UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Hydrologic Data for Mountain Creek, Trinity River Basin Texas, 1978

Open-File Report 80-744

Prepared in cooperation with the Dallas Power and Light Company and the Texas Department of Water Resources

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Hydrologic Data for Mountain Creek, Trinity River Basin Texas, 1978

By E. R. Carrillo

Open-File Report 80-744

Prepared in cooperation with the Dallas Power and Light Company and the Texas Department of Water Resources

AUSTIN, TEXAS

APRIL 1980

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard, Director

CONTENTS

ILLUSTRATION

HYDROLOGIC DATA FOR MOUNTAIN CREEK

TRINITY RIVER BASIN, TEXAS

1978

By

E. R. Carrillo
U.S. Geological Survey

INTRODUCTION

The collection of hydrologic data by the U.S. Geological Survey in the Mountain Creek watershed began on March 9, 1925, with the establishment of a stream-gaging station located about 2.5 miles upstream from the present site of Mountain Creek Lake Dam. The stream-gaging station was discontinued on July 5, 1933. Daily streamflow records obtained at this site are published in the annual series of Geological Survey water-supply papers beginning in 1925. Monthly and yearly summaries are published in Water-Supply Paper 1312.

In October 1960, the Geological Survey resumed collection of hydrologic data in the Mountain Creek watershed by establishing three stream-gaging stations and one reservoir-content station. The data-collection sites are on Mountain Creek near Cedar Hill (station 08049600), Walnut Creek near Mansfield (station 08049700), Mountain Creek at Grand Prairie (station 08050100), and Mountain Creek Lake near Grand Prairie (station 08050050; fig. 1). In October 1970, the Geological Survey assumed operation of the stage station Mountain Creek near Duncanville (station 08049900; fig. 1). Since 1974 water-quality data has been collected at varying periodic intervals at the sites near Cedar Hill, near Duncanville, and Mountain Creek Lake since 1969. These water-quality data collection stations are shown on figure 1.

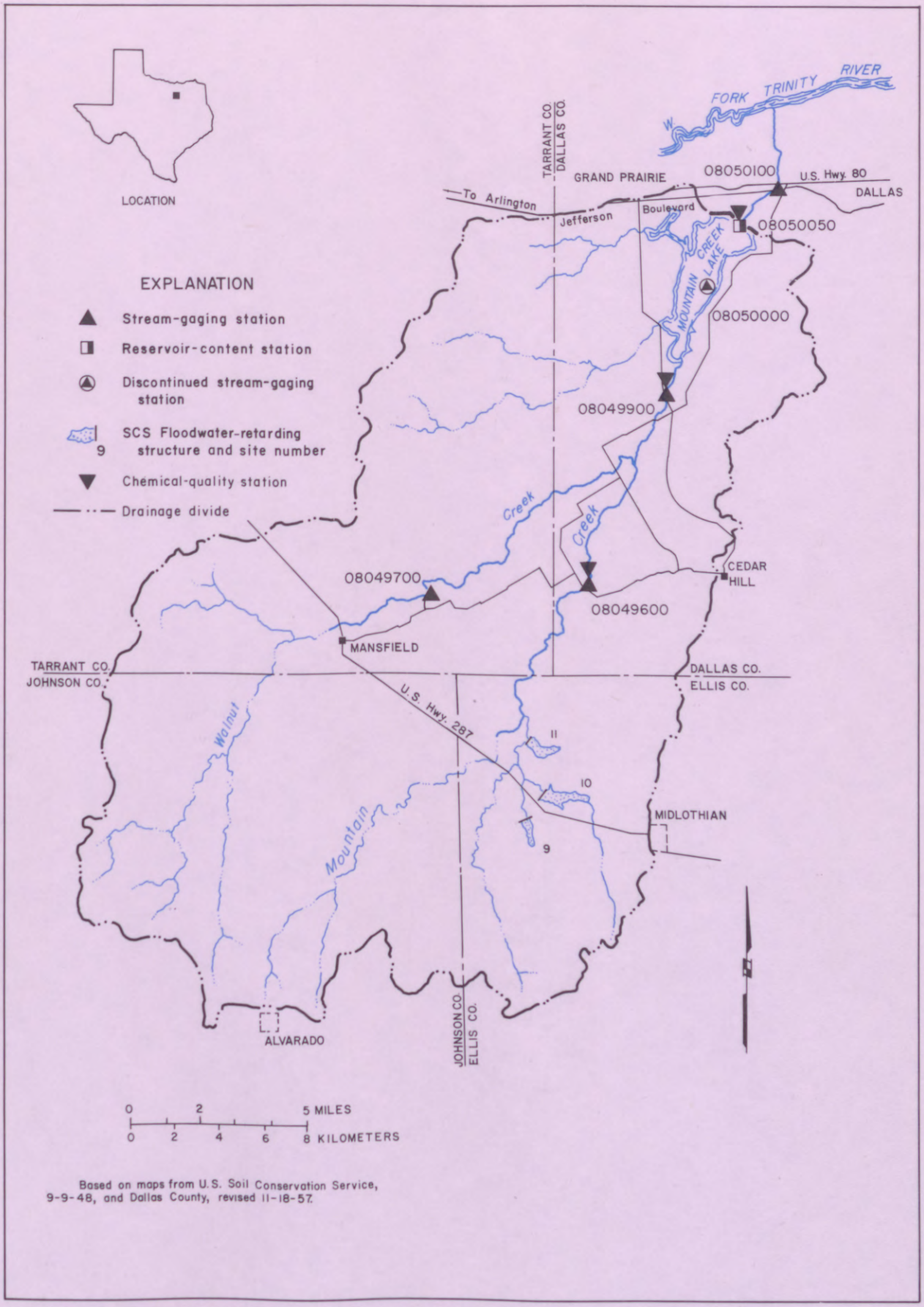

FIGURE 1.- Locations of hydrologic-instrument installations in the Mountain Creek watershed

