UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HYDROLOGIC DATA FOR URBAN STORM RUNOFF FROM NINE SITES IN THE DENVER METROPOLITAN AREA, COLORADO

By Johnnie W. Gibbs

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UNITED STATES DEPARTMENT OF THE INTERIOR

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[Plates are in pocket]

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METRIC CONVERSION FACTORS

Multiply	*By*	*To obtain*
inch	25.40	millimeter
foot (ft)	.3048	meter
acre	.4047	hectare
square mile	2.590	square kilometer
cubic foot (ft^3)	.02832	cubic meter
cubic foot per second (ft^3/s)	.02832	cubic meter per second
ton per acre-foot	1.119×10^{-3}	metric ton per cubic hectometer
ton per day	.9072	metric ton per day
yard	.9144	meter
		microgram per liter (UG/L)
		milligram per liter (MG/L)
		milliliter (ML)

GLOSSARY

basin drainage.--A region or area bounded by a drainage divide and occupied by a drainage system; specifically the tract of country that gathers water originating as precipitation and contributes it to a particular stream channel or system of channels, or to a lake, reservoir, or other body of water.

detention pond.--A pond wherein water is stored for a relatively brief period of time, part of it being detained until the stream can safely carry the ordinary flow plus released water.

impervious areas.--Areas which do not permit percolation of water, such as streets, sidewalks, roofs, and paved parking lots.

impervious areas, effective.--Impervious areas which are connected and, in turn, connect to some means of conveying the runoff out of the areas, such as roofs which drain onto driveways, streets, sidewalks, and paved parking lots.

impervious areas, noneffective.--Impervious areas which are not connected to other impervious areas and which drain to pervious areas, such as roofs which drain onto lawns.

land use.--A term which relates to both the physical characteristics of the land surface and the human activities associated with the land surface (Alley, 1976).

pervious areas.--Areas that allow percolation of water, such as lawns and fields of porous material.

receiving water.--"Natural" body of water that receives runoff from one or more catchments; this may include a tributary, river, estuary, bay, lake, or other body of water.

Thiessen coefficient.--A proportion of the area of the subcatchment represented with each rain gage.

urban storm runoff.--Storm-generated surface runoff from an urban drainage area. The term may relate to either the quantity or quality of the runoff or both, depending upon its application (Alley, 1976).

HYDROLOGIC DATA FOR URBAN STORM RUNOFF FROM NINE SITES IN THE DENVER METROPOLITAN AREA, COLORADO

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ABSTRACT

Urban storm-runoff data, collected from April through September 1980 from nine urban-runoff sites in the Denver metropolitan area, are presented in this report. The sites consist of two single-family residential areas, two multifamily residential areas, one commercial area (shopping center), one mixed commercial and multifamily residential area, one natural area (open space), and two detention ponds. Precipitation, rainfall-runoff, water-quality (common constituents, nutrients, coliform bacteria, solids, and trace elements), and basin-area data are necessary to use the U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II. The urban storm-runoff data may be used to characterize runoff-pollution loading for various land-use types in Denver and other semiarid regions.

INTRODUCTION

A recent report by the Colorado Department of Health (Anderson, 1978) concluded that the major receiving waters in the Denver region are heavily impacted by nonpoint sources of pollution. Results of nonpoint source-pollution studies in the Denver area by Alley and Ellis (1978) and Hall and Duncan (1981) indicate large pollution loads are delivered to area streams from various sources each year.

Due to lack of data availability in the semiarid west and to comply with the Congressional mandate to conduct a nationwide assessment of urban runoff and to present these findings to Congress in 1983, the U.S. Geological Survey entered into a cooperative agreement with the Denver Regional Council of Governments (DRCOG) to collect data from April 1980 through September 1981.

The U.S. Geological Survey and DRCOG selected seven basins and installed nine monitoring sites (fig. 1). These sites consist of two single-family residential areas, two multifamily residential areas, one commercial area (shopping center), one mixed commercial and multifamily residential area, one natural area (open space), and two detention ponds. These sites are equipped with automatic urban-hydrology monitors, which are capable of synchronized measurement of flow, stage, and rainfall (maximum of four gages), and the recording of sample-collection data and time. The monitors can be programed to collect water-quality samples at a selected flow, stage, or time.

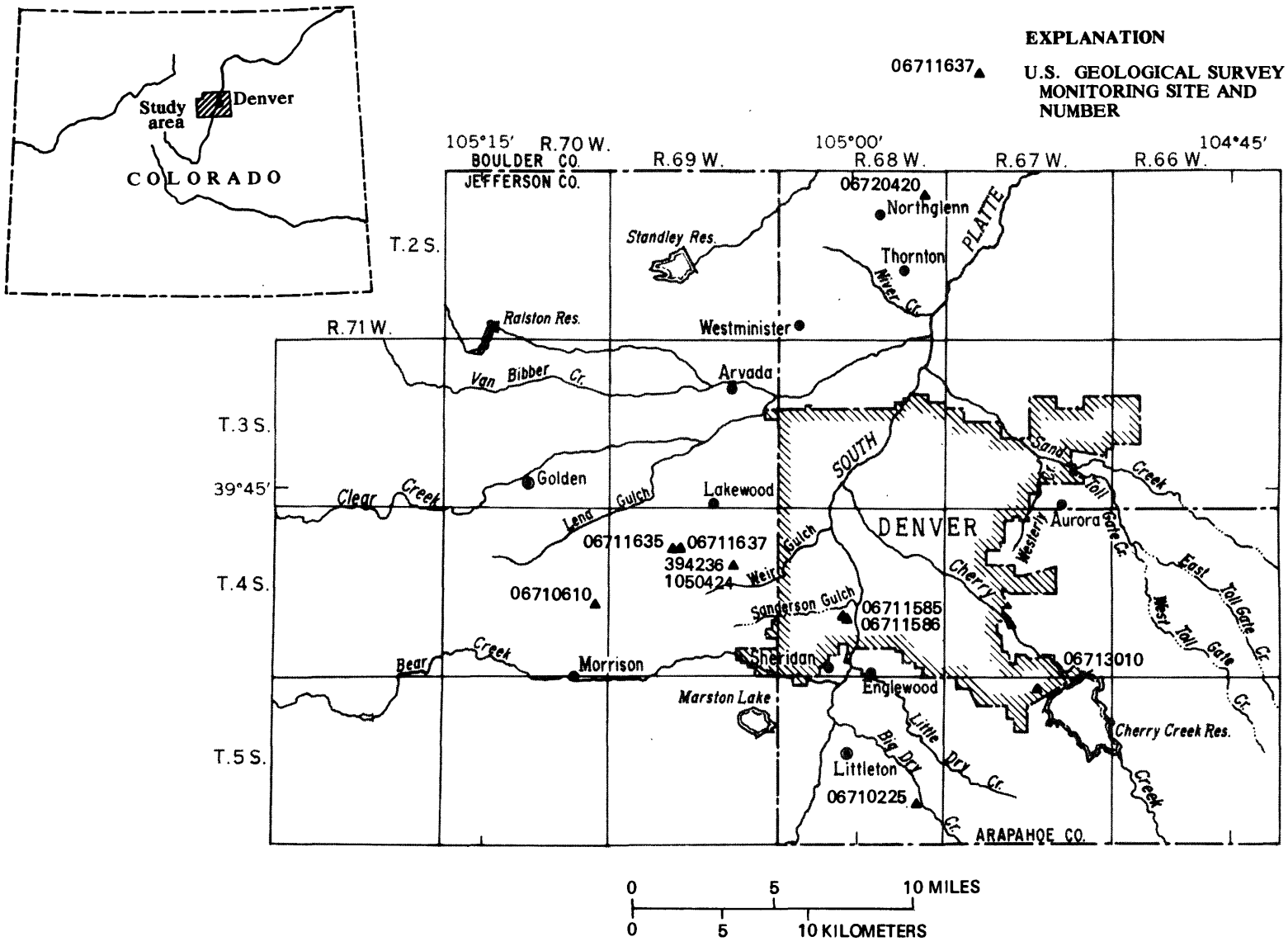

Figure 1.--Location of monitoring sites and general features.

Approach

An urban-hydrology monitoring site consists of several types of instrumentation. This instrumentation includes rainfall-measuring equipment, various stage and discharge-meauring devices, water-quality-sampling equipment, atmospheric-deposition sampler, input-output digital recorder, and the system control unit.

Rainfall-measuring equipment is of two types--the tipping-bucket rain gage and the 3-inch pipe gage equipped with a float and digital recorder. The tipping-bucket rain gages which are not located at the monitoring site, are connected to the system control unit via telephone lines. Pipe gages only are used at the Rooney Gulch site, due to the lack of telephone lines.

Water-stage and discharge-recording equipment consists of three types of instruments: velocity-modified flow meter, digital water-stage recorder, and continuous strip-chart water-stage recorder. Velocity-modified flow meters are used at the Asbury Park Storm Drain at Denver and at the Villa Italia Storm Drain at Lakewood. Digital water-stage recorder and culvert computations are used at the North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood. Continuous strip-chart water-stage recorders and Parshall flumes are used at the Big Dry Creek tributary at Easter Street, near Littleton; Rooney Gulch at Rooney Ranch, near Morrison; and the Storm Drain at 116th Avenue and Claude Court, at Northglenn. Continuous strip-chart water-stage recorders and a V-notched weir are used at the North Avenue Storm Drain at Denver Federal Center, at Lakewood. Continuous strip-chart water-stage recorders and culvert computations are used at the Asbury Park Storm Drain at Denver and at the Cherry Knolls Storm Drain at Denver.

A water-quality sampler is mounted on a commercial chest-type home-appliance freezer. The sampler has the capacity to collect 24 3-liter water samples.

Atmospheric-deposition collectors are used to collect atmospheric-fallout samples. These samples are collected by a mechanism which opens the wetfall collector when rainfall begins and simultaneously closes the dryfall collector. This procedure is reversed when rainfall ceases. No atmospheric-deposition samples were collected during the first sampling period, April through September 1980, due to a purchasing delay.

With its programable features, the system control unit provides a means for tailoring basic programs to fit individual basins sampled in the urban-hydrology runoff program. The Julian day, stage, number of samples, and rainfall are recorded on 16-channel paper tape by an input-output digital recorder.

DESCRIPTION OF DRAINAGE BASINS

Selected data for the nine urban runoff-monitoring sites include the following: station identification number, name of site, latitude and longitude, drainage area, and the effective impervious area. These data are presented in table 1. Locations of rain gages for each site are presented in table 2. The following section describes each of the nine sites.

Table 1.--Selected data for monitoring sites and drainage basins

U.S. Geological Survey site number	Name of monitoring site	Latitude longitude	Drainage area, in acres	Percentage of area covered by effective impervious surface
06710225	Big Dry Creek tributary at Easter Street, near Littleton----------	39°35'17" 104°57'20"	33.0	41.3
06710610	Rooney Gulch at Rooney Ranch, near Morrison----------	39°41'27" 105°11'32"	405	.6
06711585	Asbury Park Storm Drain at Denver----------	39°40'52" 105°00'42"	121	22.2
06711586	Asbury Park Storm Drain at Asbury Avenue, at Denver-----	39°40'51" 105°00'41"	127	21.5
06711635	North Avenue Storm Drain at Denver Federal Center, at Lakewood----------	39°43'21" 105°07'47"	68.7	50
06711637	North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood----------	39°43'22" 105°07'36"	79.7	46
06713010	Cherry Knolls Storm Drain at Denver----------	39°38'58" 104°52'47"	57.1	37.5
06720420	Storm Drain at 116th Avenue and Claude Court, at Northglenn--	39°54'23" 104°57'34"	167	23.9
394236105042400	Villa Italia Storm Drain at Lakewood----------	39°42'36" 105°04'24"	73.5	91.2

Table 2.--Location of rain gages for Denver Urban-Runoff Program

Site name	Rain gage number	Location	Latitude	Longitude
Big Dry Creek tributary at Easter Street, near Littleton	1	Gagehouse roof	39°35'17"	104°57'20"
	2	Clubhouse roof	39°35'11"	104°57'38"
Rooney Gulch at Rooney Ranch, near Morrison	1	Gagehouse roof	39°41'27"	105°11'32"
	2	Northeast of substation	39°41'58"	105°11'30"
	3	Plateau of ridge	39°42'01"	105°10'49"
Asbury Park Storm Drain at Denver	1	Upstream gagehouse roof	39°40'52"	105°00'42"
	2	Downstream gage-house roof	39°40'51"	105°00'41"
	3	Library roof	39°40'57"	105°01'32"
North Avenue Storm Drain at Denver Federal Center, at Lakewood	1	Upstream gagehouse roof	39°43'21"	105°07'47"
	2	Downstream gage-house roof	39°43'22"	105°07'36"
Cherry Knolls Storm Drain at Denver	1	Gagehouse roof	39°38'58"	104°52'47"
	2	Pumphouse roof	39°38'49"	104°52'55"
Storm Drain at 116th Avenue and Claude Court, at Northglenn	1	Gagehouse roof	39°54'23"	104°57'34"
	2	School roof	39°54'31"	104°58'02"
	3	Church roof	39°54'49"	104°58'00"
Villa Italia Storm Drain at Lakewood	1	Roof of World of Sleep store	39°42'36"	105°04'24"

Big Dry Creek Tributary at Easter Street, near Littleton

Big Dry Creek tributary at Easter Street drains a multifamily residential area in southwest metropolitan Denver. The basin area consists of 33 acres, and the effective impervious area is 41 percent. The basin contains two swimming pools and two small (less than an acre) open-space areas. The monitoring site is located on a small natural drainage which is a tributary to Big Dry Creek. A 2-foot Parshall flume is used to measure flow.

Two rain gages are located in the basin. Rain gage 1 is located at the monitoring shelter, and rain gage 2 is located at the Southglenn Commons Clubhouse (pl. 1).

Rooney Gulch at Rooney Ranch, near Morrison

Rooney Gulch at Rooney Ranch drains an open space in Jefferson County. The basin area consists of 405 acres, and the effective impervious area is 0.6 percent. The monitoring site is located approximately 300 yards upstream of Alameda Parkway and 100 yards east of Rooney Road. A 1-foot Parshall flume is used to measure flow.

Three rain gages are located in the basin. Rain gage 1 is located at the monitoring shelter, rain gage 2 is located near the north boundary of the study area, and rain gage 3 is located near the east boundary of the study area (pl. 2).

Asbury Park Storm Drain at Denver

Asbury Park Storm Drain drains a mixed commercial and residential area in southwest Denver. The basin consists of 121 acres, of which 14 percent is light commercial, 52 percent is low-density single-family residential (1/2-acre lots), and 34 percent is high-density single-family residential (1/6-acre lots). The effective impervious area is 22 percent. The monitoring site is at a 48-inch storm drain, inlet to the detention pond near the north boundary of Asbury Park. A velocity-modified flowmeter is used to measure flow. One rain gage is located in the basin on the monitoring shelter (pl. 3).

Asbury Park Storm Drain at Asbury Avenue, at Denver

Asbury Park Storm Drain at Asbury Avenue is approximately 100 yards downstream from the Asbury Park Storm Drain; the basin drained includes the Asbury Park Storm Drain and a detention pond of 70,000-ft^3 capacity. The basin consists of 127 acres, and the effective impervious area is 22 percent. The monitoring site is located on the south side of the detention pond at the outlet. Culvert computations are used to determine flow.

Two rain gages are located in the basin. Rain gage 2 is located on the monitoring shelter, and rain gage 3 is located on Hadley Library (pl. 3).

North Avenue Storm Drain at Denver Fedhral Center, at Lakewood

North Avenue Storm Drain at Denver Federal Center drains a mixed light commercial and multifamily residential area in southwest Lakewood. The basin consists of 69 acres, and the effective impervious area is 50 percent. The basin is approximately 33 percent multifamily residential, 30 percent light commercial, and 37 percent open space. The monitoring site is located on an open storm drain at the Denver Federal Center. A V-notched weir is used to determine flow. One rain gage is located in the basin on the monitoring shelter (pl. 4).

North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

North Avenue Storm Drain at Denver Federal Center North Avenue is approximately 150 yards downstream from the North Avenue Storm Drain at the Denver Federal Center, and the basin drained includes the North Avenue Storm Drain and a detention pond of 200,000-ft^3 capacity. The basin area consists of 80 acres and the effective impervious area is 46 percent. The monitoring site is located on the east side of the detention pond at the outlet. Culvert computations are used to determine flow. One rain gage is located in the basin on the monitoring shelter (pl. 4).

Cherry Knolls Storm Drain at Denver

Cherry Knolls Storm Drain is in a multifamily residential area in southeast Denver. The basin area consists of 57 acres and the effective impervious area is 38 percent. There are four swimming pools and several open areas in the basin. The monitoring site is located at the outlet of a small detention pond, which has no effect on outflow from the basin as the outlet flow capacity is greater than the inlet flow capacity. Flow is determined using culvert computations.

Two rain gages are located in the basin. Rain gage 1 is located on the monitoring shelter, and rain gage 2 is located at the Second Cherry Creek Townhouse pump building (pl. 5).

Storm Drain at 116th Avenue and Claude Court, at Northglenn

The storm drain at 116th Avenue and Claude Court drains a single-family residential area in northeast Northglenn. The basin area consists of 167 acres, with 1/6-acre lots, and the effective impervious area is 24 percent. The one school and church in the basin are considered functional parts of the single-family residential area. The monitoring site is located at the storm drain east of 116th Avenue and Claude Court. A 4-foot Parshall flume is used to measure flow.

Three rain gages are located in the basin. Rain gage 1 is located at the monitoring shelter, rain gage 2 is located at Northeast Junior High School, and rain gage 3 is located at Calvary Community Baptist Church (pl. 6).

Villa Italia Storm Drain at Lakewood

Villa Italia Storm Drain is in a light commercial area in Lakewood. The basin consists of 74 acres, and the effective impervious area is 91 percent. The monitoring site is located near a 42-inch storm drain on the east side of the Villa Italia Shopping Center. A velocity-modified flowmeter is used to determine flow. One rain gage is located in the basin on the roof of World of Sleep Store (pl. 7).

RAINFALL DATA

Daily average rainfall data are presented for Big Dry Creek tributary in table 3, for Rooney Gulch in table 4, for Asbury Park Storm Drain in table 5, for Asbury Park Storm Drain at Asbury Avenue in table 6, for North Avenue Storm Drain at Denver Federal Center in table 7, for North Avenue Storm Drain at Denver Federal Center North Avenue in table 8, for Cherry Knolls Storm Drain in table 9, for Storm Drain at 116th Avenue and Claude Court in table 10, and for Villa Italia Storm Drain in table 11.

Table 3.--Estimated rainfall for 1980 from unofficial gages for Big Dry Creek tributary at Easter Street, near Littleton

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.16	0.00	0.28	0.00	0.00
2	---	.02	.00	.08	.00	.00
3	---	.06	.00	.01	.00	.00
4	---	.02	.00	.00	.00	.00
5	---	.00	.00	.00	.00	.00
6	---	.00	.00	.00	.00	.00
7	---	.14	.00	.03	.00	.00
8	---	.09	.00	.02	.00	.15
9	---	.00	.00	.03	.00	.37
10	---	.00	.00	.31	.00	.05
11	---	.00	.00	.19	.00	.00
12	---	.00	.00	.00	.00	.00
13	---	.00	.00	.00	.00	.00
14	---	.26	.00	.00	1.02	.00
15	---	.61	.00	.00	.04	.00
16	---	.13	.00	.00	.00	.00
17	---	.39	.00	.00	.00	.00
18	---	.00	.00	.00	.00	.00
19	---	.00	.00	.00	.00	.00
20	---	.00	.00	.00	.00	.44
21	---	.00	.00	.00	.00	.00
22	---	.00	.00	.00	.00	.01
23	---	.00	.00	.00	.00	.00
24	---	.00	.00	.00	.00	.00
25	---	.00	.00	.00	.18	.00
26	---	.00	.01	.00	.15	.00
27	---	.00	.00	.00	.16	.00
28	---	.00	.00	.00	.00	.00
29	---	.00	.00	.00	.00	.00
30	---	.00	.04	.00	.04	.00
31	---	.00	---	.00	.00	---

Table 4.--Estimated rainfall for 1980 from unofficial gages for Rooney Gulch at Rooney Ranch, near Morrison

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.55	0.00	0.42	0.00	0.00
2	---	.01	.00	.02	.00	.00
3	---	.04	.00	.03	.00	.00
4	---	.04	.00	.00	.00	.00
5	---	.13	.00	.00	.01	.00
6	---	.05	.00	.00	.00	.00
7	---	.11	.00	.01	.00	.00
8	---	.25	.00	.01	.02	.23
9	---	.00	.00	.10	.00	.64
10	---	.00	.00	.02	.04	.12
11	.16	.07	.00	.11	.01	.01
12	.12	.01	.00	.01	.00	.00
13	.06	.00	.00	.02	.00	.00
14	.01	.30	.00	.01	.04	.01
15	.01	.57	.00	.00	.25	.00
16	.00	.20	.00	.03	.00	.00
17	.00	.40	.00	.00	.00	.00
18	.00	.01	.00	.00	.00	.00
19	.00	.02	.19	.00	.00	.00
20	.00	.01	.09	.00	.00	.26
21	.00	.00	.01	.00	.00	.00
22	.00	.00	.00	.00	.00	.00
23	.82	.00	.01	.00	.00	.00
24	2.00	.00	.00	.11	.02	.00
25	.00	.00	.00	.03	.31	.00
26	.00	.00	.00	.01	.01	.00
27	.00	.00	.00	.01	01	.00
28	.00	.00	.00	.00	.00	.00
29	.01	.00	.00	.00	.00	.00
30	1.42	.00	.00	.02	.16	.01
31	---	.00	---	.01	.01	---

Table 5.--Estimated rainfall for 1980 from unofficial gages for Asbury Park Storm Drain at Denver

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.51	0.00	0.34	0.01	0.00
2	---	.00	.00	.00	.00	.00
3	---	.02	.00	.00	.00	.00
4	---	.02	.00	.00	.00	.00
5	---	.00	.00	.00	.00	.00
6	---	.01	.00	.00	.00	.00
7	---	.39	.00	.00	.03	.00
8	---	.05	.00	.00	.02	.06
9	---	.00	.00	.15	.00	.35
10	---	.00	.00	.48	.04	.06
11	---	.00	.00	.11	.00	.00
12	---	.00	.00	.00	.00	.00
13	---	.00	.00	.00	.00	.00
14	---	.23	.00	.00	.49	.00
15	---	.48	.00	.00	.10	.00
16	---	.18	.00	.00	.00	.00
17	---	.42	.00	.00	.00	.02
18	---	.00	.00	.00	.00	.00
19	---	.00	.00	.00	.00	.00
20	---	.01	.00	.00	.00	.21
21	---	.00	.00	.00	.00	.00
22	---	.00	.00	.00	.00	.00
23	---	.01	.00	.00	.00	.01
24	---	.00	.00	.13	.03	.00
25	---	.00	.00	.00	.25	.00
26	---	.00	.00	.00	.00	.00
27	---	.00	.00	.00	.01	.00
28	---	.00	.00	.00	.00	.00
29	---	.00	.00	.00	.00	.00
30	---	.00	.00	.05	.17	.00
31	---	.00	---	.00	.00	---

Table 6.--Estimated rainfall for 1980 from unofficial gages for Asbury Park Storm Drain at Asbury Avenue, at Denver

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.51	0.00	0.34	0.01	0.00
2	---	.00	.00	.00	.00	.00
3	---	.02	.00	.00	.00	.00
4	---	.02	.00	.00	.00	.00
5	---	.00	.00	.00	.00	.00
6	---	.01	.00	.00	.00	.00
7	---	.39	.00	.00	.03	.00
8	---	.05	.00	.00	.02	.06
9	---	.00	.00	.15	.00	.35
10	---	.00	.00	.48	.04	.06
11	---	.00	.00	.11	.00	.00
12	---	.00	.00	.00	.00	.00
13	---	.00	.00	.00	.00	.00
14	---	.23	.00	.00	.49	.00
15	---	.48	.00	.00	.10	.00
16	---	.18	.00	.00	.00	.00
17	---	.42	.00	.00	.00	.02
18	---	.00	.00	.00	.00	.00
19	---	.00	.00	.00	.00	.00
20	---	.01	.00	.00	.00	.21
21	---	.00	.00	.00	.00	.00
22	---	.00	.00	.00	.00	.00
23	---	.01	.00	.00	.00	.01
24	---	.00	.00	.13	.03	.00
25	---	.00	.00	.00	.25	.00
26	---	.00	.00	.00	.00	.00
27	---	.00	.00	.00	.01	.00
28	---	.00	.00	.00	.00	.00
29	---	.00	.00	.00	.00	.00
30	---	.00	.00	.05	.17	.00
31	---	.00	---	.00	.00	---

Table 7.--Estimated rainfall for 1980 from unofficial gages for North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.37	0.00	0.35	0.01	0.00
2	---	.01	.07	.00	.00	.00
3	---	.03	.00	.00	.00	.00
4	---	.01	.00	.00	.00	.00
5	---	.71	.00	.00	.00	.00
6	---	.05	.00	.00	.00	.00
7	---	.25	.00	.00	.00	.00
8	---	.37	.00	.00	.05	.19
9	---	.02	.00	.00	.00	.56
10	---	.01	.01	.09	.05	.23
11	---	.09	.00	.03	.02	.03
12	---	.03	.00	.00	.13	.00
13	---	.01	.00	.00	.00	.00
14	---	.32	.00	.00	.88	.00
15	---	.45	.00	.00	.26	.00
16	---	.08	.00	.03	.00	.00
17	---	.29	.00	.00	.00	.00
18	---	.01	.00	.00	.00	.00
19	---	.02	.03	.00	.00	.00
20	---	.01	.01	.00	.00	.21
21	---	.01	.01	.00	.00	.00
22	---	.01	.00	.00	.00	.00
23	---	.00	.00	.00	.00	.00
24	---	.00	.00	.13	.00	.00
25	---	.01	.00	.02	.32	.00
26	---	.00	.02	.00	.00	.00
27	---	.00	.00	.00	.00	.00
28	---	.00	.00	.00	.00	.00
29	---	.02	.00	.00	.00	.00
30	---	.01	.20	.04	.15	.00
31	---	.00	---	.00	.00	---

