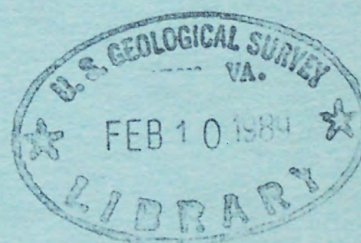


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**Hydrologic Data for North Creek  
Trinity River Basin  
Texas, 1975**

U. S. GEOLOGICAL SURVEY, [Reports - Open file  
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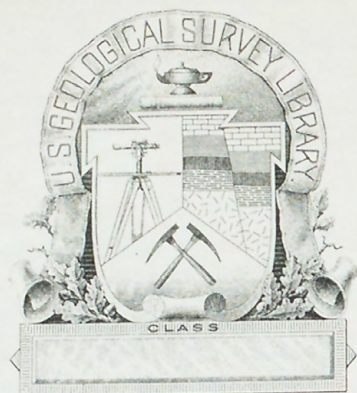
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*Prepared in cooperation with the Tarrant County Water Control  
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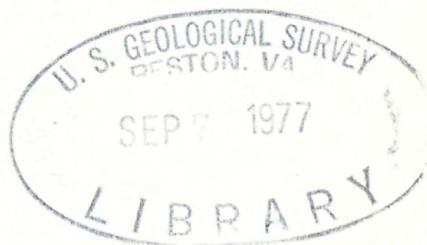
# Hydrologic Data for North Creek Trinity River Basin Texas, 1975

By C. C. KIDWELL

U. S. GEOLOGICAL SURVEY

Open-File Report 76-724

[Reports - open file series]



*Prepared in cooperation with the Tarrant County Water Control  
and Improvement District No. 1, the Soil Conservation  
Service, and the Texas Water Development Board*

April 1977

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300 East 8th Street  
Austin, TX 78701



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# HYDROLOGIC DATA FOR NORTH CREEK

## TRINITY RIVER BASIN, TEXAS

1975

By

C. C. Kidwell  
U.S. Geological Survey

### INTRODUCTION

#### History of Small Watershed Projects in Texas

The U.S. Soil Conservation Service is actively engaged in the installation of flood- and soil-erosion reducing structures in Texas under the authority of "The Flood Control Act of 1936 and 1944" and "Watershed Protection and Flood Prevention Act" (Public Law 566), as amended. The Soil Conservation Service has found that approximately 3,500 floodwater-retarding structures would be physically and economically feasible in Texas. As of September 30, 1975, 1,680 of these structures had been built.

This watershed-development program will have varying but important effects on surface- and ground-water resources of river basins, especially where a large number of the floodwater-retarding structures are built. Basic hydrologic data under natural and developed conditions are needed to appraise the effects of the structures on the yield and mode of occurrence of runoff.

During the period 1951-62, the U.S. Geological Survey began hydrologic investigations in 12 small watersheds (fig. 1). As of Sept. 30, 1975, data collection in ten of these study areas has been completed and is now in progress in the remaining two. These studies are being made in cooperation with the Texas Water Development Board, the Soil Conservation Service, the San Antonio River Authority, the city of Dallas, and the Tarrant County Water Control and Improvement District No. 1. The 12 study areas were chosen to sample watersheds having different rainfall, topography, geology, and soils. In five of the study areas (North, Little Elm, Mukewater, Little Pond-North Elm, and Pin Oak Creeks), streamflow and rainfall records were collected prior to construction of the floodwater-retarding structures, thus affording the opportunity for analyses of the conditions "before and after" development. A summary of the development of the floodwater-retarding structures in each study area as of Sept. 30, 1975, is shown in table 1.