Since the resumption of data collection in the Mountain Creek drainage basin in 1960, the Corps of Engineers has developed plans for a flood-control reservoir on Mountain Creek at the headwaters of Mountain Creek Lake. The U.S. Soil Conservation Service work plan for March 1955 and the supplement of July 1963 outline the final plan for the construction of 23 floodwater-retarding structures in the Mountain Creek basin. Since August 1957, three floodwater-retarding structures that partly control flow from 14.2 mi^2 in the headwaters of Mountain Creek have been completed. The locations of these floodwater-retarding structures are shown on figure 1.

Increased flood-plain encroachment, proposed flood operation plans, and increased water demands due to urban development necessitated a hydrologic study of this basin.

Hydrologic data for the 1978 water year (Oct. 1, 1977, to Sept. 30, 1978) for sites in the study area are presented in downstream order in the section "Compilation of data." A complete tabulation of basic-hydrologic data for the 1978 water year for the Trinity River basin is given in Water Resources Data for Texas, TX-78-1, 1978.

The purpose of this report is to compile the records of streamflow, reservoir content, and water-quality data for the 1978 water year into a form which facilitates their use in analyses of the Mountain Creek hydrologic system. Assistance in the forms of funds or services was provided by the Texas Department of Water Resources and the Dallas Power and Light Company.

To facilitate the publication and distribution of this report at the earliest feasible time, certain material has been included that does not conform to the formal publication standards of the U.S. Geological Survey.

The inch-pound units of measurements used in this report may be converted to metric units by using the following conversions factors:

From		Multiply by	To obtain	
Unit	Abbreviation		Unit	Abbreviation
inch	--	25.4	millimeter	mm
foot	--	.3048	meter	m
mile	--	1.609	kilometer	km
square mile	mi^2	2.590	square kilometer	km^2
cubic foot per second	ft^3/s	.02832	cubic meter per second	m^3/s
foot per mile	ft/mi	.189	meter per kilometer	m/km
acre-foot	--	1233	cubic meter	m^3
		.001233	cubic hectometers	hm^3

DESCRIPTION OF THE WATERSHED

Mountain Creek flows in a northeasterly direction from its headwaters at Alvarado in Johnson County and enters the West Fork Trinity River about 4 miles east of Grand Prairie. It drains the northeast corner of Johnson County, the northwest corner of Ellis County, the southeast corner of Tarrant County, and part of the southwest corner of Dallas County. The basin is approximately 30 miles long and averages 10 miles in width. The total drainage area at the mouth is 304 mi^2.

About 53 percent of the watershed is in cultivation, 32 percent is in pasture, 10 percent is urbanized, and 5 percent has miscellaneous uses. Deep, black, waxy Blackland Prairie soils are found on approximately 75 percent of the watershed, sandy loam soils on 20 percent, and shallow gravelly soils on the remaining 5 percent.

The topography ranges from steep rock-covered hills along the eastern edge of the watershed to gently rolling hills in the central and western parts. Altitudes range from 870 feet National Geodetic Vertical Datum of 1929 in the Cedar Hill area to about 415 feet in the lower part near Grand Prairie.

The long-term mean annual rainfall for the watershed is about 34 inches (1941-70). Individual rains, which may cause serious flooding occur most frequently in the spring.

HYDROLOGIC INSTRUMENTS

The data-collection stations on Mountain Creek near Cedar Hill (station 08049600) and Walnut Creek near Mansfield (station 08049700) provide hydrologic data which can be used to define runoff characteristics from small drainage basins. They also serve as index stations for inflow into the reservoir and provide operational data for the reservoir. In addition, the station Walnut Creek near Mansfield is equipped with a recording rain gage. The stage-only station near Duncanville (station 08049900) records the water-surface elevation of Mountain Creek Lake and provides flood-warning data pertinent to operation of the flood gates in the Mountain Creek Lake Dam. Water-quality data collected at the station near Duncanville provides information on the quality of water entering Mountain Creek Lake. The reservoir-content station Mountain Creek Lake near Grand Prairie (station 08050050) at the dam provides records of reservoir stage and contents. The stream-gaging station Mountain Creek at Grand Prairie (station 08050100) serves as an outflow station to Mountain Creek Lake and provides records of outflow from the reservoir and the basin. Locations of the gaging stations are shown on figure 1.

To facilitate satisfactory operation of the outflow gates, the Dallas Power and Light Company has installed telemark stage-reporting equipment at each stream-gaging station, the stage-only station, and the lake gage on Mountain Creek Lake. The company also operates and maintains a network of rain gages and stream staff gages to provide additional runoff data during flood emergencies.

Mountain Creek Lake is owned and operated by the Dallas Power and Light Company. The lake supplies cooling water for a thermal-electric powerplant.

SUMMARY OF DATA FOR THE 1978 WATER YEAR

Basin outflow for the 1978 water year was 3,520 acre-feet which is only 5 percent of the 18-year (1960-78) average of 76,070 acre-feet. Storage in Mountain Creek Lake showed a net loss of 890 acre-feet during the water year. Rainfall over the study area for the 1978 water year was about 24 inches, which is about 10 inches below the mean annual rainfall (1941-70), based on U.S. Department of Commerce, National Oceanic and Atmospheric Administration data (Release No. 81) for the area.