Table 8.--Estimated rainfall for 1980 from unofficial gages for North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.37	0.00	0.35	0.01	0,00
2	---	.01	.07	.00	.00	.00
3	---	.03	.00	.00	.00	.00
4	---	.01	.00	.00	.00	.00
5	---	.71	.00	.00	.00	.00
6	---	.05	.00	.00	.00	.00
7	---	.25	.00	.00	.00	.00
8	---	.37	.00	.00	.05	.16
9	---	.02	.00	.00	.00	.56
10	---	.01	.01	.09	.05	.26
11	---	.09	.00	.03	.02	.03
12	---	.03	.00	.00	.13	.00
13	---	.01	.00	.00	.00	.00
14	---	.32	.00	.00	.88	.00
15	---	.45	.00	.00	.26	.00
16	---	.08	.00	.03	.00	.00
17	---	.29	.00	.00	.00	.00
18	---	.01	.00	.00	.00	.00
19	---	.02	.03	.00	.00	.00
20	---	.01	.01	.00	.00	.21
21	---	.01	.01	.00	.00	.00
22	---	.01	.00	.00	.00	.00
23	---	.00	.00	.00	.00	.00
24	---	.00	.00	.13	.00	.00
25	---	.01	.00	.02	.32	.00
26	---	.00	.02	.00	.00	.00
27	---	.00	.00	.00	.00	.00
28	---	.00	.00	.00	.00	.00
29	---	.02	.00	.00	.00	.00
30	---	.01	.20	.04	.15	.00
31	---	.00	---	.00	.00	---

Table 9.--Estimated rainfall for 1980 from unofficial gages for Cherry Knolls Storm Drain at Denver

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.87	0.00	0.00	0.00	0.00
2	---	.36	.00	.40	.00	.00
3	---	.00	.00	.05	.00	.00
4	---	.13	.00	.45	.00	.00
5	---	.00	.00	.04	.07	.00
6	---	.03	.00	.00	.00	.00
7	---	.05	.00	.00	.00	.00
8	---	.71	.00	.08	.00	.06
9	---	.07	.00	.00	.00	.24
10	---	.00	.00	.55	.00	.03
11	---	.00	.00	.02	.00	.00
12	---	.12	.00	.01	.00	.00
13	---	.00	.00	.01	.00	.00
14	---	.00	.00	.00	.69	.00
15	---	.43	.00	.00	.00	.00
16	---	.80	.00	.00	.00	.00
17	---	.10	.00	.22	.00	.00
18	---	.41	.00	.00	.00	.00
19	---	.00	.00	.00	.00	.00
20	---	.00	.00	.00	.00	.03
21	---	.00	.00	.00	.00	.00
22	---	.00	.00	.00	.00	.00
23	---	.00	.00	.00	.00	.00
24	---	.00	.00	.08	.00	.00
25	---	.00	.00	.08	.24	.00
26	---	.00	.00	.00	.26	.00
27	---	.00	.00	.00	.03	.00
28	---	.00	.00	.00	.00	.00
29	---	.00	.00	.00	.00	.00
30	---	.00	.00	.02	.00	.00
31	---	.00	---	.00	.13	---

Table 10.--Estimated rainfall for 1980 from unofficial gages for Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.21	0.00	0.18	0.00	0.00
2	---	.00	.01	.38	.00	.00
3	---	.31	.00	.07	.00	.00
4	---	.01	.00	.01	.00	.00
5	---	.00	.00	.01	.00	.01
6	---	.04	.00	.00	.01	.00
7	---	.74	.00	.03	.00	.00
8	---	.19	.00	.00	.00	.06
9	---	.10	.00	.00	.00	.40
10	---	.00	.00	.00	.00	.12
11	---	.11	.00	.10	.00	.00
12	---	.03	.00	.01	.00	.03
13	---	.00	.00	.03	.02	.00
14	---	.00	.00	.00	.46	.01
15	---	.82	.01	.00	.38	.00
16	---	.15	.00	.00	.00	.01
17	---	.40	.00	.00	.00	.00
18	---	.00	.00	.00	.00	.00
19	---	.00	.01	.00	.04	.00
20	---	.00	.08	.00	.00	.39
21	---	.00	.00	.01	.00	.00
22	---	.00	.00	.01	.00	.00
23	---	.00	.00	.00	.00	.00
24	---	.00	.00	.11	.01	.00
25	---	.00	.05	.03	.25	.00
26	---	.00	.00	.02	.16	.00
27	---	.00	.00	.00	.17	.00
28	---	.00	.00	.00	.00	.00
29	---	.03	.00	.01	.01	.00
30	---	.00	.00	.05	.06	.00
31	---	.00	---	.00	.00	---

Table 11.--Estimated rainfall for 1980 from unofficial gages for Villa Italia Storm Drain at Lakewood

[Rainfall, in inches]

	1980					
Day	April	May	June	July	August	September
1	---	0.63	0.00	0.44	0.00	0.00
2	---	.00	.00	.01	.00	.00
3	---	.02	.00	.00	.00	.00
4	---	.02	.00	.00	.00	.00
5	---	.39	.00	.00	.00	.00
6	---	.02	.00	.00	.02	.00
7	---	.18	.00	.00	.07	.00
8	---	.36	.00	.00	.01	.31
9	---	.00	.00	.00	.00	.46
10	---	.00	.00	.09	.04	.16
11	---	.02	.00	.13	.00	.00
12	---	.04	.00	.00	.00	.00
13	---	.00	.00	.00	.00	.00
14	---	.42	.00	.00	1.66	.00
15	---	.54	.00	.00	.34	.00
16	---	.15	.00	.01	.00	.00
17	---	.35	.00	.00	.00	.00
18	---	.00	.00	.00	.00	.00
19	---	.00	.00	.00	.00	.00
20	---	.00	.06	.00	.00	.19
21	---	.00	.00	.00	.00	.00
22	---	.00	.00	.00	.00	.00
23	---	.00	.00	.00	.00	.00
24	---	.00	.00	.02	.02	.00
25	---	.00	.00	.00	.34	.00
26	---	.00	.00	.00	.00	.00
27	---	.00	.00	.00	.02	.00
28	---	.00	.00	.00	.00	.00
29	---	.00	.00	.00	.00	.00
30	---	.00	.02	.06	.06	.00
31	---	.00	---	.00	.00	---

RAINFALL-RUNOFF DATA

Rainfall-runoff data are presented for Big Dry Creek tributary in tables 12 through 14, for Rooney Gulch in tables 15 through 19, for Asbury Park Storm Drain in table 20, for Asbury Park Storm Drain at Asbury Avenue in tables 21 through 23, for North Avenue Storm Drain at Denver Federal Center in tables 24 through 34, for North Avenue Storm Drain at Denver Federal Center North Avenue in tables 35 through 40, for Cherry Knolls Storm Drain in table 41, for Storm Drain at 116th Avenue and Claude Court in tables 42 through 51, and for Villa Italia Storm Drain in tables 52 through 63.

Table 12.--Rainfall-runoff data, May 15-16, 1980, for station 06710225
Big Dry Creek tributary at Easter Street, near Littleton

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1235	0.00	0.01	Not working
1240	.00	.01	
1245	.00	.01	
1250	.00	.01	
1255	.82	.01	
1300	1.1	.00	
1305	1.2	.00	
1310	1.2	.01	
1315	1.1	.00	
1320	.99	.01	
1325	.93	.00	
1330	.82	.00	
1335	.71	.00	
1340	.56	.00	
1345	.47	.00	
1350	.38	.00	
1355	.34	.01	
1400	.30	.00	
1405	.30	.01	
1410	.38	.01	
1415	.77	.01	
1420	1.4	.00	
1425	1.5	.01	
1430	1.4	.00	
1435	1.3	.01	
1440	1.3	.00	
1445	1.3	.01	
1450	1.2	.00	
1455	1.2	.01	
1500	1.1	.00	
1505	.93	.00	
1510	.82	.00	
1515	.66	.01	
1520	.56	.00	
1525	.47	.00	
1530	.38	.00	
1535	.34	.00	
1540	.30	.00	
1545	.26	.00	
1550	.23	.00	

Table 12.--Rainfall-runoff data, May 15-16, 1980, for station 06710225 Big Dry Creek tributary at Easter Street, near Littleton--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1555	.16	0.00	Not working
1600	.13	.00	
1605	.03	.00	
1615	.00	.01	
1620	.00	.01	
1625	.00	.02	
1630	1.1	.02	
1635	2.7	.01	
1640	2.9	.00	
1645	2.3	.00	
1650	1.7	.00	
1655	1.2	.00	
1700	.82	.00	
1705	.61	.00	
1710	.47	.00	
1715	.38	.00	
1720	.30	.00	
1725	.26	.00	
1730	.23	.01	
1735	.19	.00	
1740	.10	.00	
1745	.03	.00	
1755	.00	.01	
1800	.08	.01	
1805	.30	.00	
1810	.61	.01	
1815	.93	.01	
1820	1.2	.01	
1825	1.5	.01	
1830	1.8	.02	
1835	2.7	.00	
1840	2.7	.00	
1845	2.2	.00	
1850	1.6	.01	
1855	1.1	.00	
1900	.82	.00	
1905	.66	.00	
1910	.51	.00	
1915	.42	.00	
1920	.34	.00	
1925	.23	.00	
1930	.16	.00	
1935	.03	.00	
2030	.00	.01	
2045	.00	.02	

Table 12.--Rainfall-runoff data, May 15-16, 1980, for station 06710225 Big Dry Creek tributary at Easter Street, near Littleton--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
2050	0.00	0.01	Not working
2055	.61	.02	
2100	1.1	.02	
2105	2.4	.02	
2110	4.1	.02	
2115	3.9	.01	
2120	3.1	.00	
2125	2.4	.01	
2130	2.0	.00	
2135	1.7	.00	
2140	1.5	.01	
2145	1.3	.00	
2150	1.1	.00	
2155	.99	.00	
2200	.82	.00	
2205	.71	.00	
2210	.47	.00	
2215	.47	.00	
2220	.08	.00	
2240	.00	.01	
2300	.00	.01	
2315	.51	.01	
2320	.56	.00	
2325	.61	.00	
2330	.61	.00	
2335	.61	.00	
2340	.61	.01	
2345	.56	.00	
2350	.66	.00	
2355	.56	.00	
2400	.66	.00	
0005	.61	.01	
0010	.56	.00	
0015	.51	.00	
0020	.42	.00	
0025	.38	.00	
0030	.30	.00	
0035	.26	.00	
0040	.26	.00	
0045	.26	.00	
0050	.30	.01	
0055	.38	.00	
0100	.47	.01	
0105	.56	.00	
0110	.56	.00	

Table 12.--Rainfall-runoff data, May 15-16, 1980, for station 06710225
Big Dry Creek tributary at Easter Street, near Littleton--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
0115	0.71	0.01	Not working
0120	.77	.00	
0125	.77	.00	
0130	.71	.00	
0135	.66	.01	
0140	.66	.00	
0145	.61	.00	
0150	.71	.01	
0155	.71	.01	
0200	.77	.00	
0205	.77	.00	
0210	.77	.01	
0215	.77	.00	
0220	.77	.00	
0225	.71	.00	
0230	.61	.00	
0235	.56	.01	
0240	.47	.00	
0245	.42	.00	
0250	.42	.01	
0255	0.42	0.00	
0300	.47	.00	
0305	.47	.00	
0310	.47	.00	
0315	.42	.00	
0320	.42	.00	
0325	.38	.01	
0330	.34	.00	
0335	.34	.00	
0340	.30	.00	
0345	.30	.00	
0350	.26	.01	
0355	.23	.00	
0400	.26	.00	
0405	.26	.00	
0410	.26	.00	
0415	.26	.00	
0420	.26	.00	
0425	.16	.00	
0430	.10	.00	
0435	.08	.00	
0440	.02	.00	
0545	.00	.01	

Table 13.--Rainfall-runoff data, May 17, 1980, for station 06710225
Big Dry Creek tributary at Easter Street, near Littleton

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
0705	0.00	0.01	Not working
0820	.00	.01	
0840	.00	.01	
0845	.34	.00	
0850	.38	.00	
0855	.42	.01	
0900	.51	.00	
0905	.56	.00	
0910	.56	.00	
0920	.42	.01	
0935	.38	.01	
1000	.42	.01	
1020	.34	.01	
1025	.38	.01	
1035	.71	.00	
1040	.77	.01	
1045	.77	.00	
1050	.77	.01	
1055	.77	.00	
1100	.77	.01	
1105	1.1	.01	
1110	1.2	.01	
1115	1.5	.00	
1120	1.4	.01	
1125	1.2	.00	
1130	.99	.01	
1135	.88	.00	
1140	.82	.00	
1145	.77	.01	
1150	.66	.00	
1155	.56	.00	
1200	.51	.01	
1205	.51	.00	
1210	.61	.01	
1215	.71	.00	
1220	.88	.01	
1225	.99	.00	
1230	1.1	.01	
1235	.99	.00	
1240	.99	.01	

Table 13.--Rainfall-runoff data, May 17, 1980, for station 06710225
Big Dry Creek tributary at Easter Street, near Littleton--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1245	1.2	0.01	Not working
1250	1.3	.01	
1255	1.6	.01	
1300	2.0	.01	
1305	2.1	.01	
1310	2.2	.01	
1315	2.2	.01	
1320	2.3	.01	
1325	2.3	.02	
1330	2.3	.00	
1335	2.3	.01	
1340	2.3	.01	
1345	2.2	.01	
1350	2.1	.01	
1355	1.9	.00	
1400	1.9	.00	
1405	1.6	.00	
1410	1.4	.01	
1415	1.3	.00	
1420	1.3	.00	
1425	1.2	.00	
1430	1.1	.00	
1435	1.1	.01	
1440	.93	.00	
1445	.88	.00	
1450	.77	.00	
1455	.66	.00	
1500	.61	.00	
1505	.56	.00	
1510	.51	.00	
1515	.51	.00	
1520	.47	.01	
1525	.47	.00	
1530	.47	.00	
1535	.42	.00	
1540	.38	.00	
1550	.30	.00	
1600	.23	.00	
1610	.16	.00	
1620	.10	.00	
1630	.05	.00	
1640	.02	.00	

Table 14.--Rainfall-runoff data, July 1, 1980, for station 06710225
Big Dry Creek tributary at Easter Street, near Littleton

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1620	0.00	0.01	0.00
1625	.00	.00	.01
1635	.00	.01	.01
1640	.00	.01	.01
1645	.00	.01	.01
1655	.00	.01	.00
1700	.00	.00	.01
1710	1.6	.00	.00
1715	1.4	.00	.00
1720	1.2	.00	.00
1725	1.2	.00	.00
1730	1.1	.00	.00
1735	.88	.00	.00
1740	.71	.00	.00
1745	.56	.00	.00
1835	.00	.00	.01
1845	.00	.01	.00
1935	.66	.00	.00
1940	.93	.00	.00
1945	.88	.00	.00
1950	.77	.00	.00
1955	.99	.00	.00
2000	.99	.00	.00
2005	.99	.00	.00
2010	.99	.00	.00
2015	.99	.00	.00
2020	.99	.00	.00
2025	.99	.00	.00
2030	.99	.01	.01
2035	1.1	.00	.00
2040	1.1	.01	.00
2045	1.1	.01	.01
2050	1.2	.00	.00
2055	1.6	.00	.01
2100	1.8	.01	.01
2105	1.9	.01	.01
2110	2.3	.00	.00
2115	2.5	.01	.01
2120	2.4	.00	.01
2125	2.3	.01	.00

Table 14.--Rainfall-runoff data, July 1, 1980, for station 06710225 Big Dry Creek tributary at Easter Street, near Littleton--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
2130	2.4	0.00	0.00
2135	2.2	.00	.01
2140	1.9	.00	.00
2145	1.8	.01	.01
2150	1.6	.01	.01
2155	1.8	.01	.01
2200	2.2	.01	.01
2205	2.9	.02	.02
2210	3.3	.01	.01
2215	3.7	.01	.01
2220	4.0	.01	.01
2225	3.7	.01	.02
2230	3.5	.01	.00
2235	3.2	.00	.01
2240	2.8	.01	.01
2245	2.7	.01	.00
2250	2.5	.00	.01
2255	2.3	.00	.00
2300	2.1	.00	.00
2305	1.8	.00	.00
2310	1.2	.00	.00
2315	1.6	.00	.00
2320	1.3	.00	.00
2325	.66	.00	.00
2400	.00	.00	.00

Table 15.--Rainfall-runoff data, April 23-24, 1980, for station 06710610
Rooney Gulch at Rooney Ranch, near Morrison

[Rainfall is reported in amounts measured during specified time increments; time increment is 15 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1615	0.00	0.00	Not working	Not working
1630	.00	.00		
1645	.00	.00		
1700	.01	.00		
1715	.01	.00		
1730	.02	.00		
1745	.02	.00		
1800	.03	.00		
1815	.03	.00		
1830	.03	.00		
1845	.03	.00		
1900	.04	.00		
1915	.04	.00		
1930	.04	.00		
1945	.04	.00		
2000	.04	.00		
2015	.04	.00		
2030	.04	.00		
2045	.04	.00		
2100	.04	.00		
2115	.04	.00		
2130	.04	.00		
2145	.04	.00		
2200	.06	.00		
2215	.06	.00		
2230	.06	.00		
2245	.06	.00		
2300	.06	.00		
2315	.06	.00		
2330	.07	.00		
2345	.09	.00		
2400	.10	.00		
0015	.09	.00		
0030	.09	.00		
0045	.09	.00		
0100	.09	.00		
0115	.09	.00		
0130	.09	.00		
0145	.09	.00		
0200	.09	.00		

Table 15.--Rainfall-runoff data, April 23-24, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0215	0.09	0.00	Not working	Not working
0230	.10	.00		
0245	.12	.00		
0300	.14	.00		
0315	.16	.00		
0330	.22	.00		
0345	.27	.00		
0400	.37	.00		
0415	.46	.00		
0430	.57	.00		
0445	.64	.00		
0500	.74	.00		
0515	.83	.00		
0530	.94	.00		
0545	.99	.00		
0600	1.3	.00		
0615	1.5	.00		
0630	1.8	.00		
0645	2.0	.00		
0700	2.2	.00		
0715	2.4	.00		
0730	2.2	.00		
0745	1.8	.00		
0800	.99	.00		
0815	.74	.00		
0830	.57	.00		
0845	.51	.00		
0900	.38	.00		
0915	.26	.00		
0930	.19	.00		
0945	.12	.00		
1000	.07	.00		
1015	.03	.00		
1030	.00	.00		

Table 16.--Rainfall-runoff data, April 30-May 2, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison

[Rainfall is reported in amounts measured during specified time increments; time increment is varied. E indicates estimated discharge]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1030	0.00	0.00	0.01	Not working
1045	.00	.00	.00	
1100	.00	.00	.00	
1115	.00	.00	.00	
1130	.00	.00	.00	
1145	.00	.00	.00	
1200	.00	.00	.01	
1215	.00	.00	.02	
1230	.00	.00	.01	
1245	.00	.00	.01	
1300	.00	.01	.01	
1315	.01	.06	.04	
1330	.04	.04	.05	
1345	.07	.03	.02	
1400	.07	.01	.02	
1415	.09	.01	.01	
1430	.09	.01	.01	
1445	.10	.03	.02	
1500	.16	.07	.06	
1515	.25	.06	.07	
1530	.64	.06	.05	
1545	.99	.04	.06	
1600	1.3	.03	.04	
1615	1.8	.04	.03	
1630	2.2	.03	.04	
1645	2.5	.02	.03	
1700	2.6	.03	.03	
1715	3.0	.03	.03	
1730	3.2	.04	.02	
1745	3.9	.04	.03	
1800	5.4	.04	.03	
1815	E6.5	.06	.05	
1830	E6.8	.05	.04	
1845	E7.0	.04	.04	
1900	E7.2	.04	.03	
1915	E7.4	.05	.04	
1930	E7.6	.06	.05	
1945	E8.0	.04	.06	
2000	E8.0	.05	.04	
2015	E8.6	.05	.05	

Table 16.--Rainfall-runoff data, April 30-May 2, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2030	E9.1	0.04	0.03	Not working
2045	E9.7	.02	.03	
2100	E10	.02	.01	
2115	E11	.02	.02	
2130	E10	.01	.02	
2145	E9.3	.02	.01	
2200	E8.6	.02	.02	
2215	E8.1	.02	.02	
2230	E7.6	.01	.02	
2245	E7.3	.01	.01	
2300	E6.9	.01	.01	
2315	E6.6	.04	.03	
2330	E6.4	.01	.01	
2345	E6.2	.01	.01	
2400	E6.0	.00	.00	
0015	E5.7	.01	.00	
0030	5.4	.00	.00	
0045	5.2	.00	.01	
0100	4.9	.00	.00	
0115	4.6	.00	.00	
0130	4.4	.00	.00	
0145	4.3	.00	.00	
0200	4.1	.00	.00	
0215	3.9	.00	.00	
0230	3.7	.00	.00	
0245	3.5	.00	.00	
0300	3.4	.01	.00	
0315	3.2	.00	.00	
0330	3.0	.00	.00	
0345	2.9	.00	.00	
0400	2.7	.00	.00	
0415	2.5	.00	.00	
0430	2.4	.01	.01	
0445	2.3	.01	.01	
0500	2.2	.01	.01	
0515	2.2	.00	.00	
0530	2.2	.00	.01	
0545	2.2	.01	.00	
0600	2.2	.00	.01	
0615	2.2	.02	.00	
0630	2.2	.00	.02	
0645	2.4	.01	.01	
0700	2.5	.01	.00	
0715	2.6	.01	.02	
0730	2.6	.01	.01	

Table 16.--Rainfall-runoff data, April 30-May 2, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0745	2.7	0.01	0.01	Not working
0800	2.9	.01	.01	
0815	3.0	.00	.01	
0830	3.1	.01	.00	
0845	3.1	.00	.00	
0900	3.0	.00	.00	
0915	3.1	.00	.00	
0930	2.8	.01	.00	
0945	2.6	.00	.01	
1000	2.5	.00	.00	
1015	2.4	.00	.00	
1030	2.3	.01	.01	
1045	2.2	.00	.00	
1100	2.4	.00	.00	
1115	2.3	.00	.00	
1130	2.1	.00	.00	
1145	2.0	.00	.00	
1200	2.0	.00	.01	
1215	1.9	.00	.00	
1230	1.9	.01	.01	
1245	1.9	.00	.00	
1300	1.9	.00	.00	
1315	1.9	.00	.00	
1330	1.9	.00	.00	
1345	1.8	.00	.00	
1400	1.8	.01	.00	
1415	1.9	.10	.16	
1430	4.1	.11	.07	
1445	5.4	.05	.03	
1500	6.0	.03	.02	
1515	6.8	.01	.02	
1530	7.0	.02	.01	
1545	6.9	.00	.01	
1600	6.7	.01	.01	
1615	6.5	.00	.01	
1630	6.5	.01	.00	
1645	6.2	.00	.00	
1700	6.2	.00	.00	
1715	6.0	.00	.01	
1730	5.9	.01	.00	
1745	5.7	.00	.01	
1800	5.5	.01	.01	
1815	5.3	.00	.00	
1830	5.2	.00	.00	
1845	5.0	.00	.00	

Table 16.--Rainfall-runoff data, April 30-May 2, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1900	4.8	0.00	0.00	Not working
1915	4.6	.00	.00	
1930	4.4	.00	.00	
1945	4.2	.00	.00	
2000	3.9	.00	.00	
2015	3.7	.00	.00	
2030	3.5	.00	.00	
2045	3.2	.00	.00	
2100	3.1	.00	.00	
2115	2.9	.00	.00	
2130	2.7	.00	.00	
2145	2.5	.00	.00	
2200	2.4	.00	.00	
2215	2.2	.00	.00	
2230	2.1	.00	.00	
2245	2.0	.00	.00	
2300	1.9	.00	.00	
2315	1.8	.00	.00	
2330	1.8	.00	.00	
2345	1.7	.00	.00	

Table 16.--Rainfall-runoff data, April 30-May 2, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2400	1.7	0.00	0.00	Not working
0015	1.6	.00	.00	
0030	1.6	.00	.00	
0045	1.5	.00	.00	
0100	1.4	.00	.00	
0115	1.4	.00	.00	
0130	1.4	.00	.00	
0145	1.4	.00	.00	
0200	1.3	.00	.00	
0215	1.3	.00	.00	
0230	1.2	.00	.00	
0245	1.2	.00	.00	
0300	1.2	.00	.00	
0315	1.2	.00	.00	
0330	1.2	.00	.00	
0345	1.1	.00	.00	
0400	1.1	.00	.00	
0415	1.1	.00	.00	
0430	1.0	.00	.00	
0445	1.0	.00	.00	
0500	1.0	.00	.00	
0515	.99	.00	.00	
0530	.99	.00	.00	
0545	.95	.00	.00	
0600	.95	.00	.00	
0615	.92	.00	.00	
0630	.77	.00	.00	
0645	.92	.00	.00	
0700	.88	.00	.00	
0715	.88	.00	.00	
0730	.84	.00	.00	
0745	.84	.00	.00	
0800	.84	.00	.00	
0815	.84	.00	.00	
0830	.81	.00	.00	
0845	.81	.00	.00	
0900	.81	.00	.00	
0915	.81	.00	.00	
0930	.77	.00	.00	
0945	.77	.00	.00	