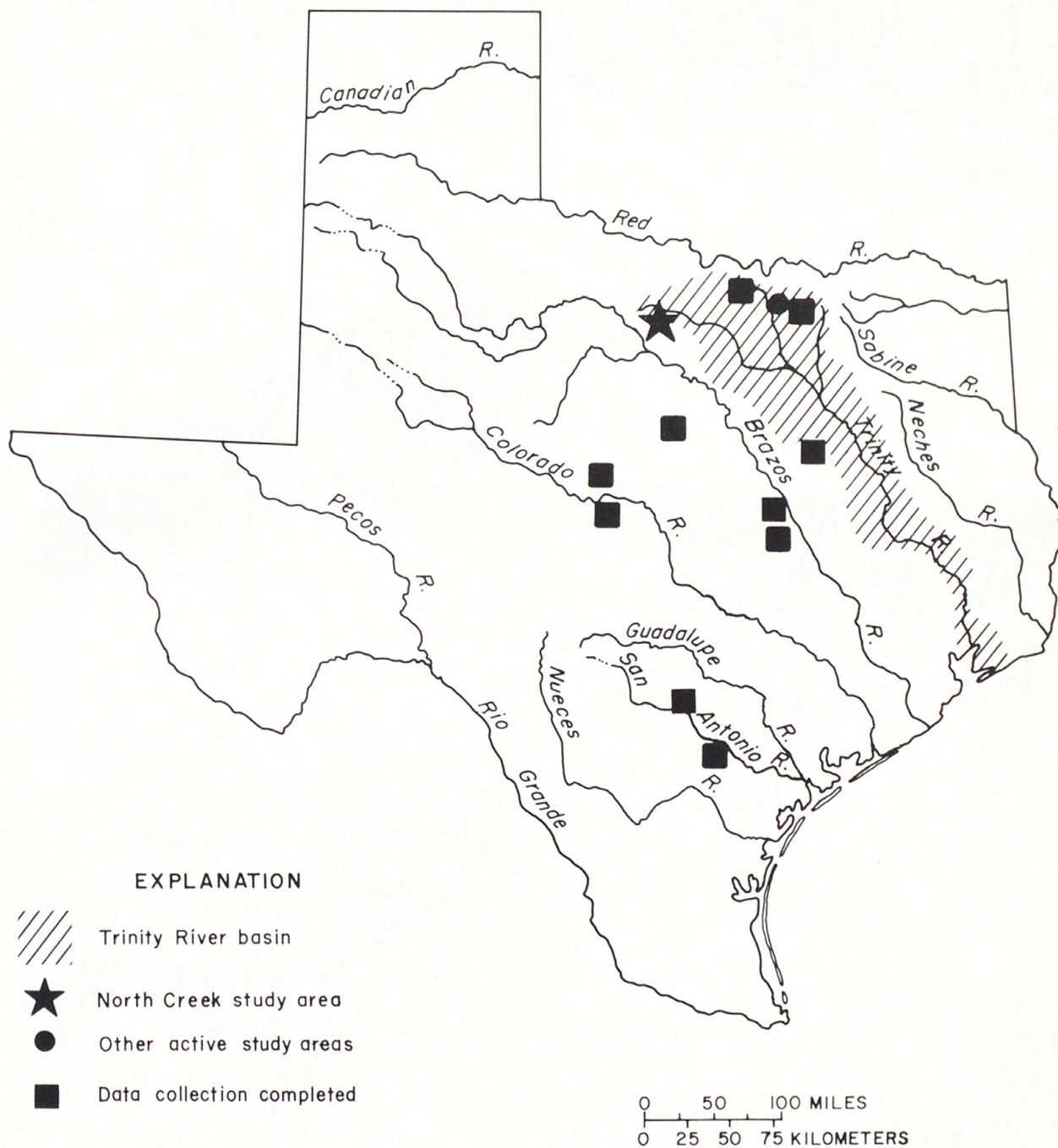


FIGURE 1.- Location of the North Creek study area and other study areas



Table 1.--Small watershed study areas in Texas as of September 30, 1975

Watershed	Drainage area above stream- gaging station (mi <sup>2</sup> )	Data collection period	Floodwater-retarding structures above stream-gaging station	Period the structures were built
<u>Trinity River basin:</u>				
North Creek near Jacksboro	21.6	Aug. 1956 to	5	1970-72
Elm Fork Trinity River near Muenster	46.0	July 1956 to Sept. 1971	14	1954-57, 63
Little Elm Creek near Aubrey	75.5	June 1956 to	16	1966, 70-71
Honey Creek near McKinney	39.0	July 1951 to Sept. 1971	14	1951-57, 69, 73
Pin Oak Creek near Hubbard	17.6	Sept. 1956 to Sept. 1972	6	1962-63, 65
<u>Brazos River basin:</u>				
Green Creek near Alexander	46.1	Oct. 1954 to Sept. 1971	8	1954-56
Cow Bayou at Mooreville	85.0	Sept. 1954 to Sept. 1975	26	1955-58, 64-65
1/Little Pond Creek at Burlington	22.2	Oct. 1962 to Sept. 1972	None	-
1/North Elm Creek near Cameron	48.6	Oct. 1962 to Sept. 1972	None	-
<u>Colorado River basin:</u>				
Mukewater Creek at Trickham	70.0	Aug. 1951 to Sept. 1973	6	1961-62, 65
Deep Creek near Mercury	43.9	June 1951 to Sept. 1971	5	1951-53
<u>San Antonio River basin:</u>				
Calaveras Creek near Elmendorf	77.2	Aug. 1954 to Sept. 1971	7	1954-58
Escondido Creek at Kenedy	a/72.4	July 1954 to Sept. 1971	11	1954-58, 73

1/ Adjacent watersheds; considered as one study area.

a/ 8.43 mi<sup>2</sup> above Escondido Creek subwatershed No. 11 (Dry Escondido Creek) near Kenedy not included in this total.



The English units of measurements used in this report may be converted to metric units by using the following conversion factors:

From		Multiply by	To obtain	
Unit	Abbrevia- tion		Unit	Abbrevia- tion
inches	--	25.4	millimeters	mm
feet	--	.3048	meters	m
miles	--	1.609	kilometers	km
square miles	mi <sup>2</sup>	2.590	square kilometers	km <sup>2</sup>
cubic feet per second	ft <sup>3</sup> /s	.02832	cubic meters per second	m <sup>3</sup> /s
feet per mile	ft/mi	.189	meters per kilometer	m/km
acre-feet	--	1233	cubic meters	m <sup>3</sup>
		.001233	cubic hectometers	hm <sup>3</sup>