REFERENCES CITED

U.S. Dept. of Agriculture, Soil Conservation Service, 1955, Work plan, Mountain Creek watershed of the Trinity River watershed, Dallas, Ellis, Tarrant, and Johnson Counties, Texas.

_____, 1963, Supplemental work plan, Mountain Creek watershed of the Trinity River watershed, Dallas, Ellis, Tarrant, and Johnson Counties Texas.

U.S. Dept. of Commerce, National Oceanic and Atmospheric Adm. Environmental Data Service, 1973, Monthly normals of temperature, precipitation, and heating and cooling degree days. 1941-70, Texas: Climatography of the United States, release no. 81 (by State).

U.S. Geological Survey, 1950, Compilation of records of surface waters of the United States through September 1950, Part 8: Water-Supply Paper 1312.

_____, 1979, Water resources data for Texas, 1978: Water-data report TX-78-1.

COMPILATION OF DATA

TRINITY RIVER BASIN

08049600 MOUNTAIN CREEK NEAR CEDAR HILL, TX

LOCATION.--Lat 32°35'03", long 97°01'23", Dallas County, Hydrologic Unit 12030102, on left bank at downstream side of county road bridge, 3.5 mi (5.6 km) downstream from Texas and New Orleans Railroad Co. bridge, 4.5 mi (7.2 km) southwest of Cedar Hill, and 12 mi (19 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--119 mi² (308 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 478.31 ft (145.789 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. At end of year, flow from 14.2 m² (36.8 km²) above this station was affected at times by discharge from the flood-detention pools of three floodwater-retarding structures with combined detention capacity of 5,550 acre-ft (6.84 hm³). Dallas Power and Light Co. gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 50.2 ft³/s (1.422 m³/s), 36,370 acre-ft/yr (44.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,300 ft³/s (801 m³/s) May 7, 1969, gage height, 25.10 ft (7.650 m), from rating curve extended above 14,000 ft³/s (396 m³/s); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 30 ft (9.1 m) May 25, 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 317 ft³/s (8.98 m³/s) Feb. 12, gage height, 11.36 ft (3.463 m), no peak above base of 1,500 ft³/s (42.5 m³/s); no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.01	.00	.00	.00	.14	.91	.10	.46	.00	.00	.00
2	.00	.00	.00	.00	.00	.15	.77	3.1	.33	.00	.00	.00
3	.00	.00	.00	.00	.00	.11	.72	44	.56	.00	.00	.00
4	.00	.00	.00	.00	.00	.10	.51	4.3	.24	.00	.00	.00
5	.00	.00	.00	.00	.00	.12	.46	1.3	.14	.00	.00	.00
6	.00	.00	.00	.00	.00	.13	.41	.96	.08	.00	.00	.00
7	.00	.00	.00	.00	.00	11	.44	.70	.05	.00	.00	.00
8	.00	.00	.00	.00	.14	2.2	.38	.50	.05	.00	.00	.00
9	.00	.00	.00	.00	1.2	.97	.34	.27	.04	.00	.00	.00
10	.00	.00	.00	.00	.84	.40	.67	.16	.06	.00	.00	.00
11	.00	.00	.00	.00	.84	.27	1.1	27	.05	.00	.00	.00
12	.00	.00	.00	.00	85	.23	.50	125	.04	.00	.00	.00
13	.00	.00	.00	.00	77	.27	.35	14	.02	.00	.00	.00
14	.00	.00	.00	.00	8.4	.19	.25	4.1	.00	.00	.00	.00
15	.00	.00	.00	.00	2.3	.16	.21	1.2	.00	.00	.00	.00
16	.00	.00	.00	.00	1.2	.14	.18	.48	.00	.00	.00	.00
17	.00	.00	.00	.00	1.5	.12	.18	.39	.00	.00	.00	.00
18	.00	.00	.00	.00	2.5	.11	.13	.28	.00	.00	.00	.00
19	.00	.00	.00	.00	2.3	.14	.08	.20	.00	.00	.00	.00
20	.00	.00	.00	.00	8.4	.16	.05	2.0	.00	.00	.00	.00
21	.00	.00	.00	.00	15	11	.03	157	.00	.00	.00	.00
22	.00	.00	.00	.00	4.9	4.0	.02	34	.00	.00	.00	.00
23	.00	.00	.00	.00	3.0	18	.01	12	.00	.00	.00	.00
24	.00	.00	.00	.00	1.8	128	.11	5.8	.00	.00	.00	.00
25	.00	.00	.00	.00	.76	21	1.5	2.5	.00	.00	.00	.00
26	.00	.00	.00	.00	.32	9.6	.74	.95	.00	.00	.00	.00
27	.00	.00	.00	.00	.24	5.6	.33	.44	.00	.00	.00	.00
28	.00	.00	.00	.00	.19	3.1	.22	.37	.00	.00	.00	.00
29	.00	.00	.00	.00	---	1.9	.18	.65	.00	.00	.00	.00
30	.00	.00	.00	.00	---	1.4	.15	1.2	.00	.00	.00	.00
31	.00	---	.00	.00	---	1.1	---	.95	---	.00	.00	---
TOTAL	.00	.01	.00	.00	217.83	221.81	11.93	445.90	2.12	.00	.00	.00
MEAN	.000	.000	.000	.000	7.78	7.16	.40	14.4	.071	.000	.000	.000
MAX	.00	.01	.00	.00	85	128	1.5	157	.56	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.10	.01	.10	.00	.00	.00	.00
AC-FT	.00	.02	.00	.00	432	440	24	884	4.2	.00	.00	.00