Table 16.--Rainfall-runoff data, April 30-May 2, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1000	0.77	0.00	0.00	Not Working
1015	.74	.00	.00	
1030	.74	.00	.00	
1045	.71	.00	.00	
1100	.71	.00	.00	
1115	.71	.00	.00	
1130	.67	.00	.00	
1145	.67	.00	.00	
1200	.67	.00	.00	
1215	.67	.00	.00	
1230	.67	.00	.00	
1245	.64	.00	.00	
1300	.64	.00	.00	
1302	.64	.00	.00	
1315	.64	.00	.00	
1330	.64	.00	.00	
1345	.61	.00	.00	
1400	.61	.00	.00	
1415	.61	.00	.00	
1430	.58	.00	.00	
1445	.58	.00	.00	
1500	.55	.00	.00	
1515	.55	.00	.00	
1530	.55	.00	.00	
1545	.51	.00	.00	
1600	.51	.00	.00	
1615	.48	.00	.00	
1630	.48	.00	.00	
1645	.46	.00	.00	
1700	.46	.00	.00	
1715	.43	.00	.00	
1730	.43	.00	.00	
1745	.40	.00	.00	
1800	.40	.00	.00	
1815	.37	.00	.00	
1830	.35	.00	.00	
1845	.35	.00	.00	
1900	.32	.00	.00	
1915	.29	.00	.00	
1930	.27	.00	.00	
1945	.25	.00	.00	
2000	.22	.00	.00	
2015	.20	.00	.00	
2030	.18	.00	.00	
2045	.16	.00	.00	

Table 16.--Rainfall-runoff data, April 30-May 2, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2100	0.12	0.00	0.00	Not working
2115	.10	.00	.00	
2130	.07	.00	.00	
2145	.04	.00	.00	
2200	.03	.00	.00	
2215	.02	.00	.00	
2230	.01	.00	.00	
2245	.00	.00	.00	
2300	.00	.00	.00	

Table 17.--Rainfall-runoff data, May 8-9, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison

[Rainfall is reported in amounts measured during specified time increments; time increments are 15 or 45 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1230	0.07	0.01	Not working	0.00
1315	.18	.00		.01
1330	.20	.05		.01
1345	.25	.05		.03
1400	.29	.01		.01
1415	.35	.01		.01
1430	.46	.01		.01
1445	.48	.01		.01
1500	.58	.01		.01
1515	.58	.02		.00
1530	.58	.00		.01
1545	.64	.02		.01
1600	.74	.01		.00
1615	.88	.02		.02
1630	1.1	.02		.01
1645	1.3	.02		.01
1700	1.6	.01		.01
1715	1.8	.01		.01
1730	2.0	.00		.01
1745	2.2	.00		.00
1800	2.2	.01		.00
1815	2.2	.00		.00
1830	2.2	.00		.00
1845	2.1	.00		.00
1900	2.0	.00		.00
1915	1.9	.00		.00
1930	1.8	.00		.00
1945	1.7	.00		.00
2000	1.6	.00		.00
2015	1.5	.00		.00
2030	1.4	.00		.00
2045	1.3	.00		.00
2100	1.2	.00		.00
2115	1.2	.00		.00
2130	1.1	.00		.00
2145	1.0	.00		.00
2200	.95	.00		.00
2215	.92	.00		.00
2230	.88	.00		.00
2245	.84	.00		.00

Table 17.--Rainfall-runoff data, May 8-9, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2300	0.77	0.00	Not working	0.00
2315	.74	.00		.00
2330	.74	.00		.00
2345	.71	.00		.00
2400	.67	.00		.00
0015	.64	.00		.00
0030	.64	.00		.00
0045	.61	.00		.00
0100	.58	.00		.00
0115	.55	.00		.00
0130	.55	.00		.00
0145	.51	.00		.00
0200	.48	.00		.00
0215	.46	.00		.00
0230	.40	.00		.00
0245	.37	.00		.00
0300	.35	.00		.00
0315	.29	.00		.00
0330	.27	.00		.00
0345	.25	.00		.00
0400	.20	.00		.00
0415	.18	.00		.00
0430	.16	.00		.00
0445	.12	.00		.00
0500	.10	.00		.00
0515	.09	.00		.00
0530	.06	.00		.00
0545	.04	.00		.00
0600	.03	.00		.00
0615	.01	.00		.00
0630	.00	.00		.00
0645	.00	.00		.00

Table 18.--Rainfall-runoff data, May 15-16, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison

[Rainfall is reported in amounts measured during specified time increments. time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1315	0.00	0.00	0.01	0.00
1330	.00	.01	.00	.01
1430	.00	.00	.02	.00
1445	.00	.00	.01	.00
1500	.00	.01	.00	.01
1515	.00	.00	.01	.00
1530	.00	.01	.00	.00
1600	.01	.00	.00	.01
1715	.06	.00	.01	.00
1730	.07	.01	.01	.01
1900	.16	.01	.01	.01
1915	.18	.01	.03	.05
1930	.18	.02	.02	.02
1945	.20	.02	.02	.01
2000	.22	.01	.00	.01
2045	.43	.00	.00	.00
2100	.43	.01	.01	.02
2115	.43	.04	.02	.03
2130	.48	.03	.03	.04
2145	.64	.08	.05	.05
2200	1.1	.04	.04	.03
2215	1.8	.03	.02	.04
2230	2.4	.02	.02	.02
2245	2.6	.01	.01	.02
2300	2.8	.02	.02	.03
2315	3.0	.02	.02	.02
2330	3.4	.03	.02	.04
2345	3.9	.02	.02	.02
2400	4.3	.01	.01	.01
0015	4.4	.02	.02	.02
0030	4.5	.01	.01	.00
0045	4.4	.00	.01	.01
0100	4.4	.00	.00	.01
0115	4.3	.00	.00	.00
0130	4.1	.00	.00	.00
0145	3.9	.01	.00	.00
0200	3.8	.00	.00	.01
0215	3.5	.00	.01	.00
0230	3.3	.00	.00	.00
0245	3.1	.00	.00	.00

Table 18.--Rainfall-runoff data, May 15-16, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0300	2.9	0.01	0.01	0.01
0315	2.6	.00	.00	.00
0330	2.4	.00	.00	.00
0345	2.2	.00	.00	.00
0400	2.1	.01	.01	.01
0415	1.9	.00	.00	.00
0430	1.8	.01	.01	.01
0445	1.8	.01	.01	.01
0500	1.7	.00	.00	.01
0515	1.7	.01	.01	.01
0530	1.7	.00	.01	.00
0545	1.7	.01	.00	.01
0600	1.7	.00	.01	.00
0615	1.7	.00	.00	.01
0630	1.6	.01	.00	.00
0645	1.6	.00	.00	.00
0700	1.5	.00	.00	.00
0715	1.5	.00	.01	.00
0730	1.4	.00	.00	.01
0745	1.4	.00	.00	.00
0800	1.4	.00	.00	.00
0815	1.3	.00	.00	.00
0830	1.2	.00	.00	.00
0845	1.2	.00	.00	.00
0900	1.1	.00	.00	.00
0915	1.1	.00	.00	.00
0930	1.0	.00	.00	.00
0945	.99	.00	.00	.00
1000	.95	.00	.00	.00
1015	.92	.00	.00	.00
1030	.88	.00	.00	.00
1045	.84	.00	.00	.00
1100	.81	.00	.00	.00
1115	.77	.00	.00	.00
1130	.74	.00	.00	.00
1145	.71	.00	.00	.00
1200	.71	.00	.00	.00
1215	.67	.00	.00	.00
1230	.64	.00	.00	.00
1245	.64	.00	.00	.00
1300	.61	.00	.00	.00
1315	.58	.00	.00	.00
1330	.55	.00	.00	.00
1345	.51	.00	.00	.00
1400	.48	.00	.00	.00

Table 18.--Rainfall-runoff data, May 15-16, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1415	0.46	0.00	0.00	0.00
1430	.43	.00	.00	.00
1445	.40	.00	.00	.00
1500	.37	.00	.00	.00
1515	.35	.00	.00	.00
1530	.32	.00	.00	.00
1545	.29	.00	.00	.00
1600	.27	.00	.00	.00
1615	.25	.00	.00	.00
1630	.22	.00	.00	.00
1645	.20	.00	.00	.00
1700	.18	.00	.00	.00
1715	.16	.00	.00	.00
1730	.14	.00	.00	.00
1745	.12	.00	.00	.00
1800	.10	.00	.00	.00
1815	.09	.00	.00	.00
1830	.07	.00	.00	.00
1845	.06	.00	.00	.00
1900	.04	.00	.00	.00
1915	.03	.00	.00	.00
1930	.02	.00	.00	.00
1945	.01	.00	.00	.00
2000	.00	.00	.00	.00

Table 19.--Rainfall-runoff data, May 16-18, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2115	0.00	0.01	0.02	0.01
2130	.00	.01	.02	.02
2145	.06	.02	.01	.01
2200	.18	.00	.01	.00
2215	.35	.00	.00	.00
2230	.37	.01	.00	.01
2245	.48	.00	.01	.00
2300	.48	.00	.00	.00
2315	.48	.00	.00	.01
2330	.51	.00	.00	.00
2345	.55	.00	.00	.00
2400	.55	.00	.00	.00
0015	.55	.00	.00	.00
0030	.58	.00	.00	.00
0045	.58	.00	.00	.00
0100	.61	.00	.00	.00
0115	.61	.00	.00	.00
0130	.61	.00	.00	.00
0145	.61	.00	.00	.00
0200	.58	.00	.00	.00
0215	.58	.00	.00	.00
0230	.55	.00	.00	.00
0245	.55	.00	.00	.00
0300	.55	.00	.00	.00
0315	.51	.00	.00	.00
0330	.51	.00	.00	.00
0345	.48	.00	.00	.00
0400	.48	.01	.01	.01
0415	.48	.00	.00	.00
0430	.46	.01	.00	.00
0445	.46	.00	.00	.00
0500	.46	.00	.01	.01
0515	.46	.00	.00	.00
0530	.48	.00	.00	.00
0545	.48	.00	.01	.00
0600	.48	.00	.00	.00
0615	.48	.00	.00	.01
0630	.48	.00	.00	.00
0645	.51	.03	.02	.01
0700	.55	.02	.03	.03

Table 19.--Rainfall-runoff data, May 16-18, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0715	.61	0.00	0.01	0.01
0730	.71	.01	.00	.01
0745	.84	.00	.01	.01
0800	.95	.00	.00	.00
0815	.99	.00	.01	.00
0830	.99	.00	.00	.01
0845	.99	.01	.00	.00
0900	.99	.00	.00	.00
0915	1.0	.00	.01	.01
0930	1.1	.00	.00	.00
0945	1.1	.00	.00	.00
1000	1.1	.00	.00	.00
1015	1.1	.01	.01	.01
1030	1.1	.00	.01	.02
1045	1.1	.01	.02	.01
1100	1.2	.01	.01	.02
1115	1.2	.00	.01	.00
1130	1.4	.01	.01	.01
1145	1.4	.00	.00	.00
1200	1.4	.01	.01	.01
1215	1.6	.03	.02	.01
1230	1.8	.02	.02	.00
1245	2.3	.02	.03	.01
1300	3.0	.03	.02	.02
1315	3.5	.03	.02	.02
1330	4.0	.02	.03	.04
1345	4.4	.00	.01	.02
1400	4.5	.00	.00	.01
1415	4.4	.00	.00	.00
1430	4.3	.00	.00	.00
1445	4.2	.00	.00	.00
1500	4.0	.00	.00	.00
1515	3.8	.00	.00	.00
1530	3.6	.01	.01	.01
1545	3.4	.00	.01	.00
1600	3.2	.01	.01	.01
1615	3.1	.01	.01	.01
1630	3.1	.01	.01	.01
1645	3.1	.00	.01	.01
1700	3.1	.00	.00	.00
1715	3.1	.01	.01	.01
1730	3.1	.00	.00	.01
1745	3.0	.00	.01	.00
1800	3.0	.00	.00	.00
1815	2.9	.00	.00	.00

Table 19.--Rainfall-runoff data, May 16-18, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1830	2.7	0.00	0.00	0.01
1845	2.6	.00	.00	.00
1900	2.5	.00	.00	.00
1915	2.3	.00	.00	.00
1930	2.2	.00	.00	.00
1945	2.1	.00	.00	.00
2000	1.9	.01	.00	.00
2015	1.8	.00	.00	.00
2030	1.7	.00	.00	.00
2045	1.7	.00	.00	.00
2100	1.6	.00	.00	.00
2115	1.5	.00	.00	.00
2130	1.4	.00	.00	.00
2145	1.4	.00	.00	.00
2200	1.3	.00	.00	.00
2215	1.2	.00	.00	.00
2230	1.2	.00	.00	.00
2245	1.1	.00	.00	.00
2300	1.1	.00	.00	.00
2315	1.0	.00	.00	.00
2330	.99	.00	.00	.00
2345	.95	.00	.00	.00
2400	.92	.00	.00	.00
0015	.88	.00	.00	.00
0030	.84	.00	.00	.00
0045	.81	.00	.00	.00
0100	.81	.00	.00	.00
0115	.77	.00	.00	.00
0130	.74	.00	.00	.00
0145	.74	.00	.00	.00
0200	.71	.00	.00	.00
0215	.71	.00	.00	.00
0230	.67	.00	.00	.00
0245	.64	.00	.00	.00
0300	.64	.00	.00	.00
0315	.64	.00	.00	.00
0330	.61	.00	.00	.00
0345	.61	.00	.00	.00
0400	.58	.00	.00	.00
0415	.58	.00	.00	.00
0430	.55	.00	.00	.00
0445	.55	.00	.00	.00
0500	.55	.00	.00	.00
0515	.51	.00	.00	.00
0530	.51	.00	.00	.00

Table 19.--Rainfall-runoff data, May 16-18, 1980, for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0545	0.48	0.00	0.00	0.00
0600	.48	.00	.00	.00
0615	.48	.00	.00	.00
0630	.46	.00	.00	.00
0645	.46	.00	.00	.00
0700	.43	.00	.00	.00
0800	.37	.00	.00	.00
0845	.35	.00	.01	.00
0900	.32	.00	.00	.00
1000	.25	.00	.00	.00
1100	.18	.00	.00	.00
1200	.12	.00	.00	.00
1300	.07	.00	.00	.00
1400	.03	.00	.00	.00
1500	.00	.00	.00	.00

Table 20.--Rainfall-runoff data, August 14, 1980, for station 06711585 Asbury Park Storm Drain at Denver

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 15 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1520	0.75	0.02	1750	0.39	0.00
1525	.79	.03	2355	.16	.01
1540	.94	.03	2400	.16	.00
1545	1.1	.03	0200	.08	.01
1550	3.0	.04	0345	.08	.01
1555	6.8	.02	0415	.04	.01
1600	8.4	.07	0725	.04	.01
1605	18	.15	0750	.04	.01
1610	23	.02	0755	.00	.01
1615	16	.04	0800	.04	.01
1620	15	.02	0805	.28	.01
1625	9.7	.00	0810	.24	.01
1630	5.9	.01	0840	.16	.01
1635	1.7	.00			

Table 21.--Rainfall-runoff data, July 1-2, 1980, for station 06711586
Asbury Park Storm Drain at Asbury Avenue, at Denver

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 15 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1540	0.53	0.00	0.00
1545	.70	.01	.01
1550	.84	.00	.01
1555	1.1	.01	.00
1600	1.4	.00	.00
1605	1.2	.00	.00
1610	1.4	.00	.00
1615	1.0	.00	.00
1620	.81	.00	.00
1625	.74	.00	.00
1630	.67	.00	.00
1635	.70	.00	.00
1640	.63	.00	.00
1645	.60	.00	.00
1650	.60	.00	.00
1655	.56	.00	.00
1700	.60	.00	.00
1705	.56	.00	.00
1710	.53	.00	.00
1715	.56	.00	.00
1720	.56	.00	.00
1725	.60	.00	.00
1730	.60	.00	.00
1735	.56	.00	.00
1740	.56	.00	.00
1745	.56	.00	.00
1750	.56	.00	.00
1755	.60	.00	.00
1800	.60	.00	.00
1805	.60	.00	.00
1810	.60	.00	.00
1815	.60	.00	.00
1820	.63	.00	.00
1825	.63	.00	.00
1830	.63	.00	.00
1835	.63	.00	.00
1840	.60	.00	.00
1845	.60	.00	.00
1850	.60	.00	.00
1855	.60	.00	.00

Table 21.--Rainfall-runoff data, July 1-2, 1980, for station 06711586 Asbury Park Storm Drain at Asbury Avenue, at Denver--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1900	0.60	0.00	0.00
1905	.60	.00	.00
1910	.53	.00	.00
1915	.53	.01	.00
1920	.56	.00	.01
1925	.53	.01	.00
1930	.53	.00	.00
1935	1.4	.01	.00
1940	2.1	.00	.01
1945	2.4	.01	.00
1950	2.6	.02	.01
1955	2.6	.02	.02
2000	3.3	.01	.01
2005	6.2	.01	.00
2010	4.8	.00	.01
2015	3.7	.01	.01
2020	3.5	.01	.01
2025	3.7	.01	.01
2030	4.2	.01	.01
2035	4.5	.02	.02
2040	4.8	.01	.01
2045	4.8	.01	.02
2050	5.1	.01	.01
2055	5.1	.02	.01
2100	5.1	.01	.02
2105	5.1	.01	.02
2110	5.7	.02	.01
2115	5.1	.01	.01
2120	6.0	.01	.01
2125	5.4	.01	.01
2130	5.4	.01	.02
2135	5.4	.01	.01
2140	5.7	.01	.00
2145	4.8	.00	.00
2150	3.5	.00	.01
2155	3.3	.01	.00
2200	2.8	.00	.00
2205	2.6	.01	.01
2210	2.2	.00	.01
2215	2.2	.01	.00
2220	2.6	.00	.01
2225	3.0	.00	.00
2230	2.8	.00	.00
2235	2.4	.00	.00
2240	1.9	.00	.00

Table 21.--Rainfall-runoff data, July 1-2, 1980, for station 06711586 Asbury Park Storm Drain at Asbury Avenue, at Denver--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
2245	1.6	0.00	0.00
2250	1.4	.00	.00
2255	1.2	.00	.00
2300	1.0	.00	.00
2305	.88	.00	.00
2310	.84	.00	.00
2325	.74	.00	.00
2340	.63	.00	.00
2355	.53	.00	.00
0010	.42	.00	.00
0025	.32	.00	.00
0040	.21	.00	.00
0055	.11	.00	.00
0110	.00	.00	.00

Table 22.--Rainfall-runoff data, August 14-15, 1980, for station 06711586 Asbury Park Storm Drain at Asbury Avenue, at Denver

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1505	0.00	0.00	Not working
1510	.00	.00	
1520	.00	.02	
1525	.00	.03	
1530	.35	.00	
1535	.35	.00	
1540	.28	.03	
1545	.46	.03	
1550	1.5	.04	
1555	9.2	.02	
1600	10	.07	
1605	31	.15	
1610	44	.02	
1615	37	.04	
1620	41	.02	
1625	15	.00	
1630	3.3	.01	
1635	.70	.00	
1640	.53	.00	
1645	.49	.00	
1650	.42	.00	
1655	.39	.00	
1700	.35	.00	
1705	.28	.00	
1710	.21	.00	
1715	.18	.00	
1720	.14	.00	
1725	.11	.00	
1730	.07	.00	
1735	.07	.00	
1740	.07	.00	
1745	.07	.00	
1750	.07	.00	
1755	.04	.00	
1800	.04	.00	
1805	.04	.00	
1810	.04	.00	
2355	.00	.01	
2400	.00	.00	
0200	.00	.01	

Table 22.--Rainfall-runoff data, August 14-15, 1980, for station 06711586 Asbury Park Storm Drain at Asbury Avenue, at Denver--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
0345	0.00	0.01	Not working
0415	.04	.01	
0420	.04	.00	
0425	.07	.00	
0430	.07	.00	
0435	.11	.00	
0440	.11	.00	
0445	.11	.00	
0450	.07	.00	
0455	.07	.00	
0500	.04	.00	
0505	.04	.00	
0725	.00	.01	
0750	.00	.01	
0755	.00	.01	
0800	.00	.01	
0805	.32	.01	
0810	.39	.01	
0815	.46	.00	
0820	.46	.00	
0825	.39	.00	
0830	.35	.00	
0835	.32	.00	
0840	.25	.01	
0845	.21	.00	
0850	.14	.00	
0855	.11	.00	
0900	.07	.00	
0905	.07	.00	
0910	.07	.00	
0915	.07	.00	
0920	.07	.00	
0925	.04	.00	
0930	.04	.00	
0935	.04	.00	

Table 23.--Rainfall-runoff data, September 20, 1980, for station 06711586 Asbury Park Storm Drain at Asbury Avenue, at Denver

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
0525	0.00	0.00	0.03
0530	.00	.10	.06
0535	5.4	.04	.03
0540	15	.02	.04
0545	12	.00	.00
0550	6.2	.01	.01
0555	1.0	.01	.01
0600	.74	.01	.02
0605	.74	.01	.00
0610	.88	.01	.00
0615	.77	.00	.01

Table 24.--Rainfall-runoff data, May 8, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1110	0. 0	0.01	1640	2.2	0.01
1300	.00	.01	1645	2.5	.01
1340	.12	.00	1650	2.6	.00
1345	.16	.00	1655	2.6	.01
1350	.18	.00	1700	2.6	.00
1355	.19	.00	1705	2.8	.00
1400	.19	.00	1710	2.8	.01
1405	.19	.00	1715	2.6	.00
1410	.18	.01	1720	2.6	.00
1415	.17	.00	1725	2.6	.00
1420	.17	.00	1730	2.4	.00
1425	.18	.00	1735	2.0	.00
1430	.18	.01	1740	1.6	.00
1435	.22	.00	1745	1.5	.00
1439	.29	.00	1750	1.5	.00
1440	.30	.01	1755	1.3	.00
1445	.56	.01	1800	1.2	.01
1450	1.1	.00	1805	1.1	.00
1455	1.6	.01	1810	1.0	.00
1500	1.7	.00	1815	.92	.00
1505	2.2	.00	1820	.82	.00
1510	2.4	.01	1825	.73	.00
1515	1.9	.00	1830	.64	.00
1520	2.2	.01	1835	.59	.00
1525	2.1	.01	1840	.51	.00
1530	2.2	.01	1845	.46	.00
1535	2.4	.01	1850	.40	.00
1540	2.5	.00	1855	.36	.00
1545	2.6	.00	1900	.32	.00
1550	2.6	.01	1905	.29	.00
1555	2.6	.00	1910	.27	.00
1600	2.6	.00	1915	.24	.00
1605	2.5	.01	1920	.22	.00
1610	2.4	.00	1925	.19	.00
1615	2.4	.01	1930	.18	.00
1620	2.4	.00	2000	.09	.00
1625	2.5	.01	2030	.03	.00
1630	2.2	.01	2100	.00	.00
1635	2.4	.02			

Table 25.--Rainfall-runoff data, May 11, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1240	0.09	0.01	1615	0.36	0.00
1255	.09	.01	1620	.32	.00
1305	.19	.00	1625	.30	.00
1310	.22	.00	1630	.29	.00
1315	.42	.00	1635	.27	.00
1320	.51	.00	1640	.25	.00
1325	.51	.00	1645	.24	.00
1330	.46	.00	1650	.22	.00
1335	.44	.00	1655	.21	.00
1340	.40	.00	1700	.19	.00
1345	.36	.00	1705	.19	.00
1350	.32	.01	1710	.18	.00
1355	.32	.01	1715	.18	.00
1400	.56	.01	1720	.17	.00
1405	1.5	.00	1725	.16	.00
1410	2.1	.00	1730	.16	.00
1415	1.5	.00	1735	.16	.00
1420	1.2	.00	1740	.14	.00
1425	.88	.00	1745	.14	.00
1430	.76	.00	1750	.14	.00
1435	.67	.00	1755	.14	.00
1440	.61	.01	1800	.13	.00
1445	.59	.00	1805	.13	.00
1450	.54	.00	1810	.13	.00
1455	.49	.00	1815	.12	.00
1500	.44	.00	1820	.12	.00
1505	.42	.00	1825	.12	.00
1510	.40	.00	1830	.12	.00
1515	.38	.01	1835	.12	.00
1520	.44	.00	1840	.12	.00
1525	.54	.00	1845	.11	.00
1530	.64	.00	1850	.11	.00
1535	.76	.00	1855	.11	.00
1540	.73	.00	1900	.11	.00
1545	.64	.00	1905	.11	.00
1550	.56	.00	1910	.11	.00
1555	.49	.00	1915	.11	.00
1600	.44	.00	1920	.10	.00
1605	.40	.00	1925	.10	.00
1610	.38	.00	1930	.10	.00

Table 25.--Rainfall-runoff data, May 11, 1980, for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1935	0.10	0.00	2005	0.10	0.00
1940	.10	.00	2010	.10	.00
1945	.10	.00	2015	.10	.00
1950	.10	.00	2020	.09	.00
1955	.10	.00	2025	.09	.00
2000	.10	.00	2030	.09	.00

Table 26.--Rainfall-runoff data, May 12, 1980, for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0515	0.09	0.01	0605	0.49	0.00
0520	.09	.00	0610	.42	.00
0525	.09	.01	0615	.36	.00
0530	.51	.01	0620	.38	.00
0535	1.7	.00	0625	.36	.00
0540	1.5	.00	0630	.36	.00
0545	1.2	.00	0635	.34	.00
0550	.82	.00	0700	.12	.00
0555	.67	.00	0730	.02	.00
0600	.56	.00			