#### Objectives of the Texas Small Watershed Projects

The purpose of these investigations is to collect sufficient data to meet the following objectives:

1. To determine the net effect of floodwater-retarding structures on the regimen of streamflow at downstream points.
2. To determine the effectiveness of the structures as ground-water recharge facilities.
3. To determine the effect of the structures on the sediment yield at downstream points.
4. To develop relationships between maximum rates or volumes of runoff with rainfall in small natural watersheds.
5. To develop a stream-system model for basins with floodwater-retarding structures.
6. To determine the minimum instrumentation necessary for estimating the flood hydrographs below a system of structures, as needed for downstream water-management operation.



### Purpose and Scope of this Basic-Data Report

This report contains the rainfall, runoff, and storage data collected during the 1975 water year for the 21.6-square-mile area above the stream-gaging station North Creek near Jacksboro, Texas. The locations of floodwater-retarding structures and hydrologic instrument installations in the area are shown on figure 2.

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

### DESCRIPTION OF THE WATERSHED

The headwaters of North Creek are near the town of Jermyn in the western part of Jack County. The Creek flows northeasterly for approximately 19 miles where it flows into Big Cleveland Creek, 4 miles upstream from the West Fork Trinity River. North Creek drains a 43.1-square-mile area; however, this report is concerned only with the 21.6 square miles of the watershed above the Geological Survey stream-gaging station at the U.S. Highway 281 bridge near Jacksboro. This area is referred to as the "study area" (fig. 2).

The topography of the watershed ranges from steep to gently rolling. Altitudes in the watershed range from about 1,310 feet at the headwaters to about 1,090 feet at the gaging station. The average channel gradient is about 18.4 ft/mi.






Underlying rocks in the study area are limestone, shale, and sandstone. The ridges are formed by the harder sandstones and limestones, and the deep valleys are cut into the shale. The soils are fine to medium textured and are slightly to moderately permeable.

