all years there have been no storms with more than 1.00" of rain in 24-hours at the National Weather Service airport weather station. Only 17% of the years since 1948 had maximum one-hour rainfall totals greater than 0.50°. Much more rain falls east of the mountains, but even so, most years do not bring heavy rains to any individual point. Maximum daily rainfall is less than 2.00° in approximately 75% of all years based on Denver weather observations taken at Stapleton Airport. Half of all years never see a maximum hourly rainfall total of more than 0.75".

The graphs to the left show the observed distribution of maximum annual precipitation totals for various time periods for selected locations. It takes a while to get used to looking at these graphs, but they say a lot about the likelihood of heavy precipitation. Precipitation amounts for the various storm durations at the 0.5 probability are equivalent to what engineers and hydrologists call a 2year storm. At the higher end of the scale, the 0.8 nonexceedance probability is a 5-year storm, the 0.9 probability is a 10-year storm. The precipitation values associated with a 0.99 nonexceedance probability is an estimate of the 100-year storm. Interesting observations from these graphs are that 72-hour precipitation is only slightly greater than 48-hour since most heavy Colorado storms do not last longer than 2 days. Also, it is interesting that Denver gets greater precipitation than Pueblo for long duration storms, but Pueblo exceeds Denver in short duration.

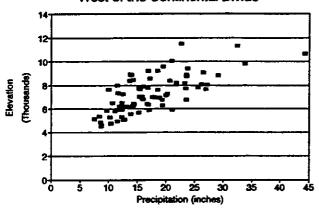
We are also looking into the very interesting question of how intense rainfall changes with elevation. While annual and seasonal precipitation totals increase with elevation in most areas of Colorado, intense precipitation rates decrease with elevation. Much of the work we will be doing in the next year will be looking in greater detail at storm characteristics at higher elevations where many dams and reservoirs have been built during the past 100 years.

One of the important things to remember when considering and designing for heavy precipitation is that for some applications, of which dams and spillways may be the best example, it is not how heavy it has rained in the past 10, 25, 50 or 100 years that matters. Rather, what matters most is how heavy it could rain anytime after the structure is built. Whenever I look at the graph of maximum daily precipitation each year at Denver, it makes me stop and think. If the weather station had not been there back in 1876, we would be tempted to believe that anything greater than 4" in 24-hours is a huge rain. But the 6,50" that fell back on May 22, 1876 puts that in perspective and has encouraged engineers to design structures a bit more conservatively.

Elevation vs Oct-Sept Avg Precip East of the Continental Divide

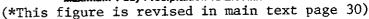


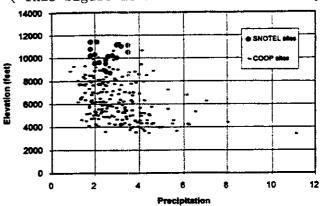
Elevation vs Oct-Sept Avg Precip West of the Continental Divide



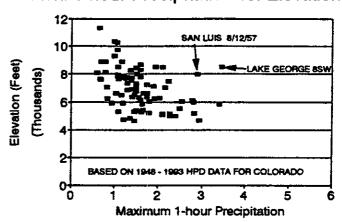
Finally, have you ever wondered, during a truly intense thunderstorm downpour, just how hard it can rain for brief periods. There are a few documented instances (none yet in Colorado, to my knowledge) where more than 1" of rain has fallen in one minute. The maximum rates observed for very short time periods here in Colorado have been on the order of 0.30 - 0.40° per minute. These cloud bursts usually last less than 5 minutes. Rainfall totals of around 1" in ten minutes (a rainfall rate of 6" per hour) do occur occasionally, primarily east of the mountains. Anything over a total of 2" in an hour constitutes a very heavy storm capable of causing flooding. A handful of stations in eastern Colorado have reported more than 3" in an hour. Only a few storms (fortunately) maintain high rainfall rates for longer time periods. These are the ones that really scare us and these are the ones that have claimed many lives - the Cheyenne, WY storm of 1985, the Big Thompson storm of 1976, the Plum Creek storm of 1965, the eastern Colorado storm of 1935 and the Pueblo storm of 1921. These storms have struck before and will strike again. The odds say that most of us will never experience such a tumult, but some of us will. Therefore, it is best that we all be prepared.

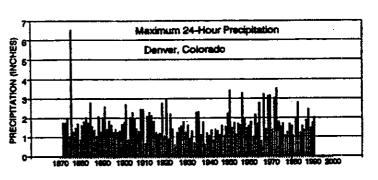
Maximum 1 day Precipitation vs Elevation *





Max. 1-hour Precipitation vs. Elevation





HAVE YOU WITNESSED A BIG STORM? Tell us about it!!

If you have any information on exceptionally heavy storms (greater than 4" in 6-hours) or intense short-duration rainfall rates in excess of 0.30" per minute or 3" per hour, please bring them to our attention. Extreme storms can be very localized and can miss the official raingages. Your reports of these heavy storms could help our current study and could impact engineering design and construction in the future. Please share your information with us.