CAL YR 1977 TOTAL 20734.75 MEAN 56.8 MAX 5270 MIN .00 AC-FT 41130
WTR YR 1978 TOTAL 899.60 MEAN 2.46 MAX 157 MIN .00 AC-FT 1780

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1974 to current year. Sediment analyses: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
FEB 16...	1150	1.7	915	7.9	4.5	40	50	11.0	88	2.2	260	170
MAR 23...	1245	2.5	1360	7.9	19.0	40	35	7.8	87	2.2	340	220
APR 13...	1330	.35	1260	7.9	18.5	25	20	7.9	87	2.3	310	140
MAY 11...	1430	.01	1160	7.4	20.0	10	25	3.8	43	2.3	310	170
JUN 08...	0945	.04	1330	7.2	23.0	40	35	4.0	48	3.1	340	190

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE (MG/L AS HCO3)	CAR-BONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
FEB 16...	95	6.5	85	2.3	6.3	120	0	260	51	.7	9.6	573
MAR 23...	120	8.6	160	3.8	7.8	140	0	420	95	.8	4.5	886
APR 13...	110	8.1	170	4.2	9.2	200	0	400	71	.3	16	883
MAY 11...	110	7.7	130	3.2	8.2	170	0	350	62	.7	6.7	759
JUN 08...	120	10	150	3.5	28	180	0	440	65	.9	3.6	906

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	PHENOLS (UG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
FEB 16...	60	8	2.7	.08	2.8	.06	1.0	1.1	.21	7.2	1	.10
MAR 23...	57	24	.08	.01	.09	.01	1.1	1.1	.08	7.2	0	.00
APR 13...	28	0	.01	.01	.02	.04	.68	.72	.07	9.5	3	.10
MAY 11...	24	4	.08	.04	.12	.12	.68	.80	.10	6.2	0	.00
JUN 08...	44	9	.05	.01	.06	.08	1.0	1.1	.03	7.9	1	.10

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	ZINC, DIS-SOLVED (UG/L AS ZN)
MAR 23...	1245	1	200	0	0	0	20	2	20	.0	7	0

08049700 WALNUT CREEK NEAR MANSFIELD, TX

LOCATION.--Lat 32°34'51", long 97°06'06", Tarrant County, Hydrologic Unit 12030102, on right bank at downstream side of bridge on county road, 2.6 mi (4.2 km) northeast of Mansfield, 3.3 mi (5.3 km) downstream from Texas and New Orleans Railroad Co. bridge, and 10.2 mi (16.4 km) upstream from mouth.

DRAINAGE AREA.--62.8 mi^2 (162.7 km^2).

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 531.08 ft (161.873 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. During the current year, the city of Mansfield diverted 1,060 acre-ft (1.31 hm^3) from the Cedar Creek Reservoir pipeline to Fort Worth for municipal use and discharged 310 acre-ft (0.382 hm^3) of sewage effluent into a tributary 2.5 mi (4.0 km) upstream from station. Recording rain gage at station. Several observations of water temperature were made during the year. Dallas Power and Light Co. gage-height telemeter located at station.

AVERAGE DISCHARGE.--18 years, 16.5 ft^3/s (0.467 m^3/s), 3.57 in/yr (91 mm/yr), 11,950 acre-ft/yr (14.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,680 ft^3/s (246 m^3/s) Mar. 27, 1977, gage height, 29.05 ft (8.854 m); no flow at times in 1960-74, 1976-78.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 420 ft^3/s (11.9 m^3/s) Mar. 23, gage height, 11.33 ft (3.453 m), no peak above base of 700 ft^3/s (19.8 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.5	.00	.00	1.4	.13	.15	.11	.10	.00	.00	.00
2	.00	.12	.00	.00	.17	.17	.14	.28	.10	.00	.00	.00
3	.00	.02	.00	.00	.11	.18	.13	12	.11	.00	.00	.00
4	.00	.00	.00	.00	.10	.16	.13	.28	.64	.00	.00	.00
5	.00	.00	.00	.00	.10	.14	.17	.14	.11	.00	.00	.00
6	.00	.00	.00	.01	.10	.15	.35	.12	.09	.00	.00	.00
7	.00	.00	.00	.01	.37	4.0	.15	.12	.09	.00	.00	.00
8	.00	.04	.00	.00	.79	.65	.13	.11	.92	.00	.00	.00
9	.00	.00	.00	.00	1.6	.22	.14	.09	1.0	.00	.00	.00
10	.00	.00	.00	.00	1.6	.16	6.0	.09	.11	.00	.00	.00
11	.00	.00	.00	.02	1.5	.16	.39	58	.09	.00	.00	.00
12	.00	.00	.00	.05	88	.13	.17	100	.08	.00	.00	.00
13	.00	.00	.00	.05	9.3	.14	.14	2.8	.07	.00	.00	.00
14	.00	.00	.00	.05	.57	.15	.12	.28	.06	.00	.00	.00
15	.00	.00	.00	.05	.38	.16	.12	.13	.05	.00	.00	.00
16	.00	.00	.00	.07	.46	.14	.12	.12	.04	.00	.00	.00
17	.00	.00	.00	.07	.38	.13	.12	.11	.03	.00	.00	.00
18	.00	.00	.00	.08	1.0	.13	.12	.11	.02	.00	.00	.00
19	.00	.00	.00	.09	1.5	.13	.11	.11	.00	.00	.00	.00
20	.00	.00	.00	.09	5.8	1.5	.11	4.1	.00	.00	.00	.00
21	.00	.00	.00	.09	1.8	21	.11	17	.00	.00	.00	.00
22	.00	.00	.00	.09	.38	.60	.12	.55	.00	.00	.00	.00
23	.00	.00	.00	.10	.25	55	.22	.14	.00	.00	.00	.00
24	.00	.00	.00	.47	.16	59	1.1	.12	.00	.00	.00	.00
25	.00	.00	.00	.28	.16	2.0	.94	.11	.00	.00	.00	.00
26	.00	.00	.00	.12	.14	.44	.14	.11	.00	.00	.00	.00
27	.00	.00	.00	.09	.13	.25	.11	.11	.00	.00	.00	.00
28	.00	.00	.00	.08	.13	.20	.10	.14	.00	.00	.00	.00
29	.00	.00	.00	.08	---	.18	.10	6.9	.00	.00	.00	.00
30	.00	.00	.00	.08	---	.16	.11	.18	.00	.00	.00	.00
31	.00	---	.00	.56	---	.16	---	.11	---	.00	.00	---
TOTAL	.00	1.68	.00	2.68	118.38	147.72	12.06	204.57	3.71	.00	.00	.00
MEAN	.000	.056	.000	.086	4.23	4.77	.40	6.60	.12	.000	.000	.000
MAX	.00	1.5	.00	.56	88	59	6.0	100	1.0	.00	.00	.00
MIN	.00	.00	.00	.00	.10	.13	.10	.09	.00	.00	.00	.00
CFSM	.000	.001	.000	.001	.07	.08	.006	.11	.002	.000	.000	.000
IN.	.00	.00	.00	.00	.07	.09	.01	.12	.00	.00	.00	.00
AC-FT	.00	3.3	.00	5.3	235	293	24	406	7.4	.00	.00	.00