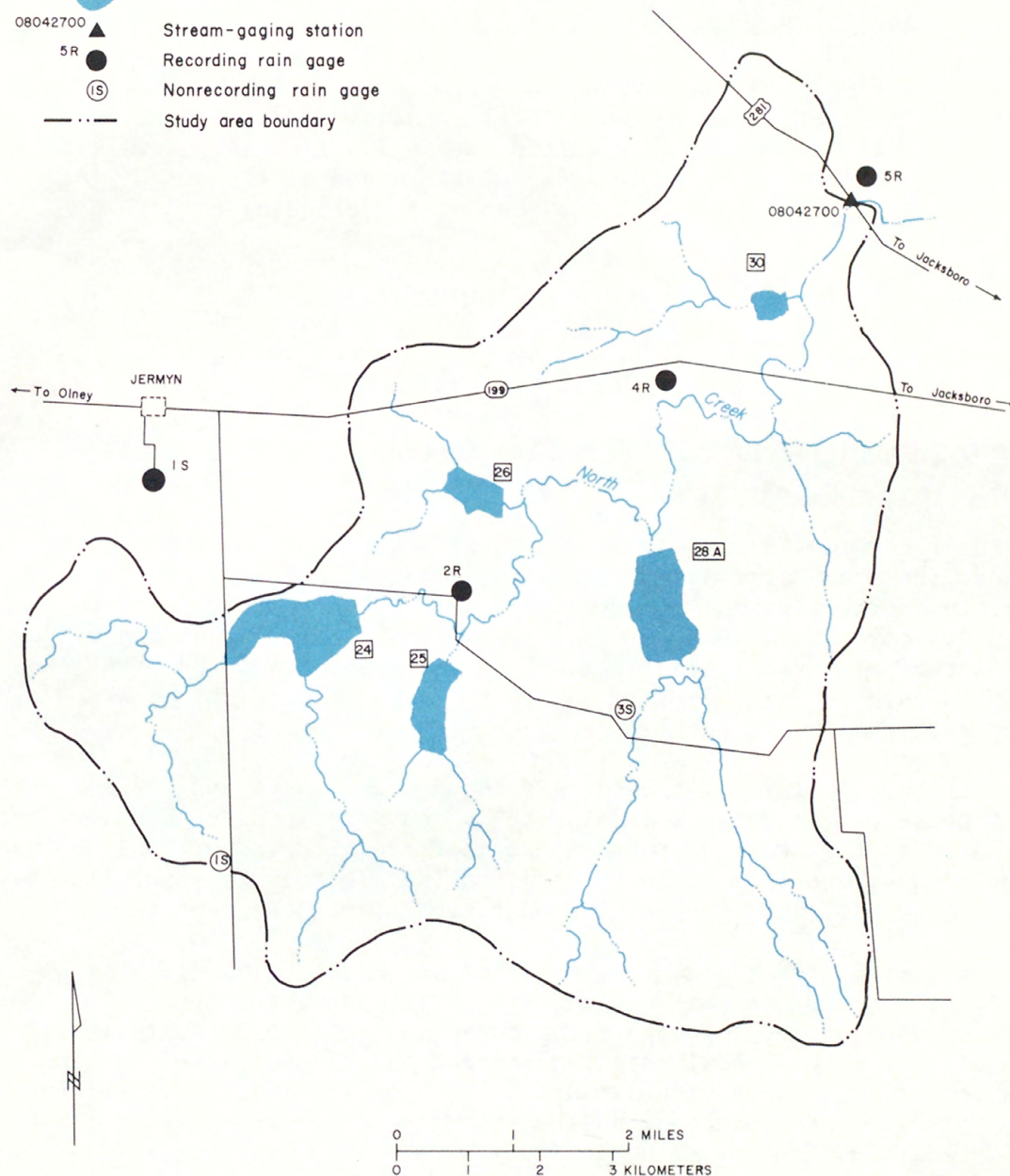
Most of the watershed area is used as range land, with oats and wheat grazed by livestock during winter months and harvested during spring and early summer. Livestock is the principal source of income for the area.

Climate of the study area is temperate and subhumid with a prevailing south wind. The most common storms are thunderstorms occurring frequently in the spring and summer. Long-duration low-intensity storms, triggered by southward-moving continental polar fronts, occur during the fall and winter. In late summer and early fall, hurricanes moving inland from the Gulf of Mexico cause some of the heaviest rainfall. Individual storms, although most frequent in the spring, may cause serious flooding and sediment damage during any season.