Table 27.--Rainfall-runoff data, May 15-16, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1315	0.02	0.01	1710	0.07	0.02
1320	.03	.01	1715	.10	.01
1332	.12	.00	1720	.42	.00
1335	.17	.00	1725	1.3	.01
1340	.40	.00	1730	1.2	.00
1345	.40	.00	1735	1.2	.00
1350	.34	.00	1740	.85	.00
1355	.29	.00	1745	.61	.00
1400	.22	.00	1750	.56	.00
1405	.18	.00	1755	.59	.00
1410	.14	.00	1800	.54	.00
1415	.12	.00	1805	.49	.00
1420	.09	.00	1810	.40	.00
1425	.09	.00	1815	.32	.00
1430	.10	.00	1820	.29	.00
1435	.09	.00	1825	.25	.00
1440	.09	.00	1830	.22	.00
1445	.09	.00	1835	.21	.00
1450	.09	.00	1840	.22	.01
1455	.08	.00	1845	.29	.00
1515	.07	.01	1850	.34	.00
1530	.24	.00	1855	.49	.00
1535	.40	.00	1900	.56	.01
1540	.49	.00	1905	.67	.01
1545	.46	.00	1910	1.0	.02
1550	.40	.00	1915	1.6	.00
1555	.32	.00	1920	1.9	.00
1600	.27	.00	1925	1.5	.01
1605	.22	.00	1930	1.4	.00
1610	.19	.00	1935	1.3	.00
1615	.18	.00	1940	1.2	.00
1620	.17	.00	1945	1.1	.00
1625	.16	.00	1950	1.0	.00
1630	.14	.00	1955	.88	.00
1635	.12	.00	2000	.73	.00
1640	.11	.00	2005	.64	.00
1645	.10	.00	2010	.59	.00
1650	.09	.00	2015	.51	.00
1655	.09	.00	2020	.46	.00
1700	.08	.00	2025	.40	.00

Table 27.--Rainfall-runoff data, May 15-16, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
2030	0.36	0.00	2325	2.6	0.00
2035	.34	.00	2330	2.8	.01
2040	.32	.00	2335	2.8	.01
2045	.30	.01	2340	2.8	.00
2050	.30	.00	2345	2.8	.01
2055	.38	.01	2350	2.8	.00
2100	.61	.01	2355	2.6	.01
2105	1.2	.01	2400	2.4	.00
2110	1.7	.02	0005	2.4	.00
2115	2.2	.01	0010	2.2	.01
2120	2.6	.02	0015	2.0	.00
2125	3.4	.02	0020	1.9	.00
2130	3.3	.02	0025	1.7	.00
2135	3.8	.01	0030	1.5	.00
2140	3.6	.00	0035	1.5	.00
2145	3.4	.01	0040	1.3	.00
2150	2.8	.00	0045	1.2	.00
2155	2.6	.01	0050	1.1	.00
2200	2.5	.00	0055	1.2	.00
2205	2.2	.00	0100	1.0	.00
2210	2.0	.01	0105	.99	.00
2215	1.7	.00	0110	.92	.00
2220	1.7	.00	0115	.88	.00
2225	1.6	.01	0120	.79	.00
2230	1.7	.01	0125	.73	.00
2235	2.0	.01	0130	.73	.01
2240	2.2	.00	0135	.70	.00
2245	2.2	.01	0140	.70	.00
2250	2.2	.01	0145	.70	.00
2255	2.2	.01	0150	.73	.01
2300	2.5	.01	0155	.76	.00
2305	2.6	.01	0200	.76	.00
2310	2.6	.01	0205	.76	.00
2315	2.6	.01	0210	.76	.00
2320	2.8	.01	0215	.79	.00

Table 27.--Rainfall-runoff data, May 15-16, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0220	0.76	0.00	0455	0.67	0.01
0225	.73	.01	0500	.70	.00
0230	.67	.00	0505	.70	.00
0235	.64	.00	0510	.70	.00
0240	.61	.00	0515	.67	.00
0245	.59	.00	0520	.64	.00
0250	.59	.00	0525	.61	.00
0255	.56	.00	0530	.59	.00
0300	.54	.00	0535	.56	.00
0305	.51	.00	0540	.56	.00
0310	.49	.00	0545	.54	.00
0315	.46	.00	0550	.51	.00
0320	.46	.00	0555	.49	.00
0325	.46	.00	0600	.49	.00
0330	.46	.00	0605	.46	.00
0335	.46	.00	0610	.44	.00
0340	.46	.00	0615	.42	.00
0345	.44	.00	0620	.42	.00
0350	.42	.00	0625	.40	.00
0355	.38	.00	0630	.36	.00
0400	.38	.01	0635	.34	.00
0405	.36	.00	0640	.32	.00
0410	.38	.00	0645	.30	.00
0415	.42	.00	0650	.29	.00
0420	.49	.01	0655	.27	.00
0425	.56	.00	0700	.25	.00
0430	.59	.00	0705	.24	.00
0435	.61	.00	0710	.22	.00
0440	.61	.00	0800	.10	.00
0445	.64	.00	0900	.03	.00
0450	.67	.00	1000	.00	.00

Table 28.--Rainfall-runoff data, May 17, 1980, for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0645	0.16	0.01	1005	0.30	0.00
0650	.17	.00	1010	.36	.01
0655	.22	.01	1015	.44	.00
0700	.61	.01	1020	.54	.00
0705	2.2	.00	1025	.67	.01
0710	2.5	.00	1030	.82	.00
0715	2.4	.01	1035	.85	.00
0720	2.2	.00	1040	.88	.01
0725	2.2	.00	1052	1.2	.00
0730	2.1	.01	1100	1.4	.00
0735	2.0	.00	1105	1.3	.00
0740	2.0	.00	1110	1.2	.00
0745	1.9	.00	1115	1.2	.01
0750	1.6	.00	1120	1.1	.00
0755	1.5	.00	1125	1.2	.00
0800	1.4	.00	1130	.99	.00
0805	.79	.01	1135	.92	.00
0810	.76	.00	1140	.88	.00
0815	.73	.00	1145	.85	.00
0820	.70	.00	1150	.82	.00
0825	.67	.00	1155	.82	.01
0830	.67	.00	1200	.82	.00
0835	.61	.00	1205	.85	.00
0840	.59	.00	1210	.92	.01
0845	.59	.00	1215	.99	.00
0850	.59	.00	1220	1.4	.01
0855	.54	.00	1225	2.0	.01
0900	.51	.00	1230	2.4	.01
0905	.49	.01	1235	2.5	.01
0910	.46	.00	1240	2.5	.00
0915	.44	.00	1245	2.5	.01
0920	.42	.00	1250	2.6	.01
0925	.40	.00	1255	2.5	.00
0930	.38	.00	1300	2.6	.01
0935	.34	.00	1305	2.6	.01
0940	.32	.00	1310	2.5	.00
0945	.30	.00	1315	2.4	.01
0950	.29	.00	1320	2.4	.01
0955	.29	.00	1325	2.4	.01
1000	.29	.00	1330	2.4	.00

Table 28.--Rainfall-runoff data, May 17, 1980, for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1335	2.4	0.00	1510	0.51	0.00
1340	2.4	.00	1515	.49	.00
1345	2.0	.01	1520	.44	.00
1350	1.9	.00	1525	.40	.00
1355	1.7	.00	1530	.38	.00
1400	1.6	.00	1535	.36	.00
1405	1.5	.00	1540	.34	.00
1410	1.4	.00	1545	.32	.00
1415	1.3	.00	1550	.30	.00
1420	1.2	.00	1555	.29	.00
1425	.99	.00	1600	.30	.01
1430	.88	.00	1605	.34	.00
1435	.82	.00	1610	.40	.00
1440	.76	.00	1615	.54	.00
1445	.70	.00	1620	.64	.00
1450	.67	.00	1625	.73	.00
1455	.61	.00	1630	.76	.00
1500	.59	.00	1635	.73	.00
1505	.56	.00			

Table 28.--Rainfall-runoff data, May 17, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1640	0.70	0.00	1830	0.56	0.00
1645	.67	.01	1835	.51	.00
1650	.67	.00	1840	.49	.00
1655	.70	.00	1845	.44	.00
1700	.73	.00	1850	.42	.00
1705	.73	.00	1855	.40	.00
1710	.70	.00	1900	.38	.00
1715	.70	.00	1905	.36	.00
1720	.67	.00	1910	.32	.00
1725	.67	.00	1915	.30	.00
1730	.64	.00	1920	.29	.00
1735	.61	.00	1925	.29	.00
1740	.59	.00	1930	.27	.00
1745	.59	.01	1935	.25	.00
1750	.59	.00	1940	.24	.00
1805	.59	.00	2000	.18	.00
1825	.59	.00			

Table 29.--Rainfall-runoff data, July 24, 1980, for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1530	0.03	0.01	1845	0.09	0.00
1535	.03	.00	1850	.09	.00
1540	.04	.00	1855	.09	.00
1545	.08	.00	1900	.09	.00
1550	.10	.03	1905	.09	.00
1555	2.8	.01	1910	.09	.00
1600	2.6	.00	1915	.09	.00
1605	1.6	.00	1920	.09	.00
1610	1.2	.00	1925	.08	.00
1615	.73	.00	1930	.08	.00
1620	.54	.00	1935	.07	.00
1625	.38	.00	1940	.08	.00
1630	.40	.00	1945	.08	.00
1635	.44	.00	1950	.07	.00
1640	.40	.00	1955	.06	.00
1645	.36	.05	2000	.05	.00
1650	1.7	.01	2005	.04	.00
1655	2.8	.00	2010	.04	.01
1700	2.0	.00	2015	.06	.00
1705	1.4	.00	2020	.06	.00
1710	1.1	.00	2025	.06	.00
1715	.79	.00	2030	.07	.00
1720	.76	.00	2035	.06	.00
1725	.88	.01	2040	.06	.00
1730	.82	.00	2045	.06	.00
1735	.67	.00	2050	.06	.00
1740	.59	.00	2055	.08	.00
1745	.51	.00	2100	.09	.00
1750	.38	.00	2105	.09	.00
1755	.32	.00	2110	.09	.00
1800	.27	.00	2115	.07	.00
1805	.22	.00	2120	.06	.00
1810	.21	.00	2125	.05	.00
1815	.18	.00	2130	.05	.00
1820	.16	.00	2135	.06	.00
1825	.14	.00	2140	.06	.00
1830	.12	.00	2145	.05	.00
1835	.11	.00	2150	.06	.00
1840	.10	.00			

Table 30.--Rainfall-runoff data, August 10, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1805	0.03	0.00	1950	0.06	0.00
1810	.03	.00	1955	.05	.01
1815	.03	.01	2000	.04	.00
1820	.03	.01	2005	.04	.00
1825	.18	.01	2010	.04	.00
1830	.42	.00	2015	.04	.00
1835	.70	.00	2020	.03	.00
1840	.56	.00	2025	.03	.00
1845	.42	.00	2030	.03	.00
1850	.34	.00	2035	.03	.00
1855	.32	.00	2040	.04	.00
1900	.36	.00	2045	.04	.00
1905	.36	.01	2050	.04	.00
1910	.29	.00	2055	.05	.00
1915	.22	.00	2100	.07	.00
1920	.18	.00	2105	.07	.00
1925	.13	.00	2110	.07	.00
1930	.10	.00	2115	.06	.00
1935	.09	.00	2120	.04	.00
1940	.07	.00	2125	.03	.00
1945	.06	.00			

Table 31.--Rainfall-runoff data, September 8-9, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 10 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
2130	0.8	0.01	0055	2.4	0.01
2140	.09	.01	0100	2.2	.00
2145	.27	.01	0105	2.2	.01
2150	.59	.01	0110	2.2	.00
2155	1.5	.00	0115	2.2	.01
2200	1.6	.01	0120	2.1	.00
2205	1.6	.01	0125	2.1	.01
2210	1.7	.01	0130	2.0	.00
2215	2.1	.00	0135	1.9	.00
2220	2.2	.01	0140	1.6	.00
2225	2.2	.01	0145	1.5	.00
2230	2.1	.01	0150	1.3	.01
2235	2.1	.00	0155	1.2	.00
2240	2.1	.01	0200	1.2	.00
2245	2.1	.00	0205	1.2	.01
2250	2.0	.01	0210	1.5	.00
2255	1.7	.00	0215	1.6	.01
2300	1.7	.01	0220	1.7	.00
2305	1.7	.00	0225	1.9	.01
2310	1.7	.01	0230	1.9	.01
2315	1.6	.00	0235	2.2	.02
2320	1.5	.01	0240	2.9	.02
2325	1.4	.00	0245	3.6	.03
2330	1.2	.01	0250	4.5	.01
2335	1.2	.00	0255	5.1	.01
2340	1.2	.00	0300	4.3	.01
2345	1.2	.01	0305	3.4	.00
2350	1.2	.00	0310	2.8	.01
2355	1.2	.01	0315	2.9	.01
2400	1.4	.01	0320	3.4	.01
0005	1.6	.01	0325	3.4	.01
0010	2.0	.01	0330	3.4	.00
0015	2.4	.01	0335	3.4	.01
0020	2.6	.01	0340	3.3	.00
0025	2.5	.00	0345	2.8	.01
0030	2.5	.01	0350	2.6	.00
0035	2.5	.01	0355	2.4	.00
0040	2.5	.00	0400	2.2	.00
0045	2.4	.01	0405	2.0	.01
0050	2.4	.00	0410	1.7	.00

Table 31.--Rainfall-runoff data, September 8-9, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0415	1.5	0.00	0710	1.5	0.00
0420	1.4	.00	0715	1.5	.01
0425	1.2	.00	0720	1.5	.00
0430	1.2	.00	0725	1.3	.00
0435	1.2	.01	0730	1.2	.00
0440	1.3	.00	0735	1.2	.01
0445	1.5	.01	0740	1.3	.00
0450	1.6	.00	0745	1.5	.00
0455	1.6	.00	0750	1.5	.01
0500	1.6	.01	0755	1.5	.00
0505	1.6	.01	0800	1.3	.00
0510	1.7	.00	0805	1.2	.00
0515	1.6	.00	0810	1.2	.01
0520	1.6	.01	0815	1.2	.00
0525	1.5	.00	0820	1.2	.00
0530	1.5	.00	0825	1.2	.00
0535	1.3	.00	0830	1.2	.00
0540	1.2	.00	0835	1.1	.01
0545	1.2	.00	0840	1.1	.00
0550	1.1	.00	0845	1.0	.03
0555	1.1	.00	0850	1.0	.01
0600	.99	.01	0855	1.1	.00
0605	.92	.00	0900	1.3	.01
0610	.85	.00	0905	1.5	.00
0615	.85	.00	0910	1.5	.00
0620	.82	.00	0915	1.5	.01
0625	.82	.00	0920	1.5	.00
0630	.79	.00	0925	1.3	.00
0635	.82	.01	0930	1.2	.00
0640	.79	.00	0935	1.2	.00
0645	.79	.00	0940	1.2	.00
0650	.79	.01	0945	1.2	.00
0655	.79	.00	0950	1.2	.00
0700	.82	.01	0955	1.2	.00
0705	.99	.00	1000	1.2	.00

Table 31.--Rainfall-runoff data, September 8-9, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1005	1.2	0.00	1130	0.51	0.00
1010	1.2	.00	1135	.49	.00
1015	1.1	.00	1140	.46	.00
1020	1.0	.00	1145	.42	.00
1025	.99	.00	1150	.40	.00
1030	.95	.00	1155	.38	.00
1035	.88	.00	1200	.36	.00
1040	.85	.00	1205	.34	.00
1045	.82	.00	1210	.34	.00
1050	.79	.00	1215	.32	.00
1055	.76	.00	1220	.32	.00
1100	.73	.00	1225	.34	.00
1105	.70	.00	1230	.34	.00
1110	.64	.00	1235	.34	.00
1115	.61	.00	1240	.34	.00
1120	.59	.00	1245	.36	.02
1125	.54	.00			

Table 32.--Rainfall-runoff data, September 10, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 10 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0330	0.10	0.00	0545	0.88	0.00
0335	.12	.00	0550	.73	.00
0340	.14	.01	0555	.64	.00
0345	.16	.00	0600	.59	.00
0350	.27	.00	0605	.56	.00
0355	.40	.01	0610	.54	.00
0400	.54	.00	0615	.51	.00
0405	.59	.00	0620	.46	.00
0410	.56	.00	0625	.44	.00
0415	.54	.00	0630	.40	.01
0420	.49	.00	0635	.34	.00
0425	.46	.00	0640	.29	.00
0430	.46	.01	0645	.25	.00
0435	.56	.01	0650	.24	.00
0440	.73	.00	0655	.21	.00
0445	.88	.00	0700	.19	.00
0450	.88	.00	0705	.17	.00
0455	.82	.00	0710	.14	.00
0500	.73	.01	0720	.13	.00
0505	.64	.00	0725	.13	.00
0510	.64	.00	0730	.11	.00
0515	.67	.01	0735	.12	.00
0520	.73	.00	0740	.12	.00
0525	.79	.01	0745	.11	.00
0530	.92	.00	0750	.11	.00
0535	.99	.00	0755	.10	.00
0540	.99	.00			

Table 33.--Rainfall-runoff data, September 10, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1745	0.40	0.07	1845	0.67	0.00
1750	5.1	.07	1850	.54	.00
1755	7.0	.01	1855	.40	.00
1800	3.1	.00	1900	.27	.00
1805	1.5	.00	1905	.21	.00
1810	.95	.00	1910	.16	.00
1815	1.0	.00	1915	.16	.00
1820	1.2	.00	1920	.12	.00
1825	.99	.00	1925	.09	.00
1830	.92	.00	1930	.08	.00
1835	.85	.00	1935	.10	.00
1840	.76	.00			

Table 34.--Rainfall-runoff data, September 20, 1980, for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 25 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0425	0.05	0.01	0645	0.48	0.00
0450	.06	.04	0650	.44	.00
0455	3.3	.02	0655	.40	.00
0500	4.8	.02	0700	.36	.00
0505	3.3	.02	0705	.32	.00
0510	3.1	.04	0710	.29	.00
0515	3.9	.03	0715	.26	.00
0520	4.1	.01	0720	.24	.00
0525	2.8	.00	0725	.22	.00
0530	2.0	.00	0730	.19	.00
0535	1.8	.01	0735	.18	.00
0540	1.6	.01	0740	.17	.00
0545	1.6	.00	0745	.15	.00
0550	1.5	.00	0750	.14	.00
0555	1.3	.00	0755	.13	.00
0600	1.1	.00	0800	.12	.00
0605	1.0	.00	0805	.11	.00
0610	.88	.00	0810	.11	.00
0615	.76	.00	0815	.10	.00
0620	.73	.00	0820	.09	.00
0625	.67	.00	0825	.09	.00
0630	.62	.00	0830	.07	.00
0635	.57	.00	0835	.07	.00
0640	.50	.00	0840	.07	.00

Table 35.--Rainfall-runoff data, July 24, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1520	0.05	0.00	1840	0.20	0.00
1525	.05	.00	1845	.23	.00
1530	.05	.01	1850	.18	.00
1535	.08	.00	1855	.18	.00
1540	.05	.00	1900	.18	.00
1545	.05	.00	1905	.18	.00
1550	.05	.03	1910	.18	.00
1555	.23	.01	1915	.18	.00
1600	1.7	.00	1920	.18	.00
1605	1.0	.00	1925	.18	.00
1610	.73	.00	1930	.18	.00
1615	.58	.00	1935	.18	.00
1620	.45	.00	1940	.15	.00
1625	.38	.00	1945	.15	.00
1630	.33	.00	1950	.15	.00
1635	.33	.00	1955	.18	.00
1640	.43	.00	2000	.18	.00
1645	.38	.05	2005	.15	.00
1650	.35	.01	2010	.18	.01
1655	1.3	.00	2015	.13	.00
1700	1.3	.00	2020	.13	.00
1705	.83	.00	2025	.13	.00
1710	.65	.00	2030	.18	.00
1715	.53	.00	2035	.15	.00
1720	.45	.00	2040	.15	.00
1725	.45	.01	2045	.15	.00
1730	.48	.00	2050	.15	.00
1735	.45	.00	2055	.15	.00
1740	.43	.00	2100	.15	.00
1745	.43	.00	2105	.18	.00
1750	.35	.00	2110	.18	.00
1755	.33	.00	2115	.18	.00
1800	.33	.00	2120	.18	.00
1805	.28	.00	2125	.15	.00
1810	.25	.00	2130	.18	.00
1815	.25	.00	2135	.13	.00
1820	.23	.00	2140	.13	.00
1825	.23	.00	2145	.13	.00
1830	.23	.00	2150	.13	.00
1835	.20	.00	2155	.13	.00

Table 36.--Rainfall-runoff data, August 14-15, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1550	0.18	0.03	1910	0.30	0.00
1555	.20	.02	1915	.28	.00
1600	.25	.02	1920	.28	.00
1605	.33	.03	1925	.25	.00
1610	.33	.00	1930	.25	.00
1615	.75	.00	1935	.25	.00
1620	.95	.00	1940	.25	.00
1625	.85	.00	1945	.25	.00
1630	.70	.00	1950	.25	.00
1635	.63	.00	1955	.25	.00
1640	.58	.00	2000	.28	.00
1645	.53	.00	2005	.28	.00
1650	.48	.00	2010	.28	.02
1655	.45	.00	2015	.30	.05
1700	.40	.00	2020	.43	.10
1705	.38	.00	2025	3.4	.14
1710	.33	.00	2030	6.9	.18
1715	.30	.00	2035	9.9	.12
1720	.30	.00	2040	14	.05
1725	.28	.00	2045	16	.04
1730	.28	.00	2050	14	.03
1735	.30	.00	2055	13	.01
1740	.30	.00	2100	11	.02
1745	.30	.00	2105	9.9	.00
1750	.30	.00	2110	8.1	.01
1755	.28	.00	2115	6.3	.00
1800	.28	.00	2120	4.3	.00
1805	.25	.00	2125	3.1	.00
1810	.25	.00	2130	2.4	.00
1815	.30	.00	2135	1.9	.00
1820	.30	.00	2140	1.7	.00
1825	.30	.00	2145	1.5	.00
1830	.28	.00	2150	1.3	.00
1835	.28	.00	2155	1.1	.00
1840	.28	.00	2200	.98	.00
1845	.28	.00	2205	.93	.00
1850	.35	.00	2210	.88	.00
1855	.38	.00	2215	.80	.00
1900	.38	.00	2220	.78	.00
1905	.35	.00	2225	.75	.00

Table 36.--Rainfall-runoff data, August 14-15, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0420	1.3	0.00	0740	0.48	0.02
0425	1.3	.01	0745	.58	.01
0430	1.3	.00	0750	1.5	.02
0435	1.3	.00	0755	2.0	.00
0440	1.3	.00	0800	2.0	.02
0445	1.1	.00	0805	1.9	.01
0450	1.0	.00	0810	1.9	.01
0455	.95	.00	0815	1.9	.00
0500	.90	.00	0820	1.8	.00
0505	.85	.00	0825	1.7	.00
0510	.80	.00	0830	1.6	.00
0515	.78	.00	0835	1.5	.01
0520	.75	.00	0840	1.5	.01
0525	.73	.00	0845	1.5	.00
0530	.70	.00	0850	1.5	.00
0535	.65	.00	0855	1.3	.00
0540	.63	.00	0900	1.1	.00
0545	.63	.00	0905	.98	.00
0550	.60	.00	0910	.93	.00
0555	.60	.00	0915	.85	.00
0600	.58	.00	0920	.83	.00
0605	.55	.00	0925	.78	.00
0610	.55	.00	0930	.75	.00
0615	.53	.00	0935	.70	.00
0620	.53	.00	0940	.68	.00
0625	.53	.00	0945	.65	.00
0630	.53	.00	0950	.60	.00
0635	.50	.00	0955	.58	.00
0640	.50	.00	1000	.55	.00
0645	.48	.00	1005	.53	.00
0650	.48	.00	1010	.50	.00
0655	.48	.00	1015	.50	.00
0700	.45	.00	1020	.48	.00
0705	.45	.00	1025	.45	.00
0710	.45	.01	1030	.45	.00
0715	.45	.00	1035	.43	.00
0720	.45	.00	1040	.43	.00
0725	.45	.00	1045	.43	.00
0730	.45	.01	1050	.40	.00
0735	.45	.01	1055	.40	.00

Table 36.--Rainfall-runoff data, August 14-15, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1100	0.40	0.00	1355	0.30	0.00
1105	.38	.00	1400	.30	.00
1110	.38	.00	1405	.30	.00
1115	.38	.00	1410	.30	.01
1120	.38	.00	1415	.30	.00
1125	.38	.00	1420	.30	.00
1130	.38	.00	1425	.28	.00
1135	.38	.00	1430	.28	.00
1140	.35	.00	1435	.28	.00
1145	.35	.00	1440	.28	.00
1150	.35	.00	1445	.28	.00
1155	.35	.00	1450	.28	.00
1200	.35	.00	1455	.28	.00
1205	.35	.00	1500	.28	.00
1210	.33	.00	1505	.25	.00
1215	.33	.00	1510	.25	.00
1220	.33	.00	1515	.25	.00
1225	.33	.00	1520	.25	.00
1230	.33	.00	1525	.25	.00
1235	.33	.00	1530	.25	.00
1240	.33	.00	1535	.25	.00
1245	.33	.00	1540	.25	.00
1250	.33	.00	1545	.23	.00
1255	.30	.00	1550	.23	.00
1300	.30	.00	1555	.23	.00
1305	.30	.00	1600	.23	.00
1310	.30	.00	1605	.23	.00
1315	.30	.00	1610	.23	.00
1320	.30	.00	1615	.23	.00
1325	.30	.00	1620	.23	.00
1330	.30	.00	1625	.23	.00
1335	.30	.00	1630	.23	.00
1340	.30	.00	1635	.23	.00
1345	.30	.00	1640	.23	.00
1350	.30	.00			