CAL YR 1977	TOTAL	8470.11	MEAN	23.2	MAX	4310	MIN	.00	CFSM	.37	IN	5.02	AC-FT	16800
WTR YR 1978	TOTAL	490.80	MEAN	1.34	MAX	100	MIN	.00	CFSM	.02	IN	.29	AC-FT	974

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX

LOCATION.--Lat 32°39'43", long 96°58'56", Dallas County, Hydrologic Unit 12030102, at downstream side of bridge on Farm Road 1382, 2.3 mi (3.7 km) downstream from Walnut Creek, 4.5 mi (7.2 km) west of Duncanville, and 5.5 mi (8.8 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--225 mi² (583 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Elevation records good. This station is used to aid in the operation of Mountain Creek Lake. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Mountain Creek near Cedar Hill (station 08049600). Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 469.83 ft (143.204 m) Apr. 19, 1976; minimum daily, 453.69 ft (138.285 m) Sept. 29, 30, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 460.30 ft (140.299 m) May 12; minimum, 453.69 ft (138.285 m) Sept. 29, 30.

ELEVATION, IN FEET NGVD, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	455.35	455.51	456.82	457.27	457.40	456.29	456.38	456.84	456.31	455.54	454.53	453.94
2	455.31	455.66	456.84	457.27	457.42	456.27	456.35	456.88	456.27	455.51	454.52	453.94
3	455.29	455.73	456.85	457.26	457.43	456.26	456.33	458.25	456.25	455.48	454.50	453.93
4	455.25	455.79	456.86	457.25	457.42	456.28	456.32	457.16	456.25	455.44	454.48	453.91
5	455.24	455.84	456.87	457.26	457.41	456.31	456.31	456.52	456.21	455.40	454.47	453.90
6	455.22	455.89	456.87	457.25	457.40	456.33	456.33	456.27	456.21	455.37	454.46	453.90
7	455.20	455.92	456.87	457.24	457.43	456.86	456.33	456.20	456.23	455.34	454.45	453.89
8	455.17	456.16	456.88	457.21	457.45	456.79	456.33	456.19	456.28	455.31	454.44	453.87
9	455.15	456.46	456.88	457.18	457.49	456.50	456.29	456.23	456.26	455.28	454.43	453.87
10	455.18	456.57	456.89	457.17	457.50	456.38	456.35	456.24	456.26	455.25	454.42	453.86
11	455.27	456.57	456.90	457.22	457.54	456.33	456.49	456.79	456.29	455.24	454.41	453.85
12	455.24	456.57	456.94	457.28	458.27	456.26	456.46	459.82	456.27	455.22	454.39	453.84
13	455.22	456.57	456.98	457.32	459.22	456.23	456.41	457.95	456.23	455.20	454.38	453.84
14	455.20	456.56	457.00	457.32	457.69	456.26	456.33	456.93	456.21	455.19	454.37	453.83
15	455.17	456.56	457.02	457.32	457.43	456.27	456.28	456.48	456.18	455.17	454.36	453.81
16	455.15	456.56	457.03	457.34	457.35	456.26	456.25	456.30	456.16	455.16	454.35	453.81
17	455.13	456.55	457.04	457.33	457.35	456.25	456.27	456.22	456.13	455.11	454.34	453.80
18	455.11	456.55	457.05	457.34	457.42	456.25	456.30	456.17	456.09	455.07	454.32	453.79
19	455.09	456.56	457.06	457.35	457.47	456.25	456.31	456.14	456.05	455.03	454.31	453.78
20	455.06	456.57	457.09	457.35	457.60	456.30	456.31	456.12	456.01	454.97	454.30	453.77
21	455.04	456.57	457.10	457.36	457.73	456.69	456.31	458.54	455.97	454.93	454.29	453.76
22	455.19	456.59	457.10	457.36	457.53	456.96	456.32	458.48	455.93	454.88	454.28	453.74
23	455.18	456.61	457.11	457.39	457.42	456.79	456.35	457.32	455.88	454.84	454.27	453.74
24	455.29	456.62	457.14	457.42	457.39	459.44	456.39	456.82	455.83	454.80	454.25	453.73
25	455.33	456.64	457.19	457.43	457.35	457.98	456.53	456.47	455.79	454.70	454.24	453.72
26	455.34	456.65	457.21	457.42	457.18	457.11	456.60	456.30	455.74	454.63	454.23	453.72
27	455.34	456.66	457.21	457.41	456.51	456.74	456.68	456.22	455.70	454.62	454.21	453.71
28	455.36	456.66	457.21	457.38	456.35	456.56	456.70	456.36	455.66	454.61	454.20	453.70
29	455.36	456.74	457.24	457.36	---	456.47	456.74	457.29	455.62	454.59	454.19	453.69
30	455.37	456.80	457.25	457.35	---	456.43	456.77	456.81	455.58	454.57	454.18	453.69
31	455.38	---	457.26	457.37	---	456.39	---	456.44	---	454.55	454.03	---
MAX	455.38	456.80	457.26	457.43	459.22	459.44	456.77	459.82	456.31	455.54	454.53	453.94
MIN	455.04	455.51	456.82	457.17	456.35	456.23	456.25	456.12	455.58	454.55	454.03	453.69