# EXPLANATION

-  Floodwater-retarding structure and pool
-  Stream-gaging station
-  Recording rain gage
-  Nonrecording rain gage
-  Study area boundary



Based on map from Work Plan of North Creek Watershed furnished by  
U.S. Soil Conservation Service (February 1960)

FIGURE 2.-- Locations of floodwater-retarding structures and hydrologic-instrument installations in the North Creek study area



The records of the Environmental Data Service show that the normal annual rainfall for the 30-year base period (1941-70) at Graham (about 18 miles southwest of the study area) is 28.03 inches. During this period, the annual rainfall has ranged from 14.12 inches in 1956 to 48.99 inches in 1957. The wettest months are April, May, June, September, and October.

#### FLOODWATER-RETARDING STRUCTURES

There are five floodwater-retarding structures in the North Creek study area. These structures have a total capacity of 4,425 acre-feet below flood-spillway crests and regulate streamflow from 16.3 square miles, or 75 percent of the study area. Table 2 contains a summary of the physical data at each of the five floodwater-retarding structures in the study area.

#### HYDROLOGIC INSTRUMENTS

Instruments to collect rainfall, runoff, and storage data in the study area consist of a network of rain gages, staff gages, a water-stage recorder at site 28-A, and a stream-gaging station on North Creek near Jacksboro, Texas. The locations of these instruments are shown on figure 2.

Three recording and two nonrecording rain gages are located at points throughout the study area and are used to define the total rainfall and rainfall intensities within the area (fig. 2). On April 25, 1975, rain gage 1-S was moved to a new location as shown on figure 2. Rain gage weight-factors were recomputed by the Thiessen method and used after this date. Rain gages, except for the one at the streamflow station, are serviced weekly by local residents.

On October 16, 1973, a recording rain gage was installed at site 28-A. Because of the unusual wind patterns and velocities at the location of this gage at the crest of the dam, rainfall recorded is often less than that recorded at other rain gages in the basin. Therefore, rainfall data from this gage will not be used in computations for these reports.

On October 5, 1972, a continuous water-stage recording gage was installed at one representative floodwater-retarding structure (site 28-A). Data collected are used to compute the contents, surface area, inflow, and outflow of this site. Weekly staff-gage readings of pool levels are made by Soil Conservation Service personnel at each of the five sites. These readings provide data to determine the amount of water retained or released from the structures in the study area.



Table 2.--Floodwater-retarding structure data, North Creek study area

Site number	Drainage area (mi <sup>2</sup> )	Date dam completed	Date station established	Datum of gage above mean sea level	Emergency spillway			Principal spillway		Controlled outlet		Range of staff gages
					Width (ft)	Gage height (ft)	Contents 1/ (acre-ft)	Gage height (ft)	Contents 2/ (acre-ft)	Gage height of invert (ft)	Contents (acre-ft)	
24	5.47	1-11-71	5-20-71	1,174.58	210	49.6	1,400	29.80	133	25.36	68.9	17.5-54.5
25	1.39	5-24-72	5-11-72	1,177.65	80	22.4	381	8.21	34.3	2.69	3.8	0-27.1
26	1.41	10-23-71	5-19-71	1,133.56	100	28.8	360	10.18	25.0	5.65	4.9	6.7-35.7
28-A	6.82	3-31-72	c/ 3-14-72	1,090.39	100	33.5	1,940	18.12	245	8.61	24.5	6.8-47.5
30	1.20	10-23-70	5-19-71	1,031.24	60	47.5	344	24.80	41.0	20.20	19.8	10.2-54.3

1/ Total capacity

2/ Sediment-pool capacity; to be used for flood retardation until filled with sediment. The floodwater-retarding pool capacity is the capacity between the principal spillway and the emergency spillway.

a/ A 9-inch (228.6-mm) constriction plate in the pipe reduces the cross-sectional area by 50 percent.

b/ A 17-1/2-inch (444.5-mm) constriction plate in the pipe reduces the cross-sectional area by 78 percent.

c/ Continuous water-stage recorder installed Oct. 5, 1972.

d/ A 17-3/4-inch (454.4-mm) constriction plate in the pipe reduces the cross-sectional area by 79 percent.



The stream-gaging station on North Creek near Jacksboro continuously records the water level which, with measurements of streamflow, is used to compute the runoff from the study area. Streamflow records at this gage began August 8, 1956. Records of runoff for the 1975 water year are given in the section "Compilation of data".