Table 36.--Rainfall-runoff data, August 14-15, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
2230	0.70	0.00	0125	0.65	0.00
2235	.70	.00	0130	.63	.00
2240	.68	.00	0135	.60	.00
2245	.68	.00	0140	.58	.00
2250	.68	.00	0145	.55	.00
2255	.68	.00	0150	.55	.00
2300	.68	.01	0155	.55	.00
2305	.68	.00	0200	.53	.00
2310	.70	.00	0205	.53	.00
2315	.70	.00	0210	.50	.00
2320	.70	.00	0215	.50	.00
2325	.68	.00	0220	.50	.00
2330	.63	.00	0225	.50	.00
2335	.63	.00	0230	.50	.00
2340	.63	.00	0235	.48	.00
2345	.63	.00	0240	.48	.00
2350	.63	.00	0245	.48	.00
2355	.63	.00	0250	.50	.00
2400	.65	.00	0255	.50	.01
0005	.65	.00	0300	.50	.00
0010	.65	.00	0305	.50	.00
0015	.65	.01	0310	.48	.00
0020	.65	.00	0315	.48	.01
0025	.63	.00	0320	.48	.00
0030	.68	.00	0325	.55	.00
0035	.73	.00	0330	.68	.01
0040	.73	.00	0335	.75	.00
0045	.73	.00	0340	.83	.01
0050	.73	.00	0345	.88	.01
0055	.73	.00	0350	.98	.01
0100	.73	.00	0355	1.6	.01
0105	.70	.00	0400	1.8	.01
0110	.68	.00	0405	1.8	.00
0115	.68	.00	0410	1.8	.00
0120	.65	.00	0415	1.5	.01

Table 37.--Rainfall-runoff data, September 8, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1010	0.53	0.00	1040	0.43	0.00
1015	.50	.01	1045	.40	.00
1020	.48	.00	1050	.38	.00
1025	.45	.00	1055	.38	.01
1030	.45	.00	1100	.38	.00
1035	.43	.00	1255	.15	.00

Table 38.--Rainfall-runoff data, September 8-9, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 10 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
2135	0.00	Not working	0100	0.93	Not working
2140	.00		0105	.90	
2150	.08		0110	.90	
2155	.43		0115	.90	
2200	.73		0120	.90	
2205	.75		0125	.88	
2210	.75		0130	.83	
2215	.80		0135	.80	
2220	.88		0140	.75	
2225	.93		0145	.68	
2230	.90		0150	.65	
2235	.85		0155	.60	
2240	.88		0200	.58	
2245	.88		0205	.58	
2250	.85		0210	.60	
2255	.83		0215	.65	
2300	.80		0220	.73	
2305	.75		0225	.75	
2310	.75		0230	.78	
2315	.78		0235	.83	
2320	.73		0240	.95	
2325	.68		0245	1.5	
2330	.63		0250	2.0	
2335	.60		0255	2.5	
2340	.60		0300	2.4	
2345	.63		0305	1.8	
2350	.63		0310	1.4	
2355	.63		0315	1.4	
2400	.65		0320	1.5	
0005	.70		0325	1.6	
0010	.80		0330	1.5	
0015	.93		0335	1.5	
0020	1.1		0340	1.5	
0025	1.2		0345	1.4	
0030	1.1		0350	1.2	
0035	1.0		0355	1.0	
0040	1.1		0400	.93	
0045	1.0		0405	.85	
0050	.98		0410	.80	
0055	.93		0415	.73	

Table 38.--Rainfall-runoff data, September 8-9, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0420	0.68	Not Working	0715	0.60	Not working
0425	.63		0720	.63	
0430	.60		0725	.60	
0435	.58		0730	.58	
0440	.58		0735	.55	
0445	.63		0740	.55	
0450	.70		0745	.58	
0455	.73		0750	.60	
0500	.73		0755	.60	
0505	.73		0800	.60	
0510	.73		0805	.58	
0515	.73		0810	.55	
0520	.73		0815	.53	
0525	.70		0820	.53	
0530	.68		0825	.53	
0535	.63		0830	.50	
0540	.60		0835	.50	
0545	.55		0840	.48	
0550	.53		0845	.48	
0555	.50		0850	.45	
0600	.48		0855	.45	
0605	.45		0900	.50	
0610	.45		0905	.55	
0615	.43		0910	.58	
0620	.43		0915	.60	
0625	.43		0920	.58	
0630	.43		0925	.55	
0635	.43		0930	.53	
0640	.40		0935	.53	
0645	.40		0940	.53	
0650	.40		0945	.53	
0655	.40		0950	.55	
0700	.40		0955	.53	
0705	.45		1000	.55	
0710	.55		1005	.53	

Table 39.--Rainfall-runoff data, September 10, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0310	0.13	0.01	0525	0.55	0.01
0345	.18	.01	0530	.55	.00
0405	.45	.00	0535	.60	.00
0410	.48	.01	0540	.63	.00
0415	.45	.00	0545	.63	.00
0420	.45	.00	0550	.58	.00
0425	.43	.00	0555	.53	.00
0430	.43	.01	0600	.50	.00
0435	.43	.00	0605	.45	.00
0440	.45	.01	0610	.45	.00
0445	.53	.00	0615	.43	.00
0450	.60	.00	0620	.40	.00
0455	.58	.00	0625	.40	.00
0500	.55	.00	0630	.38	.00
0505	.53	.01	0635	.35	.00
0510	.50	.00	0640	.33	.00
0515	.50	.00	0720	.13	.00
0520	.50	.01			

Table 40.--Rainfall-runoff data, September 10-11, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1745	0.30	0.09	2105	0.40	0.00
1750	.68	.08	2110	.40	.00
1755	7.5	.01	2115	.40	.00
1800	6.0	.00	2120	.38	.00
1805	3.9	.00	2125	.38	.00
1810	2.4	.00	2130	.38	.00
1815	1.6	.00	2135	.38	.00
1820	1.8	.00	2140	.38	.00
1825	1.8	.00	2145	.40	.00
1830	1.7	.00	2150	.43	.00
1835	1.5	.00	2155	.45	.00
1840	1.3	.00	2200	.45	.00
1845	1.1	.00	2205	.45	.00
1850	.98	.00	2210	.45	.00
1855	.90	.00	2215	.45	.00
1900	.80	.00	2220	.43	.00
1905	.75	.00	2225	.45	.00
1910	.70	.00	2230	.48	.00
1915	.68	.00	2235	.50	.00
1920	.65	.00	2240	.50	.00
1925	.63	.00	2245	.53	.00
1930	.60	.00	2250	.53	.00
1935	.58	.00	2255	.50	.00
1940	.55	.00	2300	.48	.00
1945	.53	.00	2305	.48	.00
1950	.53	.00	2310	.48	.00
1955	.53	.00	2315	.50	.00
2000	.53	.00	2320	.50	.00
2005	.50	.00	2325	.50	.00
2010	.50	.00	2330	.50	.00
2015	.53	.00	2335	.50	.00
2020	.53	.00	2340	.50	.00
2025	.53	.00	2345	.48	.00
2030	.53	.00	2350	.48	.00
2035	.50	.00	2355	.45	.00
2040	.45	.00	2400	.45	.00
2045	.45	.00	0005	.45	.00
2050	.43	.00	0010	.43	.00
2055	.43	.00	0015	.45	.00
2100	.43	.00	0020	.48	.00

Table 40.--Rainfall-runoff data, September 10-11, 1980, for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0025	0.48	0.00	0230	0.40	0.00
0030	.48	.00	0235	.40	.00
0035	.50	.00	0240	.40	.00
0040	.48	.00	0245	.40	.00
0045	.45	.00	0250	.43	.00
0050	.43	.00	0255	.43	.00
0055	.43	.00	0300	.43	.00
0100	.43	.00	0305	.45	.00
0105	.43	.00	0310	.43	.00
0110	.43	.00	0315	.43	.00
0115	.40	.00	0320	.40	.00
0120	.40	.00	0325	.43	.00
0125	.43	.00	0330	.48	.00
0130	.40	.00	0335	.48	.00
0135	.40	.00	0340	.45	.00
0140	.40	.00	0345	.43	.00
0145	.40	.00	0350	.40	.00
0150	.43	.00	0355	.38	.00
0155	.43	.00	0400	.43	.00
0200	.43	.00	0405	.43	.00
0205	.40	.00	0410	.38	.00
0210	.40	.00	0415	.35	.00
0215	.40	.00	0420	.35	.00
0220	.43	.00	0425	.35	.00
0225	.40	.00	0430	.33	.00

Table 41.--Rainfall-runoff data, August 14, 1980, for station 06713010
Cherry Knolls Storm Drain at Denver

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1405	0.00	0.00	Not working
1410	.00	.00	
1415	.00	.00	
1420	.05	.00	
1425	10	.02	
1430	16	.14	
1435	17	.08	
1440	15	.03	
1445	14	.08	
1450	13	.05	
1455	9.9	.03	
1500	9.3	.02	
1505	11	.02	
1510	11	.04	
1515	7.7	.01	
1520	4.1	.01	
1525	1.8	.00	
1530	.39	.00	
1535	.23	.02	
1540	1.2	.00	
1545	2.1	.01	
1550	3.7	.03	
1555	4.8	.02	
1600	4.1	.01	
1605	2.5	.01	
1610	1.7	.01	
1615	1.3	.00	
1620	1.1	.01	
1625	.27	.02	
1630	.11	.00	
1635	.07	.01	
1640	.06	.00	
1645	.05	.00	
1650	.05	.01	
1655	.04	.00	
1700	.04	.00	
1705	.03	.00	
1710	.03	.00	
1715	.02	.00	
1720	.02	.00	

Table 41.--Rainfall-runoff data, August 14, 1980, for station 06713010 Cherry Knolls Storm Drain at Denver--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	
		GAGE 1	GAGE 2
1725	0.02	0.00	Not working
1730	.02	.00	
1735	.01	.00	
1740	.01	.00	
1745	.01	.00	
1750	.01	.00	

Table 42.--Rainfall-runoff data, May 7-8, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1700	0.00	0.01	0.01	0.01
1705	.00	.01	.01	.00
1710	.00	.02	.02	.02
1715	.00	.02	.04	.03
1720	6.8	.02	.03	.03
1725	12	.03	.04	.03
1730	13	.03	.03	.03
1735	15	.04	.03	.03
1740	17	.02	.02	.02
1745	17	.03	.03	.02
1750	15	.02	.02	.03
1755	14	.03	.02	.02
1800	14	.02	.03	.02
1805	14	.03	.03	.03
1810	15	.02	.02	.02
1815	15	.01	.01	.02
1820	14	.02	.02	.02
1825	12	.02	.02	.02
1830	12	.02	.02	.02
1835	12	.02	.02	.02
1840	12	.02	.02	.01
1845	11	.01	.01	.02
1850	11	.01	.01	.01
1855	9.5	.01	.01	.01
1900	8.7	.01	.00	.01
1905	7.7	.00	.01	.00
1910	7.0	.00	.00	.01
1915	5.9	.00	.00	.00
1920	4.9	.00	.00	.00
1925	3.9	.00	.00	.00
1930	3.2	.00	.00	.00
1935	2.7	.00	.01	.00
1940	2.3	.00	.00	.00
1945	2.0	.01	.00	.01
1950	1.9	.00	.01	.00
1955	1.8	.00	.00	.01
2000	2.0	.01	.01	.00
2005	2.3	.00	.00	.01
2010	2.4	.00	.00	.00
2015	2.7	.01	.00	.00

Table 42.--Rainfall-runoff data, May 7-8, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2020	2.8	0.00	0.01	0.01
2025	2.9	.00	.00	.00
2030	2.9	.01	.00	.00
2035	2.8	.00	.01	.01
2040	2.7	.00	.00	.00
2045	2.7	.00	.00	.00
2050	2.7	.01	.01	.00
2055	2.5	.00	.00	.01
2100	2.5	.01	.01	.01
2105	2.7	.01	.01	.01
2110	3.5	.00	.00	.01
2115	4.5	.01	.01	.01
2120	4.7	.01	.00	.00
2125	4.7	.00	.01	.00
2130	4.5	.00	.00	.01
2135	4.2	.01	.01	.00
2140	3.9	.01	.02	.02
2145	3.9	.01	.01	.01
2150	4.9	.02	.01	.01
2155	6.1	.00	.00	.01
2200	6.6	.00	.01	.00
2205	6.4	.01	.00	.01
2210	6.7	.01	.01	.01
2215	6.0	.01	.01	.01
2220	4.9	.00	.01	.00
2225	4.5	.00	.00	.00
2230	4.4	.00	.00	.01
2235	4.1	.00	.00	.00
2240	3.6	.01	.00	.00
2245	3.2	.00	.00	.00
2250	2.8	.00	.00	.00
2255	2.5	.00	.00	.00
2300	2.2	.00	.00	.00
2305	1.9	.00	.00	.00
2310	1.8	.00	.01	.00
2315	1.8	.00	.00	.01
2320	1.7	.00	.00	.00
2325	1.7	.00	.00	.00
2330	1.7	.00	.00	.00
2335	1.6	.00	.00	.00
2340	1.6	.00	.00	.00
2345	1.5	.00	.01	.00
2350	1.4	.01	.00	.00
2355	1.4	.01	.01	.01
2400	1.6	.01	.01	.01

Table 42.--Rainfall-runoff data, May 7-8, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0005	2.2	0.01	0.02	0.03
0010	4.4	.00	.02	.03
0015	6.4	.00	.01	.01
0020	7.3	.00	.00	.00
0025	7.2	.00	.00	.00
0030	5.9	.00	.00	.00
0035	4.7	.01	.00	.00
0040	3.8	.00	.01	.00
0045	3.1	.01	.00	.01
0050	2.8	.00	.01	.00
0055	2.9	.00	.00	.01
0100	3.2	.00	.00	.00
0105	3.1	.00	.00	.00
0110	2.9	.00	.00	.00
0115	2.5	.00	.00	.00
0120	2.3	.00	.00	.00
0125	2.0	.00	.00	.00
0130	1.8	.00	.00	.00
0135	1.7	.00	.00	.00
0140	1.5	.00	.00	.00
0145	1.4	.00	.00	.00
0150	1.3	.00	.00	.00
0155	1.2	.00	.00	.00
0200	1.1	.00	.00	.00
0205	.98	.00	.00	.00
0210	.89	.00	.00	.00
0215	.80	.00	.00	.00
0220	.72	.00	.00	.00
0225	.64	.00	.00	.00
0230	.56	.00	.00	.00
0235	.49	.00	.00	.00
0240	.42	.00	.00	.00
0245	.36	.00	.00	.00
0250	.30	.00	.00	.00
0255	.24	.00	.00	.00
0300	.19	.00	.00	.00
0305	.14	.00	.00	.00
0310	.10	.00	.00	.00
0315	.06	.00	.00	.00
0320	.03	.00	.00	.00
0325	.01	.00	.00	.00
0330	.00	.00	.00	.00
0335	.00	.00	.00	.00
0340	.00	.00	.00	.00
0345	.00	.00	.00	.00

Table 42.--Rainfall-runoff data, May 7-8, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0350	0.00	0.00	0.00	0.00
0355	.00	.00	.00	.00
0400	.00	.00	.00	.00
0405	.00	.00	.00	.00
0410	.00	.00	.00	.00
0415	.00	.00	.00	.00
0420	.00	.00	.00	.00
0425	.00	.00	.00	.00
0430	.00	.00	.00	.00
0435	.00	.00	.00	.00
0440	.00	.00	.00	.00
0445	.00	.00	.00	.00
0450	.00	.00	.00	.00
0455	.00	.00	.00	.00
0500	.00	.00	.00	.00
0505	.00	.00	.00	.00

Table 43.--Rainfall-runoff data, May 8, 1980, for station 06720420
Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1420	0.00	0.01	0.00	0.00
1425	.00	.01	.01	.01
1430	.00	.01	.00	.02
1435	.00	.00	.01	.01
1440	.30	.01	.00	.01
1445	2.2	.00	.00	.00
1450	1.9	.00	.01	.01
1455	1.5	.01	.01	.01
1500	1.4	.00	.01	.01
1505	1.9	.00	.01	.01
1510	2.7	.00	.01	.01
1515	3.1	.00	.01	.01
1520	3.2	.00	.00	.00
1525	2.9	.01	.01	.01
1530	2.5	.00	.00	.00
1535	2.2	.00	.00	.00
1540	1.8	.00	.01	.00
1545	1.5	.00	.00	.00
1550	1.2	.00	.00	.00
1555	1.1	.00	.00	.00
1615	.49	.01	.00	.00
1620	.42	.00	.01	.01
1630	.36	.00	.00	.01
1645	.24	.00	.00	.00
1700	.14	.00	.00	.00
1715	.06	.00	.00	.00

Table 44.--Rainfall-runoff data, May 9, 1980, for station 06720420
Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1550	0.00	0.08	0.13	0.14
1555	.00	.03	.05	.02
1600	.00	.05	.03	.04
1605	4.1	.02	.03	.02
1610	10	.00	.00	.01
1615	8.7	.00	.00	.00
1620	5.7	.00	.00	.00
1625	3.5	.00	.00	.00
1630	2.3	.00	.00	.00
1635	1.4	.00	.00	.00

Table 45.--Rainfall-runoff data, May 11, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0635	0.00	0.00	0.01	0.00
0940	.01	.00	.00	.01
0955	.00	.00	.01	.00
1140	.00	.01	.00	.00
1200	.00	.00	.01	.01
1220	.00	.01	.00	.00
1225	.03	.00	.01	.00
1230	.24	.00	.00	.01
1235	.36	.01	.00	.00
1245	.72	.00	.01	.00
1250	.89	.00	.00	.01
1255	.98	.01	.00	.00
1300	1.1	.00	.01	.00
1305	1.1	.00	.00	.01
1310	1.2	.01	.00	.00
1315	1.3	.00	.01	.00
1320	1.3	.00	.00	.00
1325	1.3	.00	.00	.00
1330	1.2	.00	.00	.00
1335	1.1	.00	.00	.00
1400	.42	.00	.00	.01
1415	.24	.01	.01	.00
1420	.24	.00	.01	.01
1425	.24	.01	.00	.01
1430	.42	.00	.01	.00
1440	1.1	.01	.00	.01
1445	1.3	.00	.00	.00
1450	1.3	.00	.01	.00
1455	1.3	.00	.00	.00
1500	1.2	.00	.00	.00
1505	1.1	.00	.00	.00
1510	.89	.00	.00	.01
1525	.56	.01	.01	.00
1535	.42	.00	.00	.01
1725	.06	.00	.00	.01
1735	.03	.00	.01	.00

Table 46.--Rainfall-runoff data, July 1-2, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1610	0.00	0.00	0.01	0.00
1615	.00	.00	.00	.01
1625	.00	.01	.01	.01
1630	.00	.00	.01	.00
1635	.00	.02	.00	.01
1640	.00	.00	.01	.00
1700	1.1	.00	.00	.01
1705	.89	.01	.00	.00
1800	.00	.00	.00	.00
2045	.00	.00	.01	.00
2055	.00	.01	.00	.01
2100	.00	.00	.01	.00
2105	.00	.01	.00	.00
2110	.00	.01	.01	.01
2115	.00	.01	.01	.01
2120	.00	.01	.01	.02
2125	.98	.01	.01	.01
2130	2.2	.01	.01	.01
2135	3.2	.02	.02	.02
2140	4.2	.02	.01	.01
2145	5.0	.01	.01	.01
2150	5.0	.00	.00	.00
2155	4.2	.00	.01	.01
2200	3.3	.01	.00	.00
2205	2.5	.00	.00	.00
2210	1.9	.00	.00	.00
2215	1.4	.00	.00	.00
2220	1.1	.00	.00	.00
2305	.10	.00	.01	.00
2310	.03	.01	.00	.00
2335	.00	.00	.00	.01
2345	.00	.01	.01	.00
2355	.00	.00	.00	.01
2400	.00	.00	.00	.00
0015	.24	.01	.00	.00

Table 47.--Rainfall-runoff data, July 2, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
1555	0.00	0.01	0.07	0.12
1600	.00	.11	.07	.06
1605	18	.11	.12	.05
1610	30	.03	.02	.03
1615	27	.00	.00	.00
1620	19	.00	.00	.00
1625	9.7	.00	.00	.00
1630	4.5	.00	.00	.00
1635	2.3	.00	.00	.00
1640	1.4	.00	.00	.00
1700	.36	.01	.00	.01
1720	.06	.00	.01	.00
1805	.00	.00	.01	.00
1810	.00	.04	.01	.01
1915	.00	.03	.02	.04
1920	.80	.05	.05	.05
1925	8.9	.00	.01	.00
1930	11	.00	.00	.00
1935	7.5	.00	.00	.00
1940	4.7	.00	.00	.00
1945	2.8	.00	.00	.00
1950	1.6	.00	.00	.00
1955	1.1	.00	.00	.00

Table 48.--Rainfall-runoff data, August 15, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is varied. indicates estimated discharge]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0045	.00	0.00	0.01	0.00
0050	.00	.00	.00	.01
0100	.00	.01	.01	.00
0330	.00	.00	.00	.01
0340	.00	.00	.01	.00
0345	.00	.01	.00	.01
0350	E.17	.00	.01	.00
0355	E.52	.01	.00	.01
0400	E.99	.00	.00	.02
0405	E1.5	.02	.02	.05
0410	E2.8	.02	.03	.02
0415	E2.0	.02	.01	.01
0420	E1.6	.01	.01	.01
0425	E1.2	.00	.01	.02
0430	E.99	.01	.01	.00
0445	E.36	.01	.01	.01
0455	E.17	.00	.00	.01
0500	.00	.01	.00	.00
0505	.00	.00	.01	.00
0650	.00	.00	.00	.01
0735	.00	.00	.01	.00
0740	.00	.01	.00	.01
0745	.00	.01	.01	.01
0750	.00	.01	.01	.01
0755	.00	.01	.01	.01
0800	.00	.00	.01	.01
0805	.00	.01	.00	.01
0810	.00	.02	.02	.03
0815	.00	.01	.02	.01
0820	4.2	.03	.02	.03
0825	5.4	.02	.01	.01
0830	6.8	.01	.02	.02
0835	7.0	.01	.01	.01
0840	6.6	.01	.01	.01
0845	5.7	.01	.01	.01
0850	4.7	.00	.00	.01
0855	3.9	.01	.01	.00
0900	3.2	.00	.00	.00
0905	2.5	.00	.01	.01
0910	2.2	.01	.00	.01

Table 48.--Rainfall-runoff data, August 15, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0915	1.9	0.01	0.01	0.01
0920	2.0	.00	.00	.00
0925	4.1	.00	.00	.00
0930	2.4	.00	.00	.00
0935	1.7	.00	.00	.00
0940	1.3	.00	.00	.00
0945	1.1	.00	.00	.00
0950	2.3	.00	.00	.00
0955	2.2	.00	.00	.00
1000	1.1	.00	.00	.00
1010	3.9	.00	.00	.00
1050	1.7	.00	.00	.00
1055	2.4	.00	.00	.00
1100	3.1	.00	.00	.00
1105	3.1	.00	.00	.00
1110	1.6	.00	.00	.00
1115	.98	.00	.00	.00
1120	.56	.00	.00	.00
1125	.24	.00	.00	.00
1130	.03	.00	.00	.00

Table 49.--Rainfall-runoff data, August 25-26, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2130	0.00	0.00	0.01	0.00
2135	.00	.02	.01	.02
2140	.00	.01	.02	.01
2145	.00	.02	.01	.03
2150	.00	.03	.03	.02
2155	1.8	.02	.02	.01
2200	2.9	.01	.01	.01
2205	4.1	.00	.01	.00
2210	5.4	.01	.01	.01
2215	3.2	.01	.00	.01
2220	3.3	.02	.01	.02
2225	3.6	.01	.01	.01
2230	3.8	.01	.01	.01
2235	3.6	.01	.01	.02
2240	3.5	.01	.01	.01
2245	3.3	.01	.01	.02
2250	3.2	.00	.01	.00
2255	3.1	.01	.01	.01
2300	2.9	.01	.01	.01
2305	2.5	.01	.00	.01
2310	2.2	.00	.01	.00
2315	1.8	.01	.00	.01
2320	1.5	.00	.00	.00
2325	1.4	.00	.00	.00
2330	1.3	.00	.00	.00
2335	1.2	.00	.00	.00
2340	1.1	.00	.00	.00
2345	.98	.00	.00	.00
2350	.89	.00	.00	.00
2355	.80	.00	.00	.00
2400	.10	.00	.00	.00
0005	.01	.00	.00	.00
0010	.00	.00	.00	.00

Table 50.--Rainfall-runoff data, August 26-27, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
2120	0.00	0.02	0.01	0.01
2125	.00	.01	.04	.02
2130	.00	.04	.05	.01
2135	.00	.05	.08	.02
2140	9.5	.03	.03	.02
2145	16	.02	.01	.02
2150	15	.00	.00	.00
2155	8.9	.00	.00	.00
2200	5.2	.00	.00	.01
2205	3.1	.00	.01	.00
2210	1.8	.00	.00	.00
2215	1.2	.00	.00	.00
2400	.00	.00	.00	.00
0025	.00	.01	.00	.01
0035	.00	.01	.01	.02
0040	.00	.02	.01	.01
0045	.00	.01	.01	.01
0050	.98	.02	.02	.02
0055	2.5	.03	.02	.02
0100	5.4	.07	.05	.08
0105	12	.00	.00	.01
0110	13	.00	.00	.02
0115	9.3	.00	.00	.00
0120	5.7	.00	.00	.00
0125	3.3	.00	.00	.00
0130	1.9	.00	.00	.00
0135	1.2	.00	.00	.00