CAL YR 1977 MEAN 456.84 MAX 466.70 MIN 455.04
WTR YR 1978 MEAN 456.04 MAX 459.82 MIN 453.69

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: July 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
OCT 19...	1510	1360	7.4	20.0	10	20	6.8	77	2.0	460	310	150
NOV 09...	1450	1260	7.5	15.0	5	20	5.2	53	1.6	430	270	140
DEC 15...	1000	1030	7.0	10.0	45	180	4.8	44	4.3	310	94	100
JAN 27...	1210	783	7.6	4.5	25	4	6.2	50	4.0	170	0	54
FEB 16...	1240	695	7.8	6.0	30	35	9.2	76	2.2	190	110	67
MAR 23...	1130	1250	8.0	18.0	45	20	7.0	76	8.7	--	--	--
APR 13...	1430	902	7.7	19.0	35	20	6.1	68	6.7	260	78	90
MAY 11...	1520	740	7.4	20.0	30	55	3.9	46	6.2	210	60	72
JUN 08...	0830	610	7.2	24.0	50	60	5.4	66	4.8	190	67	67
JUL 20...	0900	838	7.3	28.5	25	80	1.2	16	6.6	240	64	86
AUG 24...	0940	848	7.3	28.0	140	95	2.3	29	6.3	210	47	71
SEP 13...	1525	850	7.8	29.0	10	75	3.6	47	6.8	210	48	72

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
OCT 19...	21	110	2.2	8.4	190	0	450	72	.8	7.8	914	43
NOV 09...	19	110	2.3	7.8	190	0	410	66	.6	7.6	855	52
DEC 15...	14	100	2.5	10	260	0	240	64	.6	9.6	666	303
JAN 27...	7.8	90	3.0	12	230	0	100	63	.4	3.3	444	11
FEB 16...	5.2	66	2.1	4.6	98	0	170	47	.7	8.0	417	40
MAR 23...	--	--	--	--	--	--	--	--	--	--	--	46
APR 13...	8.1	90	2.4	8.2	220	0	190	59	1.1	40	595	30
MAY 11...	6.8	73	2.2	6.9	180	0	170	42	.5	9.0	469	92
JUN 08...	5.6	52	1.6	8.0	150	0	140	23	.6	6.3	376	100
JUL 20...	7.7	79	2.2	10	220	0	170	39	.8	11	511	168
AUG 24...	8.3	88	2.6	10	200	0	170	49	.7	7.6	503	181
SEP 13...	7.9	87	2.6	9.9	210	0	180	44	.8	7.1	512	128

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	PHENOLS (UG/L)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT 19...	10	.00	.01	.01	.13	.64	.77	.06	6.3	0	.10
NOV 09...	6	.03	.00	.03	.04	.56	.60	.07	7.7	2	.10
DEC 15...	55	.00	.01	.01	.00	1.6	1.6	.37	9.9	2	.10
JAN 27...	2	.80	.04	.84	.98	3.0	4.0	2.8	13	4	.50
FEB 16...	2	1.7	.07	1.8	.13	.87	1.0	.10	6.1	0	.10
MAR 23...	17	.42	.08	.50	.54	2.4	2.9	.84	11	1	14
APR 13...	5	.04	.01	.05	.03	1.3	1.3	.22	12	3	.10
MAY 11...	18	.47	.16	.63	.88	.92	1.8	.40	8.6	1	.10
JUN 08...	12	.06	.01	.07	.05	1.2	1.2	.01	6.8	1	.00
JUL 20...	46	.01	.00	.01	.01	1.6	1.6	.14	--	0	.10
AUG 24...	45	.01	.01	.02	.23	1.8	2.0	.17	12	0	.00
SEP 13...	28	.06	.02	.08	.17	1.7	1.9	.17	14	0	.00

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
JAN 27...	1210	5	0	1	0	1	0
JUL 20...	0900	4	200	1	0	1	10
SEP 13...	1525	3	0	1	10	2	20

DATE	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)
JAN 27...	0	20	.1	0	0	10
JUL 20...	3	220	.0	0	0	10
SEP 13...	0	140	.1	0	0	0

08050050 MOUNTAIN CREEK LAKE NEAR GRAND PRAIRIE, TX

LOCATION.--Lat 32°43'55", long 96°56'35", Dallas County, Hydrologic Unit 12030102, at right end of spillway in Mountain Creek Dam on Mountain Creek, 2.5 mi (4.0 km) upstream from Texas and Pacific Railway Co. bridge, and 3.7 mi (6.0 km) southeast of Grand Prairie.