#### SUMMARY OF DATA FOR THE 1975 WATER YEAR

The weighted-mean rainfall in the study area during the 1975 water year was 39.01 inches, which is greater than the 18-year average of 30.21 inches for the period 1958-75. Monthly rainfall totals ranged from 1.04 inches in November to 7.94 inches in May. The mean discharge for 1975 at the stream-gaging station was 5.98 ft<sup>3</sup>/s, compared with the 14-year (1957-70) average of 5.75 ft<sup>3</sup>/s. The annual runoff from the basin above the stream-gaging station was 4,330 acre-feet or 3.76 inches.

A storm event is defined as a period of rainfall separated by at least 6 hours from other rainfall. Storms are generally selected for detailed rainfall-runoff computations on the basis of rainfall totals and distribution, the peak discharge produced from the rainfall, and the assurance of good rainfall and runoff records for the storm periods selected. Data for these storms will be used later in calibrating a watershed-response model to show the effects of floodwater-retarding structures.

Three storms were selected for detailed computations for the 1975 water year. The storms selected occurred on Oct. 30-31, 1974, May 2, 1975, and Aug. 26, 1975. Rainfall and discharge were computed on the basis of a refined time breakdown. Patterns of the storms are illustrated by the hydrographs and mass curves included. A summary of rainfall-runoff data is shown in table 3. Computations and graphs are given in the section "Compilation of data".



UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY-TEXAS DISTRICT  
ANNUAL STORM RAINFALL-RUNOFF SUMMARY DATA

Table 3.--Storm rainfall-runoff data, 1975 water year

Date of Storm	Duration (hours)	Total	Rainfall (inches)				Runoff (inches)	Ratio runoff to rainfall	Maximum discharge (ft <sup>3</sup> /s)
			15-minute	30-minute	Maximum increment				
					30-minute	60-minute			
North Creek subwatershed No. 28-A near Jermyn, Tex. (Drainage area 6.82 mi <sup>2</sup> )									
Oct. 30-31, 1974	15	2.88	0.32	0.61	1.04	1.07	0.37	1,430	
May 2, 1975	1.3	2.30	.75	1.42	2.27	.45	.20	846	
Aug. 26, 1975	5.3	2.08	.37	.74	1.44	.13	.06	178	
North Creek near Jacksboro, Tex. (Drainage area 21.6 mi <sup>2</sup> of which 16.3 mi <sup>2</sup> is above floodwater-retarding structures)									
Oct. 30-31, 1974	15	2.75	.29	.58	.99	.93	.34	1,450	
May 2, 1975	1.3	2.02	.62	1.03	1.99	.35	.17	554	
Aug. 26, 1975	5.5	2.00	.41	.76	1.42	.15	.08	675	



COMPI LATION    OF    DATA



# TRINITY RIVER BASIN

08042650 North Creek subwatershed No. 28-A near Jermyn, Tex.

LOCATION.--Lat 33°14'52", long 98°19'19", Jack County, near center of earthfill dam on unnamed tributary of North Creek, 0.2 miles (0.3 km) upstream from North Creek, and 4.0 miles (6.4 km) southeast of Jermyn.

DRAINAGE AREA.--6.82 mi<sup>2</sup> (17.66 km<sup>2</sup>).

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder and flat-crested weir on concrete drop inlet. Datum of gage is 1,090.39 ft (332.351 m) above mean sea level (Soil Conservation Service bench mark). Prior to Oct. 5, 1972, staff gage at same datum.

EXTREMES.--Current year: Maximum outflow, 96.2 ft<sup>3</sup>/s (2.72 m<sup>3</sup>/s) Oct. 30 (gage height, 22.80 ft or 6.949 m); no outflow in December, January, March, and September. Maximum inflow, 1,430 ft<sup>3</sup>/s (40.5 m<sup>3</sup>/s), average for 5-minute interval, Oct. 30, computed and adjusted as explained below; no inflow at times.

Period of record: Maximum outflow, 96.2 ft<sup>3</sup>/s (2.72 m<sup>3</sup>/s) Oct. 30, 1974 (gage height, 22.80 ft or 6.949 m); no outflow most of time each year. Maximum inflow, 1,430 ft<sup>3</sup>/s (40.5 m<sup>3</sup>/s), average for 5-minute interval, Oct. 30, 1974, computed from change in pool contents and adjusted for rainfall on pool surface during time of peak inflow; no inflow at times each year.