Table 51.--Rainfall-runoff data, September 20, 1980, for station 06720420 Storm Drain at 116th Avenue and Claude Court, at Northglenn

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES		
		GAGE 1	GAGE 2	GAGE 3
0355	0.00	0.03	0.01	Not working
0400	.00	.07	.07	
0405	.00	.02	.02	
0410	8.5	.01	.01	
0415	8.1	.01	.02	
0420	6.2	.01	.01	
0425	5.0	.02	.01	
0430	4.5	.03	.03	
0435	5.9	.02	.02	
0440	6.6	.01	.01	
0445	6.2	.00	.00	
0450	4.9	.01	.01	
0455	4.1	.01	.01	
0500	3.3	.03	.04	
0505	4.1	.03	.02	
0510	6.2	.02	.03	
0515	8.5	.03	.03	
0520	10	.02	.02	
0525	11	.01	.01	
0530	8.9	.01	.00	
0535	6.4	.00	.00	
0540	4.7	.00	.01	
0545	3.2	.00	.00	
0550	2.2	.00	.00	
0555	1.6	.00	.00	
0600	1.1	.00	.00	
0615	.49	.00	.00	
0630	.19	.00	.00	

Table 52.--Rainfall-runoff data, July 1-2, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1555	0.19	0.01	2155	3.4	0.00
1610	.66	.01	2200	3.3	.01
1625	1.4	.01	2205	4.6	.02
1630	2.1	.00	2210	9.2	.03
1635	2.6	.00	2215	12	.01
1640	3.5	.01	2220	11	.01
1645	3.8	.01	2225	10	.02
1650	4.8	.00	2230	12	.02
1655	4.3	.00	2235	12	.02
1700	3.1	.00	2240	14	.01
1705	2.1	.00	2245	12	.01
1710	1.5	.00	2250	9.8	.01
1715	1.1	.00	2255	8.4	.01
1800	.50	.00	2300	7.9	.00
1900	.25	.00	2305	6.9	.01
2020	.23	.01	2310	6.5	.01
2035	.08	.01	2315	6.0	.00
2040	.77	.01	2320	4.9	.00
2045	1.9	.01	2325	3.5	.00
2050	4.0	.01	2330	2.6	.00
2055	6.2	.01	2335	2.4	.00
2100	.19	.01	2340	2.1	.00
2105	1.4	.01	2345	1.2	.00
2110	1.2	.01	2350	1.1	.00
2115	7.9	.02	2355	1.1	.00
2120	10	.02	2400	1.2	.00
2125	12	.03	0005	1.1	.00
2130	21	.02	0010	.93	.00
2135	16	.00	0015	.97	.00
2140	9.7	.01	0020	.97	.00
2145	5.9	.00	0025	.89	.00
2150	4.2	.00			

Table 53.--Rainfall-runoff data, July 11, 1980, for station 394236105042400
Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1845	1.4	0.01	2005	0.70	0.02
1855	.89	.01	2010	4.7	.00
1905	.04	.01	2015	4.8	.00
1915	1.2	.01	2020	2.4	.00
1920	2.2	.01	2025	.97	.00
1925	2.8	.00	2030	.15	.00
1930	2.6	.00	2040	.46	.01
1935	1.5	.00	2125	1.1	.01
1940	.77	.00	2150	.39	.01
1955	.39	.01	2215	.12	.01
2000	.31	.01			

Table 54.--Rainfall-runoff data, July 30, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1800	1.4	0.02	1835	4.0	0.00
1805	2.3	.01	1840	3.6	.00
1810	5.5	.01	1845	3.2	.00
1815	5.8	.00	1850	2.8	.00
1820	5.3	.01	1855	2.4	.00
1825	4.5	.00	1925	1.6	.01
1830	4.1	.00			

Table 55.--Rainfall-runoff data, August 7, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1910	3.4	0.05	1940	4.0	0.00
1915	13	.02	1945	3.3	.00
1920	12	.00	1950	2.7	.00
1925	7.5	.00	1955	2.4	.00
1930	5.8	.00	2000	2.2	.00
1935	4.5	.00	2005	2.1	.00

Table 56.--Rainfall-runoff data, August 10, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1810	2.4	0.00	1850	3.6	0.00
1815	2.4	.01	1855	4.2	.01
1820	2.5	.00	1900	4.6	.00
1825	2.6	.01	1905	4.9	.00
1830	3.4	.00	1910	4.7	.00
1835	3.9	.01	1915	3.9	.00
1840	3.8	.00	1920	2.5	.00
1845	3.6	.00	1925	2.0	.00

Table 57.--Rainfall-runoff data, August 14-15, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1540	0.58	0.03	2035	23	0.00
1545	34	.19	2040	11	.00
1550	37	.37	2045	8.4	.00
1555	34	.24	2050	5.8	.00
1600	36	.14	2055	4.3	.01
1605	32	.20	2100	4.0	.00
1610	36	.16	2105	4.0	.01
1615	32	.07	2110	4.2	.00
1620	39	.01	2115	4.3	.00
1625	46	.00	2120	3.8	.00
1630	45	.00	2125	3.3	.00
1635	39	.00	2130	2.9	.00
1640	29	.00	2135	2.7	.00
1645	30	.00	2140	2.6	.00
1650	38	.00	2145	2.5	.00
1655	29	.00	2150	2.3	.00
1700	39	.00	2155	2.1	.00
1705	20	.00	2200	1.9	.00
1710	18	.00	2205	1.9	.00
1715	13	.00	2210	1.9	.00
1720	10	.00	2215	1.7	.00
1725	9.7	.00	2220	1.9	.01
1730	5.2	.00	2400	.68	.00
1735	4.5	.00	0005	.58	.01
1740	3.3	.00	0020	.87	.01
1745	3.0	.00	0030	1.6	.01
1750	2.8	.00	0035	1.6	.00
1755	2.5	.00	0040	1.8	.00
1800	2.3	.00	0045	1.6	.00
1805	2.1	.00	0325	.29	.01
1810	1.6	.00	0330	.48	.01
1815	1.8	.00	0335	1.3	.01
1955	1.2	.01	0340	2.7	.02
2000	1.2	.02	0345	5.4	.01
2005	12	.04	0350	7.4	.01
2010	37	.04	0355	6.7	.00
2015	27	.04	0400	5.5	.00
2020	34	.01	0405	4.2	.01
2025	32	.04	0410	3.0	.00
2030	37	.02	0415	2.8	.00

NOTE.--Due to an intense rainfall between 1540 and 1720 hours, an undetermined amount of runoff bypassed the gage and flowed outside the basin boundary.

Table 57.--Rainfall-runoff data, August 14-15, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0420	2.7	0.01	0815	7.5	0.01
0425	2.6	.00	0820	6.7	.01
0430	2.5	.00	0825	6.0	.00
0435	2.5	.01	0830	6.2	.01
0440	2.2	.00	0835	7.3	.02
0445	2.1	.00	0840	8.9	.01
0450	1.7	.00	0845	8.7	.01
0455	1.5	.00	0850	7.9	.00
0730	.39	.01	0855	6.5	.01
0735	.58	.02	0900	5.5	.00
0740	2.0	.01	0905	4.0	.00
0745	4.2	.02	0910	3.0	.00
0750	9.7	.02	0915	2.5	.00
0755	15	.02	0920	2.2	.00
0800	15	.00	0925	2.0	.00
0805	10	.01	0930	1.8	.00
0810	8.1	.01			

Table 58.--Rainfall-runoff data, August 25, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 30 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
2130	0.19	0.01	2235	12	0.01
2135	.48	.02	2240	8.7	.00
2140	3.3	.01	2245	7.5	.01
2145	9.7	.04	2250	6.3	.01
2150	22	.02	2255	5.6	.00
2155	18	.02	2300	4.9	.01
2200	18	.03	2305	4.0	.00
2205	23	.03	2310	3.5	.01
2210	20	.02	2315	3.0	.00
2215	18	.02	2320	2.7	.00
2220	21	.03	2325	2.3	.00
2225	23	.02	2330	2.0	.00
2230	17	.02	2400	.77	.00

Table 59.--Rainfall-runoff data, September 8, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1100	0.58	0.01	1125	3.0	0.00
1105	.39	.01	1130	2.7	.02
1110	1.8	.01	1135	3.7	.00
1115	3.8	.00	1140	3.0	.00
1120	4.5	.00	1145	2.1	.00

Table 60.--Rainfall-runoff data, September 8-9, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
2115	0.97	0.01	0045	2.7	0.01
2125	.48	.01	0050	3.7	.01
2135	.68	.01	0055	4.3	.00
2140	1.4	.00	0100	4.1	.00
2145	1.8	.00	0105	3.5	.01
2150	2.0	.01	0110	2.9	.00
2155	1.9	.00	0115	2.4	.00
2200	1.8	.01	0120	2.2	.01
2205	2.0	.01	0125	2.0	.00
2210	2.7	.01	0130	1.8	.00
2215	4.6	.01	0135	1.6	.00
2220	6.9	.02	0140	1.4	.00
2225	7.7	.01	0145	1.4	.01
2230	7.5	.01	0150	1.2	.00
2235	6.7	.01	0200	1.3	.01
2240	6.5	.01	0205	1.5	.00
2245	6.3	.01	0210	1.8	.01
2250	6.0	.01	0215	2.4	.01
2255	5.5	.01	0220	3.6	.01
2300	4.8	.01	0225	3.9	.00
2305	4.3	.00	0230	3.8	.01
2310	4.1	.01	0235	3.5	.00
2315	3.7	.01	0240	3.7	.01
2320	3.5	.00	0245	4.0	.01
2325	3.0	.00	0250	4.5	.01
2330	2.6	.01	0255	4.7	.00
2335	2.4	.00	0300	4.6	.01
2340	2.5	.02	0305	4.7	.01
2345	3.6	.01	0310	4.5	.00
2350	4.6	.01	0315	4.4	.01
2355	5.5	.00	0320	4.0	.00
2400	5.7	.01	0325	3.8	.01
0005	5.1	.01	0330	4.1	.00
0010	4.3	.00	0335	4.3	.01
0015	3.9	.01	0340	4.2	.00
0020	3.7	.00	0345	3.7	.01
0025	3.5	.00	0350	3.0	.00
0030	2.7	.01	0355	2.4	.00
0035	2.3	.00	0400	2.0	.00
0040	2.2	.01	0405	1.8	.00

Table 60.--Rainfall-runoff data, September 8-9, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood--Continued

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0410	1.6	0.01	0720	1.8	0.00
0415	1.6	.00	0725	1.6	.00
0420	1.8	.01	0730	1.4	.01
0425	2.4	.00	0735	1.4	.00
0430	3.1	.00	0740	1.3	.00
0435	3.2	.01	0745	1.3	.00
0440	3.0	.00	0750	1.5	.01
0445	2.7	.01	0755	1.8	.00
0450	2.8	.01	0800	2.2	.01
0455	3.0	.00	0805	2.1	.00
0500	3.4	.01	0810	2.0	.00
0505	3.6	.01	0815	1.8	.00
0510	3.4	.00	0820	1.6	.01
0515	3.2	.00	0825	1.5	.00
0520	2.8	.00	0830	1.4	.00
0525	2.2	.01	0835	1.5	.01
0530	1.9	.00	0840	1.6	.00
0535	1.7	.00	0845	1.9	.00
0540	1.6	.00	0850	2.0	.01
0545	1.4	.00	0855	2.1	.01
0550	1.2	.00	0900	2.2	.00
0555	1.1	.00	0905	2.1	.00
0600	1.2	.01	0910	1.9	.00
0635	.87	.01	0915	1.7	.00
0645	1.5	.01	0920	1.6	.01
0650	1.8	.00	0925	1.4	.00
0655	2.1	.01	0930	1.3	.00
0700	2.3	.00	0935	1.3	.00
0705	2.5	.00	0945	1.2	.01
0710	2.4	.01	1045	.58	.01
0715	2.2	.00			

Table 61.--Rainfall-runoff data, September 10, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is varied]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0015	2.8	0.01	0515	5.0	0.00
0340	2.9	.01	0520	4.9	.00
0410	3.8	.01	0525	4.9	.01
0435	3.9	.01	0530	4.9	.00
0450	4.5	.00	0535	5.0	.00
0455	4.6	.01	0540	5.0	.00
0500	4.6	.00	0545	4.9	.00
0505	4.6	.01	0550	4.6	.00
0510	4.8	.00	0555	4.5	.01

Table 62.--Rainfall-runoff data, September 10, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increments are 5 or 10 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
1750	0.10	0.02	1810	5.1	0.00
1755	6.9	.06	1815	3.0	.00
1800	19	.00	1830	.19	.00
1805	9.7	.00			

Table 63.--Rainfall-runoff data, September 20, 1980, for station 394236105042400 Villa Italia Storm Drain at Lakewood

[Rainfall is reported in amounts measured during specified time increments; time increment is 5 minutes]

TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES	TIME	DISCHARGE, IN FT 3/S	RAINFALL, IN INCHES
0455	0.39	0.01	0525	22	0.02
0500	.19	.02	0530	12	.00
0505	2.7	.01	0535	7.3	.01
0510	5.5	.05	0540	4.9	.00
0515	29	.04	0545	3.8	.01
0520	33	.02	0550	2.9	.00

WATER-QUALITY DATA

Water-quality data for Big Dry Creek tributary are presented in table 64, for Rooney Gulch in table 65, for Asbury Park Storm Drain in table 66, for Asbury Park Storm Drain at Asbury Avenue in table 67, for North Avenue Storm Drain at Denver Federal Center in table 68, for North Avenue Storm Drain at Denver Federal Center North Avenue in table 69, for Cherry Knolls Storm Drain in table 70, for Storm Drain at 116th Avenue and Claude Court in table 71, and for Villa Italia Storm Drain in table 72.

Table 64.--Water-quality data for station 06710225
Big Dry Creek tributary at Easter Street, near Littleton

[K indicates nonideal colony count]

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
MAY									
15...	1255	1.6	125	7.6	2.9	140	--	294	1.2
15...	1325	1.8	93	7.7	2.4	130	K600	334	.95
15...	1425	2.5	69	7.7	1.5	120	K470	254	.38
15...	1630	1.9	73	7.6	1.5	200	--	570	.31
15...	1635	3.8	64	7.9	1.3	190	--	676	.29
15...	1805	.93	111	7.4	1.7	96	K800	202	.38
15...	1825	2.5	70	7.6	1.2	130	K500	304	.26
15...	1855	2.0	62	7.4	1.6	88	K450	306	.29
15...	2055	1.4	96	7.5	1.9	82	180	154	.46
15...	2105	3.5	60	7.7	1.6	130	K590	315	.28
15...	2205	1.5	89	7.6	1.5	50	--	141	.50
15...	2315	1.2	139	7.6	2.6	47	K1200	130	1.2
15...	2345	1.3	99	7.5	1.5	40	--	103	.71
16...	0150	1.5	101	7.4	1.5	18	K1400	61	.47
16...	0250	1.1	113	7.5	1.7	17	K1500	41	.60
17...	1105	1.1	70	7.1	1.1	64	2200	140	.32
17...	1255	1.6	68	7.2	1.1	64	K600	273	.32
17...	1325	2.3	64	7.2	1.2	51	K1800	238	.35
17...	1425	1.2	103	7.3	1.4	57	3000	181	.62
JUL									
01...	2205	--	152	7.9	2.4	170	--	1070	.55

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
MAY									
15...	.06	1.3	.42	1.2	2.3	.70	1.6	.590	.170
15...	.05	1.0	.58	.82	1.9	.50	1.4	.490	.200
15...	.03	.41	.42	.68	2.7	1.6	1.1	.520	.180
15...	.03	.34	.33	.87	1.6	.40	1.2	.900	.140
15...	.03	.32	.29	.65	1.8	.86	.94	.810	.150
15...	.05	.43	.42	.88	1.7	.40	1.3	.480	.210
15...	.03	.29	.31	.59	1.3	.40	.90	.500	.150
15...	.03	.32	.36	.94	1.8	.50	1.3	.550	.210
15...	.03	.49	.34	1.1	1.4	.00	1.4	.420	.150
15...	.02	.30	.26	1.0	1.7	.40	1.3	.560	.110
15...	.02	.52	.43	.57	1.9	.90	1.0	.480	.250
15...	.04	1.2	.43	.97	1.8	.00	1.4	.520	.320
15...	.03	.74	.33	.47	1.3	.50	.80	.380	.250
16...	.02	.49	.34	.64	.98	.00	.98	.330	.250
16...	.03	.63	.39	.71	1.4	.30	1.1	.380	.290
17...	.03	.35	.35	.41	1.5	.74	.76	.470	.260
17...	.03	.35	.35	.39	1.4	.66	.74	.430	.140
17...	.02	.37	.33	.48	1.1	.29	.81	.420	.150
17...	.03	.65	.34	.44	1.4	.62	.78	.490	.250
JUL									
01...	.06	.61	.10	1.7	3.5	1.7	1.8	1.000	.170

Table 64.--Water-quality data for station 06710225
Big Dry Creek tributary at Easter Street, near Littleton--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS-PHORUS, ORTHOPH OSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
MAY									
15...	.19	1	25	12000	290	290	190	70	22
15...	.23	2	24	12000	240	260	180	66	22
15...	.22	1	22	11000	240	250	170	54	14
15...	.19	2	35	22000	400	470	260	74	12
15...	.18	2	39	22000	490	600	300	61	9.9
15...	.27	1	18	7900	180	170	140	41	14
15...	.15	2	23	11000	250	300	180	42	9.2
15...	.22	1	19	8800	180	210	130	33	9.3
15...	.18	1	14	6900	100	170	90	31	11
15...	.12	1	23	16000	270	410	180	44	6.9
15...	.29	1	9	4800	52	110	60	16	9.2
15...	.34	1	10	5400	38	120	70	22	18
15...	.26	0	7	3000	29	70	50	15	12
16...	.24	0	7	2100	25	50	50	11	8.2
16...	.31	0	5	1300	16	40	40	13	8.9
17...	.27	1	13	7000	110	200	110	15	5.5
17...	.19	1	16	95000	110	300	120	13	4.1
17...	.24	1	15	9000	100	230	100	11	3.9
17...	.36	1	12	6000	94	180	90	14	6.4
JUL									
01...	.54	1	50	15000	180	350	320	45	18

Table 65.--Water-quality data for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison

[E indicates estimated; K indicates nonideal colony count]

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
APR									
24...	0400	.37	1080	7.6	1.9	47	K50	77	.70
24...	0600	1.3	547	7.5	1.6	75	K90	560	.49
24...	0700	2.2	430	7.4	1.8	84	K80	572	.48
24...	0900	.38	483	7.5	2.8	67	K30	556	.44
24...	1100	.40	646	7.5	1.8	45	--	138	.37
24...	1400	.64	606	7.6	1.5	56	K1	119	.34
24...	2100	.46	634	7.6	1.5	36	--	42	.40
25...	0700	.22	764	7.6	1.5	36	K6	23	.29
30...	1532	.64	898	7.8	1.7	70	78	176	.40
30...	1715	3.0	362	7.6	2.2	89	--	752	.69
30...	1800	5.4	260	7.6	1.7	120	280	1160	.72
30...	2000	E8.0	471	7.6	1.6	150	--	1590	.54
30...	2300	E6.9	319	7.9	1.7	64	230	608	.58
MAY									
01...	0030	E5.4	336	7.7	2.0	58	--	360	.55
01...	0630	2.2	433	7.6	1.5	48	120	134	.55
01...	0930	2.8	423	7.7	1.6	46	100	192	.63
01...	1330	1.9	500	7.7	1.9	42	110	106	.76
01...	1430	4.1	411	7.5	2.0	73	75	658	.73
01...	1600	E6.7	384	7.6	1.8	64	64	622	.81
01...	1900	4.8	416	7.6	2.3	52	140	296	.80
01...	2400	1.7	510	7.6	1.4	40	240	100	.61
02...	0600	.95	601	7.6	1.6	31	K70	60	.71
02...	1202	.67	677	7.8	1.5	33	54	61	.72
02...	1600	.51	750	7.9	1.6	32	K32	46	.70
08...	1445	.48	1000	8.3	1.0	36	K80	62	.09
08...	1745	2.2	665	7.7	1.7	120	--	431	.47
08...	2045	1.3	821	7.8	1.3	40	--	80	.39
09...	0145	.51	896	7.8	1.2	30	K310	34	.31
15...	2130	.48	883	7.6	1.1	45	K260	93	.12
15...	2215	1.8	708	7.5	.89	67	--	455	.07
15...	2345	3.9	577	7.6	.95	80	--	596	.12
16...	0100	4.4	684	7.7	.85	55	260	426	.07
16...	0230	3.3	741	7.7	.79	38	120	153	.06
16...	0530	1.7	694	7.7	.84	35	130	122	.09
16...	0700	1.5	629	7.8	1.1	31	220	89	.07
16...	1300	.61	776	8.2	1.5	72	--	43	.14
16-18	--	--	--	--	.89	42	--	204	.18

Table 65.--Water-quality data for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)
APR									
24...	.03	.73	.02	1.2	1.3	.10	1.2	.230	.130
24...	.03	.52	.00	1.1	2.6	1.5	1.1	.600	.160
24...	.04	.52	.04	1.3	2.5	1.2	1.3	.640	.200
24...	.04	.48	.04	2.3	2.4	.10	2.3	.570	.160
24...	.03	.40	.04	1.4	1.9	.00	1.4	.320	.160
24...	.04	.38	.06	1.0	1.2	.10	1.1	.270	.130
24...	.03	.43	.06	1.0	1.1	.00	1.1	.220	.140
25...	.04	.33	.04	1.2	1.5	.00	1.2	.180	.110
30...	.02	.42	.02	1.3	2.9	1.6	1.3	.280	.140
30...	.02	.71	.10	1.4	2.6	1.1	1.5	.550	.160
30...	.02	.74	.02	.98	3.4	2.4	1.0	.750	.160
30...	.01	.55	.00	1.0	3.0	2.0	1.0	1.600	.140
30...	.02	.60	.08	1.0	1.9	.80	1.1	.490	.190
MAY									
01...	.01	.56	.02	1.4	2.9	1.5	1.4	.390	.170
01...	.01	.56	.02	.94	1.4	.44	.96	.280	.140
01...	.01	.64	.00	.91	1.4	.49	.91	.270	.130
01...	.01	.77	.02	1.1	1.4	.30	1.1	.250	.130
01...	.02	.75	.18	1.0	2.4	1.2	1.2	.500	.150
01...	.01	.82	.10	.90	2.4	1.4	1.0	.490	.150
01...	.01	.81	.08	1.4	2.1	.60	1.5	.330	.140
01...	.01	.62	.06	.72	1.2	.42	.78	.250	.120
02...	.01	.72	.08	.80	1.2	.32	.88	.200	.110
02...	.00	.73	.10	.64	1.0	.26	.74	.390	.170
02...	.01	.71	.00	.87	1.0	.13	.87	.170	.140
08...	.01	.10	.10	.82	1.1	.18	.92	.130	.060
08...	.02	.49	.75	.45	2.6	1.4	1.2	.480	.140
08...	.01	.40	.10	.83	1.2	.27	.93	.130	.060
09...	.01	.32	.08	.76	1.4	.56	.84	.090	.040
15...	.01	.13	.01	.91	2.8	1.9	.92	.200	.070
15...	.01	.08	.03	.78	1.9	1.1	.81	.410	.070
15...	.01	.13	.03	.79	2.5	1.7	.82	.480	.070
16...	.00	.07	.03	.75	1.4	.62	.78	.340	.080
16...	.00	.06	.03	.70	1.3	.57	.73	.220	.070
16...	.01	.10	.01	.73	2.2	1.5	.74	.200	.070
16...	.01	.08	.11	.89	1.5	.50	1.0	.180	.060
16...	.01	.15	.33	.97	3.2	1.9	1.3	.120	.080
16-18	.01	.19	.02	.68	1.3	.60	.70	.210	.090

Table 65.--Water-quality data for station 06710610 Rooney Gulch at Rooney Ranch, near Morrison--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
APR									
24...	.10	0	6	1900	14	260	30	16	14
24...	.16	1	21	15000	49	410	170	23	10
24...	.18	1	21	15000	49	460	150	22	12
24...	.14	1	21	16000	39	410	90	22	9.7
24...	.14	1	9	4000	15	230	40	18	13
24...	.12	1	8	2900	14	170	50	17	13
24...	.13	1	7	2100	11	110	30	15	14
25...	.10	1	6	1200	9	130	20	18	13
30...	.13	0	7	3600	12	260	30	23	14
30...	.36	0	28	19000	40	440	110	34	15
30...	.21	1	35	29000	42	700	150	49	14
30...	.62	1	48	42000	60	1200	220	28	13
30...	.30	0	20	11000	31	260	80	25	11
MAY									
01...	.19	0	13	6500	18	160	60	19	11
01...	.15	0	9	5000	12	110	40	33	11
01...	.16	0	9	5000	11	100	40	17	13
01...	.14	0	7	3300	8	80	30	13	9.9
01...	.28	0	17	13000	23	290	100	24	10
01...	.20	0	18	11000	24	290	100	22	12
01...	.13	0	12	7000	15	140	50	16	13
01...	.05	0	8	4200	10	90	40	13	9.4
02...	.14	0	4	2300	4	90	20	14	11
02...	.14	0	7	1600	7	50	30	14	11
02...	.08	0	8	1300	11	70	30	15	9.0
08...	.07	0	5	1600	5	290	20	14	11
08...	.17	8	23	11000	410	210	230	12	6.4
08...	.08	2	6	2000	8	150	20	13	13
09...	.07	2	5	920	5	190	20	13	12
15...	.06	0	8	2500	16	280	30	23	18
15...	.08	0	17	11000	39	430	70	37	16
15...	.08	1	23	16000	48	490	100	47	16
16...	.07	0	14	8800	31	310	60	28	22
16...	.05	0	10	3800	16	180	50	31	24
16...	.07	0	8	3200	12	150	40	23	17
16...	.08	0	8	2600	9	140	30	19	16
16...	.05	1	5	1100	6	150	20	20	17
16-18	.13	0	10	4400	17	180	40	15	8.7