DRAINAGE AREA.--295 mi² (764 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 21, 1960, nonrecording gage at powerplant at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft (1,770 m) long, including a controlled spillway with six 34 by 27 ft (10 by 8 m) tainter gates. The dam was completed in December 1936 and deliberate impoundment began on Mar. 24, 1937. The lake was built and is operated by Dallas Power and Light Co. to supply cooling water for their generating plant. The capacity curve is based on a survey made in 1963. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Mountain Creek near Cedar Hill (station 08049600). Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	467.0	-
Top of gates	458.0	25,720
Top of dry weather conservation pool	457.0	22,840
Top of wet weather conservation pool	456.0	20,260
Crest of spillway (sill of tainter gates)	431.0	0

COOPERATION.--The capacity curve was furnished by the Dallas Power and Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 27,440 acre-ft (33.8 hm³) Mar. 27, 1977, elevation, 458.52 ft (139.757 m); minimum 14,120 acre-ft (17.4 hm³) Oct. 18, 1972, elevation, 453.25 ft (138.151 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 23,440 acre-ft (28.9 hm³) May 23, elevation, 457.21 ft (139.358 m); minimum 16,850 acre-ft (20.8 hm³) Sept. 30, elevation, 454.53 ft (138.541 m).

Capacity table (elevation, in feet, and total contents, in acre-feet)

454.0	15,670	457.0	22,840
455.0	17,890	458.0	25,720
456.0	20,260		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17580	18060	17890	17360	17710	20930	22350	20880	22300	20670	18440	17600
2	17490	18010	17910	17380	17730	20850	22270	21210	22300	20620	18360	17580
3	17450	18010	17870	17380	17730	20850	22300	21500	22250	20520	18320	17560
4	17400	18010	17850	17380	17760	20880	22250	21500	22220	20440	18250	17580
5	17420	17980	17760	17420	17730	20910	22350	21500	22200	20340	18580	17560
6	17380	17980	17760	17470	17760	20930	22270	21550	22220	20260	18550	17490
7	17420	17960	17780	17360	17870	21240	22250	21550	22270	20170	18530	17450
8	17310	18340	17670	17290	17960	21290	22220	21500	22270	20070	18480	17420
9	17290	18170	17650	17290	18060	21340	22220	21450	22220	20050	18460	17400
10	17380	18170	17650	17290	18150	21450	21940	21550	22200	19950	18410	17400
11	17710	18150	17670	17420	18200	21340	21550	21630	22140	19860	18390	17400
12	17710	18130	17730	17450	19620	21340	21520	22010	22070	19790	18320	17420
13	17690	18150	17670	17360	20070	21370	21520	22300	21990	19710	18270	17400
14	17670	18150	17670	17450	20170	21370	21470	22220	21940	19670	18220	17340
15	17580	18220	17760	17470	20260	21320	21450	22090	21890	19600	18080	17310
16	17580	18130	17670	17420	20290	21290	21450	22090	21810	19500	18010	17270
17	17560	18060	17600	17420	20490	21340	21340	22010	21730	19410	17940	17200
18	17530	18080	17580	17400	20600	21370	21340	22010	21650	19340	17870	17140
19	17510	18100	17530	17450	20700	21320	21210	21960	21630	19260	17760	17090
20	17510	17940	17490	17450	20750	21290	21160	22070	21520	19170	17730	17050
21	17490	17960	17470	17470	20850	21270	21140	23010	21450	19120	17870	17050
22	17780	17960	17510	17490	20880	21340	21110	23330	21370	19080	17850	17050
23	17780	17910	17470	17530	20930	21760	21090	23360	21290	19050	17800	17050
24	17780	17910	17420	17580	21030	22170	21030	21940	21240	19080	17730	17020
25	17800	17890	17380	17530	20880	22400	20960	21520	21160	19030	17690	17000
26	17780	18100	17380	17580	20910	22430	20960	21500	21010	18980	17650	16960
27	17760	17820	17360	17560	20930	22450	20930	21450	20910	18840	17560	16980
28	17760	17780	17360	17580	20910	22450	20960	21890	20850	18840	17710	16940
29	17730	17850	17420	17580	---	22320	20880	22170	20830	18740	17690	16940
30	17760	17890	17420	17560	---	22320	20830	22200	20720	18670	17650	16890
31	17800	---	17400	17670	---	22380	---	22140	---	18510	17620	---
MAX	17800	18340	17910	17670	21030	22450	22350	23360	22300	20670	18580	17600
MIN	17290	17780	17360	17290	17710	20850	20830	20880	20720	18510	17560	16890
(†)	454.96	455.00	454.78	454.90	456.25	456.82	456.22	456.73	456.18	455.26	454.88	454.55
(‡)	+20	+90	-490	+270	+3240	+1470	-1550	+1310	-1420	-2210	-890	-730