REMARKS.--Records fair. The pool is formed by a rolled earthfill dam 1,800 ft (549 m) long with a 100-foot-wide (30-metre) earthen spillway at the left end of dam. The crest of emergency spillway is at gage height 33.5 ft (10.21 m). The dam was completed in March 1972, and storage began May 12, 1972. The outlet structure consists of a 2.5- by 7.5-foot (0.8- by 2.3-metre) uncontrolled concrete drop-inlet structure that is connected to a 30-inch (762-millimetre) concrete outlet pipe. The drop-inlet structure is also equipped with a 12-inch-diameter (305-millimetre) slide gate near the bottom of the tower with invert at a gage height of 8.61 ft (2.62 m). The crest of the drop inlet is at gage height 18.12 ft (5.52 m). The capacity of pool at crest of emergency spillway is 1,940 acre-ft (2.39 hm<sup>3</sup>), the capacity at crest of the drop inlet is 245 acre-ft (0.302 hm<sup>3</sup>), and the capacity at the crest of the controlled outlet pipe is 24 acre-ft (0.030 hm<sup>3</sup>). The capacity table below 18.12 ft (5.52 m) was computed using the average-end-area method from a surface area table based on a survey of Mar. 14, 1972. The capacity table above 18.12 ft (5.52 m) was computed using the average-end-area method and based on an area table furnished by the Soil Conservation Service.

## POOL WATER BUDGET, IN ACRE-FEET, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
Inflow 1/	501	67.1	3.2	14.5	124	7.7	29.8	355	101	29.6	67.7	6.9
Outflow	342	219	0	0	92.8	0	15.6	332	93.4	9.8	46.6	0
(+)	+159	-170	-11.6	+2.3	+20.7	-6.2	-6.0	+19.5	-11.1	+1.3	+1.2	-25.5
(++)	7.32	.93	1.40	1.49	2.41	1.45	1.81	8.12	4.20	4.25	4.72	1.31
CAL YR 1974: Inflow	804			577		+33.9		33.0				
WTR YR 1975: Inflow	1,310			1,150		-26.4		39.41				
Outflow												

PEAK INFLOW (BASE, 200 FT<sup>3</sup>/S).--Oct. 30 (1850) \*1,430 ft<sup>3</sup>/s; May 2 (0655) \*846 ft<sup>3</sup>/s.

1/ Inflow adjusted for rainfall on pool and pool losses.

+ Change in contents, in acre-feet.

++ Weighted-mean rainfall, in inches.

\* Average for 5-minute interval.



North Creek  
\_\_\_\_\_, of Subwatershed No. 28-A \_\_\_\_\_ near \_\_\_\_\_ Jermyn, Tex.  
[Drainage area, 6.82 \_\_\_\_\_ square miles]

[illegible]



## North Creek

Monthly and yearly net inflow, in acre-feet, of Subwatershed No. 28-A  
near Jermyn, Tex.

[Drainage area, 6.82 square miles]

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[illegible]



## North Creek

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UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY - TEXAS DISTRICT

WATER BUDGET OF POOL

ANNUAL SUMMARY

1975 WATER YEAR

08042650 North Creek subwatershed No. 28-A near Jermyn, Tex. Drainage Area 6.82 mi<sup>2</sup>

Continuous water-stage recorder: ratio 1:6 Date of last sediment survey March 14, 1972

Maxima: gage height, 22.80 ft; outflow, 96.2 ft<sup>3</sup>/s; surface area, 87.8 acres; contents, 551 acre-feet; on Oct. 30

Minima: gage height, 17.45 ft; surface area, 37.3 acres; contents, 219 acre-feet; on Sept. 30

Maximum inflow, 1,430 ft<sup>3</sup>/s (averaged for 5-min. interval and adjusted for rainfall on pool surface) on Oct. 30

Averages: water years, ( -- ); inflow, acre-feet/year; outflow, acre-feet/year; rainfall, inches/year.

Pool water budget, in acre-feet, water year October 1974 to September 1975.