Table 66.--Water-quality data for station 06711585
Asbury Park Storm Drain at Denver

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)
AUG									
14...	1555	6.8	361	7.2	4.3	320	672	1.3	.07
14...	1605	18	138	7.6	2.7	180	--	.82	.05
14...	1610	23	99	7.6	1.8	150	--	.58	.03
14...	1615	16	75	7.6	1.7	120	485	.49	.03
14...	1625	9.7	92	7.5	2.0	130	908	.67	.03

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG, SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHOPH OSPHATE TOTAL (MG/L AS P)
AUG									
14...	1.4	1.1	1.8	8.3	5.4	2.9	1.000	.310	.08
14...	.87	.48	1.3	6.2	4.4	1.8	.950	.210	.08
14...	.61	.43	.77	2.9	1.7	1.2	.670	.190	.09
14...	.52	.25	.95	2.6	1.4	1.2	.660	.180	.17
14...	.70	.13	1.2	4.2	2.9	1.3	1.900	.260	.32

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
AUG								
14...	2	49	27000	580	630	410	73	33
14...	3	50	23000	680	630	450	80	40
14...	2	38	15000	430	410	290	36	17
14...	2	41	16000	410	480	280	36	13
14...	1	39	18000	260	610	240	40	13

Table 67.--Water-quality data for station 06711586
Asbury Park Storm Drain at Asbury Avenue, at Denver

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	NITROGEN, DISSOLVED (MG/L AS N)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NITRATE DISSOLVED (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)
JUL 01...	2000	181	6.8	3.7	200	172	.79	.09

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P)
JUL 01...	.88	.79	2.0	4.2	1.4	2.8	.580	.210	.14

DATE	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
JUL 01...	1	23	5800	18	230	230	40	32

Table 68.--Water-quality data for station 06711635 North Avenue Storm Drain at Denver Federal Center, at Lakewood

[K indicates nonideal colony count]

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
MAY									
08...	1439	.29	380	7.6	5.3	380	K14000	1430	3.5
08...	1505	2.2	116	8.0	2.7	190	4200	724	1.2
08...	1605	2.5	136	7.8	1.5	81	2000	668	.80
08...	1705	2.8	182	8.0	4.2	84	3900	616	2.3
08...	1805	1.1	223	7.7	2.7	76	2200	480	1.4
08...	1905	.29	334	7.9	2.6	70	2500	352	1.3
11...	1315	.42	725	7.7	5.8	240	--	408	3.7
11...	1405	1.4	358	7.5	4.6	260	--	604	2.3
11...	1505	.42	406	7.5	3.1	100	--	248	1.6
11...	1605	.40	384	7.5	3.4	89	--	216	2.0
12...	0530	.51	867	7.7	4.8	140	K400	392	3.6
12...	0535	1.7	312	7.7	3.8	220	K800	754	2.1
12...	0635	.34	469	7.8	3.1	88	--	276	1.7
15...	1332	.12	438	7.4	6.2	68	K1500	232	4.3
15...	1340	.40	380	7.4	4.2	350	--	704	2.2
15...	1535	.40	130	7.6	3.6	320	5300	852	2.1
15...	1720	.42	144	7.4	2.0	390	3400	1460	.79
15...	1725	1.3	313	7.5	2.9	270	2100	1320	1.7
15...	1755	.59	220	7.5	2.1	150	2800	528	.90
15...	1845	.29	366	7.5	2.5	120	2200	392	1.5
15...	1910	1.0	184	7.7	2.1	200	K900	792	1.0
15...	2040	.32	321	7.6	2.2	65	K700	234	1.2
15...	2105	1.2	167	7.7	1.6	130	K1300	530	.73
15...	2135	3.8	224	7.7	2.2	76	K400	356	1.1
15...	2335	2.8	109	7.9	.84	37	K500	290	.35
16...	0035	1.4	150	7.7	1.0	32	K400	164	.39
16...	0205	.76	221	7.7	1.4	34	K800	87	.74
16...	0305	.51	287	7.8	2.0	35	K1000	71	.94
16-18	--	--	--	--	2.1	130	--	432	1.2
JUL									
24...	--	--	242	7.2	7.3	300	--	492	2.7
24...	1600	2.6	264	6.8	8.6	620	--	1240	2.9
24...	1620	.54	274	7.1	8.2	310	--	284	3.0
24...	1640	.40	352	7.3	7.7	220	--	72	2.6
24...	1700	2.0	183	7.2	5.3	240	--	508	2.1
24...	1720	.76	229	7.3	5.9	210	--	260	2.3
24...	1750	.38	311	7.4	5.2	130	--	312	2.2
AUG									
10-11	--	--	390	7.3	10	640	--	564	3.5
14...	1610	--	356	7.3	9.9	600	--	1030	3.5
14...	2025	--	89	7.8	2.2	190	--	840	.73

Table 68.--Water-quality data for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
MAY									
08...	.16	3.7	.49	1.1	4.3	2.7	1.6	.890	.080
08...	.06	1.3	.41	.99	2.3	.90	1.4	.750	.070
08...	.04	.84	.30	.38	1.4	.72	.68	.520	.070
08...	.03	2.3	1.5	.40	3.2	1.3	1.9	.910	.220
08...	.04	1.4	.61	.69	1.8	.50	1.3	.540	.100
08...	.04	1.3	.45	.85	1.5	.20	1.3	.360	.070
11...	.14	3.8	.42	1.6	3.1	1.1	2.0	.360	.050
11...	.10	2.4	.66	1.5	3.2	1.0	2.2	.610	.060
11...	.06	1.7	.49	.91	2.0	.60	1.4	.240	.060
11...	.05	2.0	.46	.94	1.6	.20	1.4	.230	.060
12...	.06	3.7	.13	.97	2.0	.90	1.1	.370	.020
12...	.09	2.2	.26	1.3	2.5	.90	1.6	.670	.040
12...	.06	1.8	.30	1.0	1.8	.50	1.3	.240	.050
15...	.05	4.3	.06	1.8	1.8	.00	1.9	.350	.020
15...	.11	2.3	.23	1.7	3.8	1.9	1.9	.560	.050
15...	.15	2.2	.24	1.2	3.2	1.8	1.4	.700	.070
15...	.10	.89	.16	.94	4.1	3.0	1.1	1.200	.070
15...	.14	1.8	.14	.96	4.1	3.0	1.1	1.200	.060
15...	.07	.97	.11	.99	1.9	.80	1.1	.470	.050
15...	.07	1.6	.06	.82	2.3	1.4	.88	.320	.050
15...	.08	1.1	.18	.78	2.5	1.5	.96	.810	.060
15...	.05	1.2	.07	.93	1.3	.30	1.0	.240	.060
15...	.05	.78	.15	.63	2.2	1.4	.78	.530	.060
15...	.05	1.1	.24	.86	1.9	.80	1.1	.370	.050
15...	.02	.37	.12	.35	1.3	.83	.47	.290	.050
16...	.02	.41	.01	.62	1.1	.47	.63	.130	.060
16...	.02	.76	.04	.64	1.2	.52	.68	.140	.050
16...	.02	.96	.01	.99	1.3	.30	1.0	.120	.040
16-18	.07	1.3	.27	.52	1.7	.91	.79	.430	.060
JUL									
24...	.24	2.9	1.4	3.0	6.2	1.8	4.4	1.700	.340
24...	.28	3.2	1.8	3.6	11	5.6	5.4	2.500	.360
24...	.17	3.2	1.9	3.1	7.1	2.1	5.0	.790	.440
24...	.19	2.8	1.2	3.7	4.8	.00	4.9	.410	.350
24...	.17	2.3	1.1	1.9	10	7.0	3.0	.860	.280
24...	.18	2.5	1.0	2.4	4.2	.80	3.4	.480	.250
24...	.21	2.4	.58	2.2	3.1	.30	2.8	.400	.380
AUG									
10-11	.26	3.8	1.8	4.4	11	4.8	6.2	.800	.350
14...	.18	3.7	2.1	4.1	10	3.8	6.2	1.300	.340
14...	.05	.78	.33	1.1	3.0	1.6	1.4	1.000	.170

Table 68.--Water-quality data for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
MAY									
08...	.05	12	110	90000	630	1200	730	79	28
08...	.13	8	70	36000	350	700	380	42	9.1
08...	.13	5	42	27000	170	420	220	27	6.8
08...	.39	7	44	26000	180	490	230	23	5.8
08...	.17	6	40	20000	140	380	210	25	7.2
08...	.11	6	31	18000	100	280	230	20	8.8
11...	.03	1	34	17000	300	350	690	75	44
11...	.03	1	45	27000	330	540	560	74	39
11...	.04	1	22	9300	130	210	240	39	24
11...	.04	1	23	8900	120	190	240	31	19
12...	.02	1	30	14000	240	310	650	35	12
12...	.04	1	53	32000	310	310	500	58	16
12...	.04	1	25	11000	100	240	260	60	15
15...	.01	1	21	11000	81	230	530	18	11
15...	.05	2	80	32000	650	760	680	84	29
15...	.05	2	100	38000	750	840	670	86	26
15...	.16	2	110	49000	770	1000	610	97	15
15...	.07	1	42	22000	420	510	330	110	20
15...	.09	1	42	21000	290	450	500	38	12
15...	.03	1	26	13000	200	270	240	16	12
15...	.11	1	90	32000	450	740	400	49	9.5
15...	.06	1	18	8800	100	170	170	21	10
15...	.15	1	35	19000	260	440	250	29	6.3
15...	.04	1	30	15000	150	300	190	19	8.5
15...	.08	1	21	11000	61	190	100	9.7	3.3
16...	.08	1	13	5800	42	100	90	14	8.8
16...	.07	1	10	3300	33	60	90	15	9.9
16...	.08	1	9	2300	27	50	100	14	12
16-18	.08	1	33	19000	240	390	280	23	9.5
JUL									
24...	.16	3	58	21000	460	600	620	67	47
24...	.23	5	100	49000	1000	1300	1300	130	64
24...	.23	2	47	13000	290	400	430	66	53
24...	.17	2	39	5600	150	250	270	78	49
24...	.20	3	58	21000	470	510	580	78	35
24...	.18	1	32	8900	150	240	240	53	39
24...	.14	1	29	10000	160	230	240	44	31
AUG									
10-11	.18	2	58	13000	450	520	640	120	86
14...	.10	4	100	39000	810	940	1200	130	66
14...	.14	2	90	36000	490	750	590	46	13

Table 68.--Water-quality data for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
SEP									
08...	2155	.76	363	7.2	8.0	520	K7000	512	2.5
08...	2225	.95	159	7.3	3.9	200	K6500	250	1.3
08...	2355	.61	146	7.4	3.1	130	K7200	68	.77
09...	0010	.88	127	7.4	3.0	120	5400	96	.64
09...	0025	1.2	100	7.4	2.1	100	4000	97	.33
09...	0125	.92	123	7.4	3.2	81	4800	66	.37
09...	0225	.85	113	7.4	2.1	66	5200	52	.35
09...	0325	1.4	98	7.5	1.9	54	K1300	132	.22
09...	0700	.58	183	7.2	2.7	66	3600	76	.92
09...	0845	.63	178	7.4	2.7	110	K6800	306	1.1
09...	1045	.57	206	7.4	2.5	75	3800	205	1.1
10...	1750	.54	93	7.8	1.9	430	--	924	.81
10...	1820	1.0	153	7.7	1.9	140	--	498	.77
10...	1850	.54	206	7.6	1.9	98	--	522	.85
10-11	--	--	223	7.4	2.6	170	--	128	.94

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
SEP									
08...	.19	2.7	2.2	3.1	10	4.7	5.3	.840	.180
08...	.06	1.4	1.1	1.4	3.3	.80	2.5	.520	.210
08...	.08	.85	.69	1.5	1.8	.00	2.2	.280	.200
09...	.08	.72	.64	1.7	1.8	.00	2.3	.300	.170
09...	.05	.38	.55	1.2	1.9	.20	1.7	.300	.160
09...	.04	.41	.45	--	--	--	--	.240	--
09...	.04	.39	.50	1.2	2.0	.30	1.7	.210	.150
09...	.04	.26	.35	1.3	1.2	.00	1.6	.200	.130
09...	.05	.97	.31	1.4	1.5	.00	1.7	.180	.080
09...	.05	1.1	.32	1.3	1.6	.00	1.6	.290	.050
09...	.05	1.1	.27	1.1	2.9	1.5	1.4	.250	.050
10...	.06	.87	.00	1.0	3.3	2.3	1.0	.950	.060
10...	.04	.81	.07	1.0	2.2	1.1	1.1	.670	.080
10...	.04	.89	.43	.57	1.5	.50	1.0	.420	.070
10-11	.06	1.0	.24	1.4	1.7	.10	1.6	.240	.090

Table 68.--Water-quality data for station 06711635
North Avenue Storm Drain at Denver Federal Center, at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
SEP									
08...	.10	3	66	16000	500	510	970	130	87
08...	.13	2	35	7000	180	230	310	50	36
08...	.19	1	21	2100	61	80	140	--	24
09...	.17	1	16	3500	93	110	150	25	22
09...	.13	1	15	3300	92	110	140	22	17
09...	.14	1	10	2100	38	70	90	17	15
09...	.12	1	12	2100	34	70	110	15	14
09...	.11	1	11	3100	36	70	90	10	9.0
09...	.11	1	14	2500	87	80	120	17	14
09...	.00	2	23	10000	170	200	220	24	12
09...	.15	1	22	8100	130	160	170	18	12
10...	.08	2	46	25000	460	600	420	66	19
10...	.14	1	41	22000	230	430	250	36	15
10...	.09	1	32	17000	130	270	180	22	14
10-11	.09	1	17	4500	96	120	170	21	16

Table 69.--Water-quality data for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood

[K indicates nonideal colony count]

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
JUL									
24...	--	--	216	7.2	7.3	480	--	668	2.7
AUG									
14...	1615	.75	438	7.3	10	680	--	358	3.8
14...	1620	.95	348	7.3	9.1	540	--	826	3.4
14...	1635	.63	321	7.3	9.4	190	--	612	3.6
14...	1720	.30	525	7.8	7.3	210	--	68	3.2
SEP									
08...	2205	.75	327	7.2	13	450	26000	320	3.1
08...	2235	.85	150	7.3	3.5	170	K19000	142	.87
08...	2305	.75	134	7.3	4.0	120	58000	82	.73
09...	0010	.80	144	7.3	2.7	97	15000	83	.61
09...	0025	1.2	106	7.4	--	94	K8200	11	.00
09...	0110	.90	125	7.3	2.3	66	2100	45	.51
09...	0240	.95	102	7.3	--	54	K7600	105	.45
09...	0305	1.8	77	7.4	2.8	59	4600	123	.30
09...	0320	1.5	99	7.5	2.2	58	K6600	96	.31
09...	0335	1.5	92	7.4	1.8	43	K7600	75	.34
09...	0405	.85	116	7.4	1.9	53	K7000	83	.37
09...	0900	.45	168	7.5	1.8	100	K11000	300	.66
09...	1005	.53	162	7.6	2.2	80	K14000	162	.86
10...	1750	.68	165	7.6	2.2	470	--	1060	.93
10...	1755	7.4	82	8.0	1.8	310	--	936	.78
10...	1800	3.9	85	7.9	1.8	300	--	722	.75
10...	1815	1.6	110	7.8	1.8	160	--	82	.83
10...	1845	1.1	173	7.8	1.8	180	--	70	.83
10-11	--	--	193	7.5	2.4	110	--	100	.86

Table 69.--Water-quality data for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
JUL									
24...	.23	3	75	27000	550	720	770	60	46
AUG									
14...	.08	5	130	37000	670	1200	2100	170	64
14...	.17	3	90	30000	710	840	1200	140	69
14...	.22	3	50	22000	490	600	670	130	73
14...	.36	1	21	2700	150	160	190	68	48
SEP									
08...	.00	2	48	10000	230	380	580	91	43
08...	.18	1	25	4700	130	180	250	40	36
08...	.17	1	21	3000	84	110	180	--	31
09...	.17	1	14	2700	7	110	180	28	25
09...	.01	0	20	4400	90	120	160	21	21
09...	.15	1	13	2200	37	80	110	17	17
09...	.10	1	14	3300	55	110	120	14	11
09...	.09	1	14	4100	73	100	140	14	10
09...	.11	1	22	4200	44	110	150	14	9.4
09...	.12	1	12	3300	48	90	80	12	11
09...	.11	0	14	2700	37	70	100	9.7	8.7
09...	.00	2	27	10000	190	210	240	24	17
09...	.14	1	21	6600	130	150	160	21	11
10...	.06	2	48	26000	420	680	530	64	41
10...	.07	3	47	24000	400	630	440	51	13
10...	.10	2	42	27000	300	590	390	34	11
10...	.12	2	44	26000	200	470	280	30	11
10...	.11	1	38	20000	150	410	260	25	13
10-11	.08	1	15	4300	79	120	150	18	15

Table 69.--Water-quality data for station 06711637 North Avenue Storm Drain at Denver Federal Center North Avenue, at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
JUL									
24...	.18	2.9	1.3	3.1	11	6.6	4.4	1.200	.350
AUG									
14...	.16	4.0	2.3	3.7	12	6.0	6.0	1.800	.260
14...	.18	3.6	2.2	3.3	9.0	3.5	5.5	1.000	.240
14...	.16	3.8	2.2	3.4	9.7	4.1	5.6	.760	.340
14...	.27	3.5	1.5	2.3	3.7	.00	3.8	.490	.440
SEP									
08...	.11	3.2	1.8	7.7	11	1.5	9.5	.520	.120
08...	.07	.94	.93	1.7	3.0	.40	2.6	.410	.260
08...	.07	.80	.92	2.3	2.1	.00	3.2	.290	.230
09...	.06	.67	.55	1.5	2.6	.60	2.0	.300	.190
09...	.00	.00	.29	--	.41	--	--	.020	.020
09...	.05	.56	.44	1.3	1.6	.00	1.7	.220	.160
09...	.05	.50	.46	--	1.7	--	--	.250	.220
09...	.03	.33	.39	2.1	2.7	.20	2.5	.270	.110
09...	.04	.35	.39	1.4	1.6	.00	1.8	.230	.120
09...	.03	.37	.31	1.1	1.8	.40	1.4	.210	.120
09...	.03	.40	.29	1.2	1.2	.00	1.5	.200	.110
09...	.05	.71	.35	.75	2.2	1.1	1.1	.300	.090
09...	.05	.91	.29	1.0	1.7	.40	1.3	.220	.050
10...	.07	1.0	.00	1.2	4.6	3.4	1.2	1.300	.060
10...	.05	.83	.00	.96	4.4	3.4	.96	1.300	.060
10...	.04	.79	.00	1.0	2.2	1.2	1.0	.800	.070
10...	.04	.87	.00	.94	2.3	1.4	.94	.710	.060
10...	.04	.87	.04	.92	1.8	.84	.96	.490	.070
10-11	.07	.93	.00	1.5	1.3	.00	1.5	.200	.060

Table 70.--Water-quality data for station 06713010
Cherry Knolls Storm Drain at Denver

[K indicates nonideal colony count]

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105° DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
AUG									
14...	1425	10	85	7.1	3.5	200	K10200	405	.83
14...	1430	15	78	7.2	2.5	140	--	304	.65
14...	1435	16	85	7.1	2.4	110	K11700	225	.67
14...	1450	12	130	7.2	2.5	76	--	12	.75
14...	1500	9.2	86	7.1	2.3	63	K16000	66	.71
14...	1510	10	127	7.1	2.9	59	--	49	.70
14...	1535	.23	186	7.3	3.1	66	--	28	.86
14...	1559	4.7	117	7.3	2.3	47	--	16	.54
14...	1620	1.1	143	7.4	--	42	K17000	11	--

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
AUG									
14...	.02	.85	.76	1.8	3.5	.90	2.6	.350	.220
14...	.01	.66	.69	1.1	2.5	.70	1.8	.400	.220
14...	.01	.68	.61	1.1	2.4	.70	1.7	.390	.240
14...	.02	.77	.54	1.2	2.2	.50	1.7	.430	.360
14...	.03	.74	.57	1.0	1.9	.30	1.6	.330	.300
14...	.03	.73	.45	1.8	2.1	.00	2.2	.440	.400
14...	.04	.90	.43	1.8	2.1	.00	2.2	.560	.510
14...	.03	.57	.36	1.3	1.5	.00	1.7	.370	.380
14...	--	--	--	--	1.7.	--	--	.390	--

DATE	PHOS-PHORUS, ORTHOPH OSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
AUG									
14...	.17	4	34	12000	580	340	400	37	26
14...	.19	3	23	7200	330	200	270	31	19
14...	.14	2	19	6700	250	170	220	30	18
14...	.37	1	11	2600	94	90	140	29	20
14...	.24	1	9	2600	87	80	120	18	13
14...	.25	1	8	1400	50	60	100	20	17
14...	.56	1	8	1000	42	60	90	24	24
14...	.33	1	8	1200	46	50	120	18	15
14...	.43	1	5	610	24	40	70	16	16

Table 71.--Water-quality data for station 06720420
Storm Drain at 116th Avenue and Claude Court, at Northglenn

[K indicates nonideal colony count]

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
MAY									
07...	1720	8.4	119	7.1	4.1	350	3200	622	1.1
07...	1745	21	64	7.8	1.3	50	3100	236	.45
07...	1830	15	49	7.5	1.3	53	5100	186	.28
07...	1945	2.5	98	7.1	2.4	37	K4900	60	.73
07...	2215	6.2	62	7.2	1.4	33	K7900	71	.40
07...	2345	1.8	145	7.2	3.2	37	K11000	26	.82
08...	0015	8.4	68	7.2	2.0	31	K13000	107	.73
08...	0145	1.7	138	7.3	2.5	35	K8400	25	.95
JUL									
01...	2140	--	120	7.4	3.8	170	--	200	.85
02...	1605	22	102	7.6	2.5	490	--	783	.62
02...	1610	38	82	8.0	1.9	310	--	1220	.58
02...	1620	24	86	7.9	1.9	260	--	435	.69
02...	1625	12	86	8.1	4.0	130	--	408	.66
02...	1630	5.6	85	7.9	2.1	110	--	125	.68
02...	1925	11	72	7.8	2.0	220	--	268	.55
02...	1940	5.8	68	7.7	1.8	150	--	169	.49
AUG									
15-15	--	--	197	7.6	1.9	100	--	123	.37
25...	2155	12	205	7.2	9.1	280	K34000	274	2.1
25...	2210	19	135	7.5	5.5	200	--	252	1.6
25...	2225	15	97	7.5	4.2	110	K16000	100	1.2
25...	2255	14	68	7.5	3.1	62	K15000	44	.96
25...	2355	6.9	100	7.5	3.1	61	--	13	.95
26...	2140	12	117	7.6	4.6	280	K73000	376	1.4
26...	2145	20	71	7.8	3.3	190	59000	102	1.3
26...	2155	11	60	8.0	2.5	75	K18000	218	.88
26...	2200	6.4	57	7.8	3.2	69	K3000	148	1.3
27...	0100	6.7	64	7.7	3.3	88	40000	146	1.4
27...	0105	15	52	8.0	2.8	82	37000	93	1.2
27...	0120	7.1	48	7.7	2.8	45	K9500	52	.96

Table 71.--Water-quality data for station 06720420
Storm Drain at 116th Avenue and Claude Court, at Northglenn--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
MAY									
07...	.07	1.2	1.3	1.6	8.6	5.7	2.9	.870	.260
07...	.01	.46	.04	.82	1.6	.74	.86	.230	.070
07...	.01	.29	.55	.41	1.5	.54	.96	.310	.160
07...	.04	.77	.69	.91	1.9	.30	1.6	.430	.320
07...	.02	.42	.51	.49	1.4	.40	1.0	.260	.180
07...	.06	.88	.66	1.6	2.5	.20	2.3	.430	.340
08...	.03	.76	.52	.68	1.4	.20	1.2	.260	.170
08...	.05	1.0	.60	.90	1.8	.30	1.5	.390	.310
JUL									
01...	.09	.94	.80	2.1	3.8	.90	2.9	.630	.310
02...	.06	.68	.67	1.1	8.2	6.4	1.8	1.800	.170
02...	.06	.64	.57	.73	9.6	8.3	1.3	1.300	.140
02...	.06	.75	.53	.57	3.7	2.6	1.1	.850	.130
02...	.05	.71	.56	2.7	3.3	.00	3.3	.600	.110
02...	.05	.73	.58	.82	2.7	1.3	1.4	.460	.150
02...	.06	.61	.42	.98	4.0	2.6	1.4	.770	.150
02...	.05	.54	.49	.81	6.3	5.0	1.3	.480	.130
AUG									
15-15	.04	.41	.18	1.3	2.6	1.1	1.5	.710	.180
25...	.10	2.2	2.2	4.7	9.9	3.0	6.9	1.300	.530
25...	.07	1.7	1.7	2.1	4.9	1.1	3.8	.800	.310
25...	.06	1.3	1.4	1.5	3.3	.40	2.9	.630	.320
25...	.04	1.0	.86	1.2	2.1	.00	2.1	.450	.250
25...	.04	1.0	.77	1.3	2.1	.00	2.1	.490	.280
26...	.08	1.5	.23	2.9	5.0	1.9	3.1	.940	.180
26...	.04	1.3	.21	1.8	3.1	1.1	2.0	.690	.140
26...	.03	.91	.18	1.4	2.3	.70	1.6	.510	.120
26...	.04	1.3	.33	1.6	2.0	.10	1.9	.430	.140
27...	.05	1.4	.04	1.9	2.4	.50	1.9	.480	.120
27...	.04	1.2	.21	1.4	2.5	.90	1.6	.510	.090
27...	.03	.99	.29	1.5	1.6	.00	1.8	.320	.110