CAL YR 1977 MAX 27210 MIN 17110 ‡ -4410
WTR YR 1978 MAX 23360 MIN 16890 ‡ -890

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
NOV 11...	0950	539	7.8	8.0	160	79	54	6.3	45

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 11...	1.5	6.5	100	0	150	28	.7	2.3	342

08050100 MOUNTAIN CREEK AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°44'52", long 96°55'33", Dallas County, Hydrologic Unit 12030102, on right bank at downstream side of downstream bridge on Jefferson Street, 1,000 ft (305 m) upstream from bridge on U.S. Highway 80, 1.2 mi (1.9 km) upstream from Texas and Pacific Railroad Co. bridge, 1.5 mi (2.4 km) downstream from Mountain Creek Lake Dam, and 4.4 mi (7.1 km) east of Grand Prairie.

DRAINAGE AREA.--298 mi² (772 km²).

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 407.31 ft (124.148 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Mountain Creek Lake (station 08050050). Dallas Power and Light Co. gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 105 ft³/s (2.974 m³/s), 76,070 acre-ft/yr (93.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft³/s (1,080 m³/s) Apr. 19, 1976, gage height, 24.21 ft (7.379 m); maximum gage height, 24.62 ft (7.504 m) May 7, 1969; no flow in 1964, 1972-74.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,290 ft³/s (64.9 m³/s) May 24, gage height, 8.11 ft (2.472 m); minimum daily, 0.09 ft³/s (0.003 m³/s) Mar. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	4.4	1.3	.26	1.5	.25	1.4	1.1	1.6	.64	.51	.94
2	.34	2.5	.90	.32	.81	.22	1.9	4.7	2.9	.70	.56	.93
3	.50	.97	.65	.32	.50	.18	1.2	6.0	1.9	.71	.59	.91
4	.82	.50	1.1	.26	.36	.14	1.1	1.5	1.6	.61	.56	1.1
5	.89	.30	.52	.32	.28	.15	.93	.88	1.5	.62	2.2	1.3
6	.86	.23	.86	.40	.26	.15	1.4	.62	1.6	.69	1.6	.83
7	.68	.20	1.1	.26	.83	9.4	.76	.50	2.1	1.1	.88	.67
8	.56	5.5	.95	.15	1.2	1.3	.61	.38	3.7	.84	.74	.69
9	.36	2.3	.64	.15	1.4	.52	.71	.34	1.8	.61	.69	.96
10	.59	.91	.83	.26	2.1	.37	224	.41	1.4	.54	.75	.88
11	9.3	.62	.73	.93	2.8	.33	221	.90	1.2	.56	.69	.89
12	1.4	.41	.59	1.3	51	.25	1.9	2.4	1.1	.56	1.0	.99
13	.80	.34	.46	.78	6.1	.21	1.1	.65	1.1	.48	.61	.82
14	.67	.31	.35	.49	1.7	.17	.83	.44	1.2	.35	.61	.70
15	.46	.33	.31	.36	1.5	.13	.70	.54	1.1	.36	.56	.55
16	.48	.39	.37	.40	1.5	.10	.68	.59	1.2	.35	.55	.60
17	.59	.36	.28	.36	1.4	.10	.68	.76	1.1	.42	.59	.54
18	.49	.43	.24	.35	2.0	.09	.62	.78	1.1	.40	.56	.42
19	.42	.48	.26	.45	2.4	.11	.75	.63	.96	.39	.48	.40
20	.31	.43	.25	.44	4.8	.15	.92	.63	.88	.45	.63	.37
21	.22	.32	.28	.42	3.0	.32	.87	14	.83	.45	.80	1.7
22	3.3	.48	.43	.39	1.4	.16	.75	3.5	.80	.52	1.1	1.7
23	3.8	.51	.39	.42	1.0	5.3	.73	1.8	.74	.69	.76	.78
24	1.0	.49	.29	.59	.68	5.8	.62	660	.73	.68	.55	.61
25	.58	.49	.25	.75	.55	.67	.56	220	.65	.59	.47	.45
26	.45	.62	.39	.56	.43	.41	.66	3.0	.63	.56	.38	.41
27	.36	.60	.44	.34	.30	.33	.63	1.9	.68	.49	.62	.68
28	.42	.57	.41	.25	.32	.29	.52	2.6	.63	.58	.64	.73
29	.33	.93	.54	.21	---	51	.51	3.9	.52	.57	1.2	.55
30	.19	1.4	.44	.20	---	2.5	.46	2.2	.54	.51	.97	.49
31	.25	---	.32	.57	---	1.5	---	1.6	---	.50	.88	---
TOTAL	31.78	28.32	16.87	13.26	92.12	82.60	469.50	939.25	37.79	17.52	23.73	23.59
MEAN	1.03	.94	.54	.43	3.29	2.66	15.7	30.3	1.26	.57	.77	.79
MAX	9.3	5.5	1.3	1.3	51	51	224	660	3.7	1.1	2.2	1.7
MIN	.19	.20	.24	.15	.26	.09	.46	.34	.52	.35	.38	.37
AC-FT	63	56	33	26	183	164	931	1860	75	35	47	47

CAL YR 1977	TOTAL	54298.66	MEAN	149	MAX	12300	MIN	.13	AC-FT	107700
WTR YR 1978	TOTAL	1776.33	MEAN	4.87	MAX	660	MIN	.09	AC-FT	3520