Table 71.--Water-quality data for station 06720420
Storm Drain at 116th Avenue and Claude Court, at Northglenn--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
MAY									
07...	.21	13	42	15000	750	320	370	33	24
07...	.10	3	11	5800	20	260	50	17	12
07...	.22	4	10	3300	150	70	80	7.8	4.2
07...	.38	3	7	1600	51	40	30	12	8.5
07...	.23	2	6	1700	75	40	60	7.2	4.9
07...	.39	3	6	740	3	30	150	14	10
08...	.21	4	7	1800	65	50	110	8.2	6.5
08...	.36	4	5	60	25	30	510	12	11
JUL									
01...	.24	1	18	2600	150	120	150	46	30
02...	.21	4	80	34000	1600	740	830	69	18
02...	.15	2	50	23000	1000	540	520	72	14
02...	.15	2	38	17000	610	350	330	46	12
02...	.15	1	36	12000	380	250	230	33	12
02...	.14	1	25	9600	330	190	190	25	12
02...	.16	2	45	14000	560	290	310	48	16
02...	.17	1	27	8700	420	210	240	33	15
AUG									
15-15	.21	2	35	22000	260	480	250	30	7.6
25...	.61	2	39	8000	350	250	280	50	49
25...	.41	1	29	7300	280	210	220	76	36
25...	.39	1	16	3500	140	120	120	39	30
25...	.31	0	7	1400	52	50	70	33	19
25...	.02	1	11	1800	59	60	70	31	23
26...	.19	2	46	10000	440	290	290	20	14
26...	.15	2	34	7900	380	220	240	22	12
26...	.17	1	27	6300	230	190	150	13	9.5
26...	.16	1	20	4900	160	110	120	11	9.1
27...	.15	1	19	4900	160	130	120	12	9.9
27...	.13	1	21	6000	210	170	150	11	9.2
27...	.12	1	14	3000	120	80	90	8.7	6.6

Table 72.--Water-quality data for station 394236105042400 Villa Italia Storm Drain at Lakewood

[K indicates nonideal colony count]

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
JUL									
01...	1635	2.6	273	6.7	15	490	--	254	3.1
01...	2050	3.9	129	6.6	5.2	290	--	238	1.3
01...	2125	12	55	6.3	2.4	160	--	181	.57
01...	2150	4.2	67	6.5	2.4	89	--	83	.64
01...	2215	12	50	6.4	1.9	74	--	59	.48
01...	2300	7.9	79	6.5	2.8	62	--	29	.67
11...	--	--	122	7.7	7.3	290	--	192	2.7
30-30	--	--	302	5.9	16	640	--	184	4.1
AUG									
07...	1915	13	173	6.2	8.1	89	--	348	2.4
07...	1925	7.5	252	6.4	9.8	96	--	362	3.0
07...	1935	4.5	304	6.5	10	94	--	160	3.5
10-11	--	--	417	7.0	12	470	--	192	4.8
14...	1545	34	92	6.7	3.7	240	K22000	624	.67
14...	1550	37	44	6.9	1.7	130	--	283	.43
14...	1600	36	43	6.9	1.5	66	K7800	195	.34
14...	1610	36	36	6.9	1.2	46	4700	149	.31
14...	1625	46	40	7.0	1.3	41	--	141	.33
14...	1635	39	35	7.0	1.5	37	--	90	.38
14...	1655	29	--	--	1.8	53	K6300	254	.57
14...	1715	13	76	6.9	2.0	35	--	59	.69
14...	1755	2.5	189	7.0	3.8	47	3200	82	1.7
14...	2005	12	68	6.5	2.6	180	--	308	.74
14...	2010	37	53	6.6	2.5	150	--	288	.69
14...	2020	34	49	7.1	2.9	71	--	103	.76
14...	2030	37	48	6.6	1.9	66	--	13	.64
14...	2050	5.8	94	6.7	2.8	55	--	44	1.1
14...	2150	2.3	175	7.0	3.8	71	--	28	1.9
15...	0410	3.0	51	6.7	1.7	57	--	32	.47
15...	0810	8.1	78	6.7	2.3	59	--	46	.80
25...	2140	3.3	193	6.9	17	480	--	468	1.6
25...	2145	9.7	106	6.8	4.8	260	K18000	90	1.6
25...	2150	22	80	6.8	4.1	180	K12000	136	1.4
25...	2200	18	44	7.0	2.8	110	6000	74	.90
25...	2210	20	36	7.1	2.4	81	4600	34	.72
25...	2220	21	30	7.1	2.0	70	K7000	40	.77
25...	2230	17	38	7.0	2.4	51	5700	34	.79
25...	2250	6.3	57	6.9	2.1	47	3900	21	.83
25...	2320	2.7	103	6.8	3.1	48	4100	3	1.2
SEP									
08...	--	--	240	6.4	8.8	440	--	272	.22

Table 72.--Water-quality data for station 394236105042400 Villa Italia Storm Drain at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG, SUSP, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS, (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
JUL									
01...	.13	3.2	1.5	11	13	1.0	12	.590	.380
01...	.06	1.4	.92	2.9	6.3	2.5	3.8	.360	.250
01...	.05	.62	.69	1.1	1.8	.00	1.8	.360	.160
01...	.05	.69	.74	.96	2.2	.50	1.7	.260	.130
01...	.04	.52	.54	.86	1.6	.20	1.4	.230	.110
01...	.05	.72	.72	1.4	2.1	.00	2.1	.190	.110
11...	.07	2.8	1.3	3.2	6.0	1.5	4.5	.430	.320
30-30	.26	4.4	4.2	7.8	13	1.0	12	1.300	.900
AUG									
07...	.12	2.5	2.2	3.4	9.2	3.6	5.6	1.100	.350
07...	.15	3.1	2.6	4.1	8.6	1.9	6.7	1.300	.830
07...	.15	3.6	2.6	3.8	8.5	2.1	6.4	1.100	.880
10-11	.23	5.0	2.9	4.5	9.5	2.1	7.4	.710	.560
14...	.52	1.2	.94	1.5	5.5	3.0	2.5	1.000	.440
14...	.02	.45	.66	.54	1.8	.60	1.2	.380	.120
14...	.03	.37	.50	.60	1.5	.40	1.1	.250	.090
14...	.02	.33	.46	.43	1.5	.61	.89	.190	.080
14...	.01	.34	.44	.56	1.1	.10	1.0	.210	.090
14...	.03	.41	.49	.61	1.2	.10	1.1	.140	.100
14...	.01	.58	.52	.68	1.3	.10	1.2	.180	.130
14...	.04	.73	.68	.62	1.5	.20	1.3	.110	.100
14...	.05	1.7	1.0	1.1	2.0	.00	2.1	.130	.130
14...	.07	.81	.53	1.3	2.8	1.0	1.8	.440	.190
14...	.06	.75	.56	1.1	1.8	.10	1.7	.300	.130
14...	.05	.81	.44	1.7	2.1	.00	2.1	.390	.100
14...	.03	.67	.24	.96	2.2	1.0	1.2	.160	.100
14...	.05	1.1	.66	1.0	1.7	.00	1.7	.150	.110
14...	.05	1.9	.81	1.1	1.9	.00	1.9	.180	.150
15...	.03	.50	.25	.95	1.4	.20	1.2	.140	.100
15...	.04	.84	.39	1.1	1.3	.00	1.5	.150	.130
25...	.81	2.4	1.1	14	--	.00	15	.960	.550
25...	.04	1.6	1.9	1.3	3.9	.70	3.2	.440	.140
25...	.04	1.4	1.5	1.2	2.8	.10	2.7	.540	.210
25...	.03	.93	.77	1.1	1.8	.00	1.9	.330	.110
25...	.03	.75	.53	1.1	1.4	.00	1.6	.250	.080
25...	.03	.80	.39	.81	1.2	.00	1.2	.200	.060
25...	.03	.82	.39	1.2	--	.00	1.6	.180	.050
25...	.02	.85	.46	.74	1.4	.20	1.2	.150	.040
25...	.03	1.2	.54	1.4	--	.00	1.9	.170	.100
SEP									
08...	.07	.29	4.2	4.3	9.6	1.1	8.5	.770	.760

Table 72.--Water-quality data for station 394236105042400 Villa Italia Storm Drain at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	NITRO-GEN, DIS-SOLVED (MG/L AS N)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)
SEP									
08...	2145	1.8	174	6.8	6.1	240	4800	114	2.2
08...	2205	2.0	105	6.6	4.2	180	6000	71	1.2
08...	2225	7.7	54	6.6	2.6	100	4300	83	.50
08...	2255	5.5	43	6.7	2.9	70	3400	32	.29
08...	2345	3.6	60	6.7	1.9	75	3800	34	.23
09...	0035	2.3	77	6.8	2.5	63	K1900	13	.34
09...	0055	4.3	75	6.8	2.5	41	2200	13	.57
09...	0210	1.8	79	6.9	2.2	82	2300	10	.36
09...	0755	1.8	70	6.9	2.1	41	3000	21	.68
09...	0910	1.9	67	6.9	--	150	6000	23	.53
10-11	--	--	77	7.0	2.8	110	--	14	.94

DATE	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
SEP									
08...	.04	2.2	2.1	1.8	4.4	.50	3.9	.560	.460
08...	.05	1.2	1.7	1.3	3.2	.20	3.0	.510	.470
08...	.04	.54	.98	1.1	2.3	.20	2.1	.300	.230
08...	.03	.32	.92	1.7	--	.00	2.6	.220	.200
08...	.03	.26	.74	.86	1.4	.00	1.6	.190	.140
09...	.06	.40	.84	1.3	1.7	.00	2.1	.160	.160
09...	.06	.63	1.2	.70	1.7	.00	1.9	.130	.060
09...	.05	.41	.74	1.1	1.9	.10	1.8	.170	.140
09...	.04	.72	.58	.82	1.4	.00	1.4	.140	.070
09...	.05	.58	.69	--	1.5	--	--	.150	.110
10-11	.06	1.0	.00	1.8	1.2	.00	1.8	.150	.070

DATE	PHOS-PHORUS, ORTHOPH OSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
SEP									
08...	.00	3	34	2200	170	240	360	61	59
08...	.33	2	31	1700	130	180	280	48	46
08...	.18	1	21	2100	120	100	200	23	22
08...	.11	1	11	1100	53	70	100	15	13
08...	.10	1	14	1200	47	80	100	12	12
09...	.09	2	8	440	24	70	140	14	12
09...	.07	1	9	480	25	70	120	11	9.7
09...	.09	1	9	320	18	70	120	22	--
09...	.07	1	16	880	47	70	100	12	9.6
09...	.10	1	17	1100	72	80	110	12	12
10-11	.06	1	9	900	46	60	80	15	13

Table 72.--Water-quality data for station 394236105042400 Villa Italia Storm Drain at Lakewood--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)
JUL									
01...	.28	4	43	30000	350	740	820	150	89
01...	.11	2	28	5100	320	290	410	70	47
01...	.06	2	25	5100	220	190	260	32	18
01...	.05	2	17	2900	90	160	210	23	18
01...	.05	1	13	2700	87	130	150	18	13
01...	.04	2	13	1300	100	140	180	16	14
11...	.08	1	30	5600	310	270	390	54	39
30-30	.40	6	75	9400	500	760	1060	150	110
AUG									
07...	.31	4	63	16000	950	570	650	68	64
07...	.60	4	63	11000	620	580	670	96	81
07...	.49	3	43	5200	360	500	610	96	95
10-11	.34	3	45	4200	320	420	530	91	89
14...	.26	4	39	11000	650	360	490	72	24
14...	.01	3	27	6900	430	210	320	31	15
14...	.02	2	17	4400	210	160	190	16	9.0
14...	.03	2	15	3100	110	130	160	13	7.3
14...	.05	2	15	2600	160	100	120	12	6.1
14...	.06	2	13	2600	93	90	120	12	6.9
14...	.08	2	16	2600	170	100	180	16	8.4
14...	.05	2	9	1500	49	90	210	11	8.8
14...	.08	3	20	650	50	110	350	15	15
14...	.10	3	37	9200	520	270	420	46	22
14...	.04	2	28	8500	370	230	330	30	18
14...	.06	2	15	2800	170	110	240	18	13
14...	.08	1	12	2900	160	100	160	16	12
14...	.04	1	11	2300	50	130	180	17	14
14...	.08	2	15	1500	63	120	290	22	19
15...	.06	1	13	2600	100	90	140	16	11
15...	.05	1	12	1900	66	90	130	18	16
25...	.17	3	46	7500	530	420	540	140	79
25...	.10	2	21	3100	220	190	280	51	43
25...	.16	1	15	2100	140	120	190	59	49
25...	.10	1	11	1800	130	80	150	31	20
25...	.08	1	11	2000	120	70	130	18	13
25...	.06	1	12	1400	77	50	140	17	8.5
25...	.06	0	9	1600	75	60	120	13	8.2
25...	.08	1	10	1200	40	60	80	14	10
25...	.09	1	8	600	27	60	90	16	16
SEP									
08...	.00	6	50	4400	340	360	620	87	45

DATA FOR USE WITH U.S. GEOLOGICAL SURVEY'S DISTRIBUTED ROUTING RAINFALL-RUNOFF MODEL, VERSION II

Data required to model various aspects of urban runoff in the study area using the U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II (W. M. Alley and P. E. Smith, U.S. Geological Survey, written commun., 1980) were Obtained from aerial photographs and topopgraphic, drainage, and sewer-system maps. Data on subcatchment areas, street gutters, and sewer systems for the Big Dry Creek tributary are presented in tables 73 and 74, for Asbury Park Storm Drain in tables 75 and 76, for North Avenue Storm Drain at Denver Federal Center in tables 77 and 78, for Cherry Knolls Storm Drain in tables 79 and 80, for Storm Drain at 116th Avenue and Claude Court in tables 81 and 82, and for Villa Italia Storm Drain in tables 83 and 84. Data for the site at Rooney Gulch were omitted from this report due to continued refining of modeling data.

Table 73.--Subcatchment data for Big Dry Creek tributary at Easter Street, near Littleton, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Sub-catchment number	Drainage area (acres)	Gutter or pipe for drainage	Overland flow length (ft)	Percent effective impervious area	Slope (ft/ft)	Manning *n* value	Thiessen coefficient	
							Rain gage 1	Rain gage 2
1	7.0	22	610	54	0.012	0.020	0	1.0
2	10.5	21	565	38	.017	.020	0	1.0
3	5.3	25	412	39	.038	.020	.68	.32
4	7.1	26	552	45	.032	.020	.27	.73
5	3.1	27	218	20	.032	.020	1.0	0

Table 74.--Gutter and pipe data for Big Dry Creek tributary at Easter Street, near Littleton, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Gutter or pipe number	Gutter or pipe for drainage	Length (ft)	Slope (ft/ft)	Type[1]	Left side slope (ft/ft)	Right side slope (ft/ft)	Diameter (ft)	Manning *n* value
21	24	810	0.025	G	59	--	-	0.013
22	23	500	.036	V	45	23	-	.013
23	24	100	.040	C	--	--	2	.016
24	27	460	.045	C	--	--	2	.016
25	27	560	.018	G	45	--	-	.013
26	27	560	.026	G	44	--	-	.013
27	--	620	.045	-	--	--	-	.013

[1]V=V-shaped; C=Circular pipe; G=Gutter.

Table 75.--Subcatchment data for Asbury Park Storm Drain at Denver, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Sub-catchment number	Drainage area (acres)	Gutter or pipe for drainage	Overland flow length (ft)	Percent effective impervious area	Slope (ft/ft)	Manning *n* value	Thiessen coefficient	
							Rain gage 1	Rain gage 2
1	7.1	21	247	26	0.010	0.020	0	1.0
2	22.1	21	770	26	.008	.020	0	1.0
3	13.1	23	634	19	.018	.016	.48	.52
4	12.6	25	513	12	.010	.025	.62	.38
5	15.7	26	1,069	24	.010	.016	1.0	0
6	5.8	26	395	14	.008	.025	1.0	0
7	10.5	27	693	21	.026	.016	1.0	0
8	4.0	27	264	8	.010	.025	1.0	0
9	15.5	29	776	32	.008	.016	1.0	0
10	14.3	29	716	23	.027	.016	1.0	0

Table 76.--Gutter and pipe data for Asbury Park Storm Drain at Denver, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Gutter or pipe number	Gutter or pipe for drainage	Length (ft)	Slope (ft/ft)	Type[1]	Left side slope (ft/ft)	Right side slope (ft/ft)	Diameter (ft)	Manning *n* value
21	22	1,250	0.010	C	--	--	3.25	0.016
22	26	660	.015	C	--	--	3.5	.016
23	24	900	.008	G	62	--	----	.013
24	26	260	.014	C	--	--	1.5	.016
25	26	1,070	.010	G	56	--	----	.013
26	27	640	.009	C	--	--	3.5	.016
27	28	660	.011	C	--	--	4	.016
28	31	270	.006	C	--	--	4	.016
29	30	870	.007	G	17	--	----	.013
30	31	685	.007	C	--	--	2.5	.016
31	--	100	.014	C	--	--	4.5	.016

[1]C=Circular pipe; G=Gutter.

Table 77.--Subcatchment data for North Avenue Storm Drain at Denver Federal Center, at Lakewood, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Sub-catchment number	Drainage area (acres)	Gutter or pipe for drainage	Overland flow length (ft)	Percent effective impervious area	Slope (ft/ft)	Manning *n* value	Thiessen coefficient
							Rain gage 1
1	9.4	10	509	41	0.045	0.016	1
2	9.3	10	503	35	.030	.016	1
3	7.0	11	521	48	.070	.016	1
4	8.0	13	340	49	.045	.020	1
5	14	14	1,244	90	.045	.016	1
6	21	18	855	37	.050	.016	1

Table 78.--Gutter and pipe data for North Avenue Storm Drain at Denver Federal Center, at Lakewood, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Gutter or pipe number	Gutter or pipe for drainage	Length (ft)	Slope (ft/ft)	Type[1]	Left side slope (ft/ft)	Right side slope (ft/ft)	Diameter (ft)	Manning *n* value
10	16	805	0.035	G	16	--	---	0.013
11	12	585	.009	G	42	--	---	.013
12	14	1,025	.030	V	4	--	---	.040
13	14	305	.002	G	19	--	---	.013
14	15	490	.006	C	--	--	2.5	.016
15	19	70	.008	C	--	--	2.5	.016
16	17	590	.035	C	--	--	3.0	.023
17	19	235	.035	C	--	--	3.5	.023
18	19	1,070	.006	G	21	--	---	.016
19	--	460	.025	C	--	--	4.5	.023

[1]V=V-shaped; C=Circular pipe; G=Gutter.

Table 79.--Subcatchment data for herry Knolls Storm Drain at Denver, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Sub-catchment number	Drainage area (acres)	Gutter or pipe for drainage	Overland flow length (ft)	Percent effective impervious area	Slope (ft/ft)	Manning *n* value	Thiessen coefficient	
							Rain gage 1	Rain gage 2
1	13.4	21	788	43	0.025	0.020	0	1.0
2	7.5	22	563	60	.013	.020	0	1.0
3	13.2	24	446	34	.016	.020	.18	.82
4	7.0	23	484	42	.013	.020	.14	.86
5	6.4	26	606	21	.012	.020	.91	.09
6	9.5	27	618	25	.019	.020	0	0

Table 80.--Gutter and pipe data for Cherry Knolls Storm Drain at Denver, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Gutter or pipe number	Gutter or pipe for drainage	Length (ft)	Slope (ft/ft)	Type[1]	Left side slope (ft/ft)	Right side slope (ft/ft)	Diameter (ft)	Manning *n* value
21	22	740	0.020	G	25	--	----	0.013
22	23	580	.018	G	28	--	----	.013
23	25	630	.017	G	15	--	----	.013
24	25	1,290	.020	G	22	--	----	.013
25	28	440	.025	C	--	--	1.5	.016
26	27	460	.033	C	--	--	1.75	.016
27	28	670	.033	C	--	--	2.0	.016
28	--	120	.025	C	--	--	2.5	.016

[1]C = Circular pipe; G = Gutter

Table 81.--Subcatchment data for Storm Drain at 116th Avenue and Claude Court, at Northglenn, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Sub-catchment number	Drainage area (acres)	Gutter or pipe for drainage	Overland flow length (ft)	Percent effective impervious area	Slope (ft/ft)	Manning *n* value	Thiessen coefficient		
							Rain gage 1	Rain gage 2	Rain gage 3
1	11.5	21	278	21	0.026	0.016	0	1.0	0
2	13.6	22	226	22	.019	.016	0	1.0	0
3	10.7	23	466	24	.016	.016	0	.97	0
4	11.7	24	463	21	.018	.016	0	.73	.27
5	28.7	25	496	34	.016	.016	.20	.80	0
6	6.3	26	350	13	.011	.016	0	1.0	0
7	23.7	27	727	21	.018	.016	.21	0	.79
8	24.9	28	565	24	.025	.016	.27	0	.73
9	16.2	29	480	24	.022	.016	.31	.28	.41
10	15.5	30	450	22	.018	.016	.58	.42	0
11	4.6	31	290	14	.018	.016	1.0	0	0

Table 82.--Gutter and pipe data for Storm Drain at 116th Avenue and Claude Court, at Northglenn, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Gutter or pipe number	Gutter or pipe for drainage	Length (ft)	Slope (ft/ft)	Type[1]	Left side slope (ft/ft)	Right side slope (ft/ft)	Diameter (ft)	Manning *n* value
21	23	1,800	0.019	G	50	---	---	0.013
22	25	2,625	.019	G	50	---	---	.013
23	24	1,000	.014	G	50	---	---	.013
24	29	1,100	.005	C	-----	---	2.5	.016
25	34	2,520	.013	G	50	---	---	.013
26	30	780	.009	G	40	---	---	.013
27	32	1,420	.009	G	33	---	---	.013
28	32	1,920	.015	G	33	---	---	.013
29	33	1,470	.019	C	-----	---	3.0	.016
30	35	1,500	.014	G	25	---	---	.013
31	37	695	.006	G	33	---	---	.013
32	33	260	.018	C	-----	---	2.0	.016
33	34	260	.024	C	-----	---	4.0	.016
34	35	260	.024	C	-----	---	4.0	.016
35	36	400	.024	C	-----	---	4.0	.016
36	38	180	.024	C	-----	---	4.0	.016
37	38	460	.012	V	1.75	2.3	---	.04

[1]V=V-shaped; C=Circular pipe; G=Gutter.

Table 83.--Subcatchment data for Villa Italia Storm Drain at Lakewood, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Sub-catchment number	Drainage area (acres)	Gutter or pipe for drainage	Overland flow length (ft)	Percent effective impervious area	Slope (ft/ft)	Manning *n* value	Thiessen coefficient
							Rain gage 1
1	7.9	21	626	89.6	0.060	0.013	1.0
2	14.2	27	952	76.1	.023	.013	1.0
3	8.1	22	504	100	.012	.013	1.0
4	5.2	26	181	100	.010	.013	1.0
5	7.6	28	788	84.5	.008	.013	1.0
6	11.9	23	302	100	.011	.013	1.0
7	11.7	29	614	90.9	.022	.013	1.0
8	5.1	24	717	100	.017	.013	1.0
9	1.8	31	506	100	.005	.013	1.0

Table 84.--Gutter and pipe data for Villa italia Storm Drain at Lakewood, for use with U.S. Geological Survey's Distributed Routing Rainfall-Runoff Model, Version II

Gutter or pipe number	Gutter or pipe for drainage	Length (ft)	Slope (ft/ft)	Type[1]	Left side slope (ft/ft)	Right side slope (ft/ft)	Diameter (ft)	Manning *n* value
21	22	550	0.004	C	---	---	1.75	0.016
22	23	700	.008	C	---	---	1.75	.016
23	31	1,716	.008	C	---	---	2.00	.016
24	25	310	.021	C	---	---	1.25	.016
25	31	156	.021	C	---	---	1.25	.016
26	30	1,254	.012	C	---	---	.83	.016
27	28	650	.020	C	---	---	1.75	.016
28	29	420	.031	C	---	---	2.00	.016
29	--	830	.031	C	---	---	2.00	.016
30	31	155	.014	C	---	---	2.00	.016
31	--	145	.014	C	---	---	2.25	.016

[1]C=Circular pipe.

REFERENCES

Anderson, R. D., 1978, Summary report on the water quality investigation of the South Platte River, July 1, 1976-June 29, 1977: Colorado Department of Health, Water Quality Control Division, 51 p. and app.

Alley, W. M., 1976, Guide for collection, analysis, and use of urban stormwater data: American Society of Civil Engineers Conference, Easton, Md., November 28-December 3, 1976, 115 p.

Alley, W. M., and Ellis, S. R., 1978, Trace elements in runoff from rainfall and snowmelt at several localities in the Denver, Colorado, metropolitan area, *in* International Symposium on Urban Storm Water Management, Lexington, Ky., July 24-27, 1978, Proceedings: Lexington, Kentucky University, p. 193-198.

Hall, D. C., and Duncan, A. C., 1981, Characterization of urban runoff from Grange Hall Creek at Northglenn, Adams County, Colorado: U.S. Geological Survey Water-Resources Investigations 81-28 [in press].

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