	Oct	Nov	Dec	Calendar year 1974	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Water year 1975
Total Inflow $\downarrow$	501	67.1	3.2	804	14.5	124	7.7	29.8	355	101	29.6	67.7	6.9	1,310
Total Outflow	342	219	0	577	0	92.8	0	15.6	332	93.4	9.8	46.6	0	1,150
Total Consumption	30.2	21.5	19.2	286	17.0	19.4	18.7	26.4	31.7	33.6	32.3	35.8	36.6	322
†	+159	-170	-11.6	+33.9	+2.3	+20.7	-6.2	-6.0	+19.5	-11.1	+1.3	+1.2	-25.5	-26.4
‡	43.2	42.1	38.4	32.0	38.7	43.1	40.6	41.2	44.0	42.5	39.9	41.2	38.9	41.2
††	7.32	.93	1.40	33.0	1.49	2.41	1.45	1.81	8.12	4.20	4.25	4.72	1.31	39.4

$\downarrow$  Inflow adjusted for rainfall on pool and pool losses.

† Change in contents, in acre-feet.

‡ Mean surface area, in acres.

†† Weighted mean rainfall, in inches.

\* Average for 5-minute interval.

Peak inflow - (base, 200 ft<sup>3</sup>/s)

Date	Time	Discharge	Date	Time	Discharge
Oct. 30	1850	*1,430			
May. 2	0655	* 846			



TRINITY RIVER BASIN

08042700 North Creek near Jacksboro, Tex.

LOCATION.--Lat 33°16'57", long 98°17'53", Jack County, near left bank on downstream side of bridge on U.S. Highway 281, 1.7 miles (2.7 km) upstream from Henderson Creek, 8.4 miles (13.5 km) upstream from mouth, and 9.5 miles (15.3 km) northwest of Jacksboro.

DRAINAGE AREA.--21.6 mi<sup>2</sup> (55.9 km<sup>2</sup>)

PERIOD OF RECORD.--August 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,016.33 ft (309.78 m) above mean sea level (State Highway Department bench mark), unadjusted.

AVERAGE DISCHARGE.--14 years (1956-70) prior to completion of floodwater-retarding structures, 5.75 ft<sup>3</sup>/s (0.163 m<sup>3</sup>/s), 3.62 in/yr (92 mm/yr), 4,170 acre-ft/yr (5.14 hm<sup>3</sup>/yr); 5 years (1970-75) regulated, 2.06 ft<sup>3</sup>/s (0.0583 m<sup>3</sup>/s), 1.30 in/yr (33 mm/yr), 1,490 acre-ft/yr (1.84 hm<sup>3</sup>/yr).

EXTREMES.--Current year: Maximum discharge, 1,450 ft<sup>3</sup>/s (41.1 m<sup>3</sup>/s) Oct. 30 (gage height, 13.10 ft or 3.993 m); no flow Oct. 1-13, 19-27. Period of record: Maximum discharge, 6,990 ft<sup>3</sup>/s (198 m<sup>3</sup>/s) Apr. 28, 1957 (gage height, 24.45 ft or 7.452 m); no flow at times each year.

Maximum stage since at least 1900, that of Apr. 28, 1957. Significant floods occurred in April 1915, from information by local resident, and flood of May 3, 1956, reached a stage of 21.58 ft (6.578 m), from floodmark (discharge, 5,700 ft<sup>3</sup>/s or 161 m<sup>3</sup>/s, from rating curve).

REMARKS.--Records good. No diversions above station. Six rain gages (two nonrecording and four recording) are operated in the basin. At end of year, flow from 16.3 mi<sup>2</sup> (42.2 km<sup>2</sup>) above this station was partly controlled by five floodwater-retarding structures with a combined capacity of 4,420 acre-ft (5.45 hm<sup>3</sup>) below the flood-spillway crests, of which 479 acre-ft (0.591 hm<sup>3</sup>) is sediment-pool capacity. The capacity in these pools allocated to sediment storage will be used for conservation storage until eliminated by sedimentation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	0	185	.09	.15	6.1	.43	.36	.28	4.6	.21	.25	.44		
2	0	67	.13	6.1	7.6	.38	.32	177	2.6	.18	1.3	.36		
3	0	10	.15	1.4	17	.34	.28	28	1.8	.45	4.6	.32		
4	0	7.1	.12	.50	16	.38	.33	5.6	1.4	2.1	.92	.29		
5	0	4.4	.16	.27	28	.42	.36	3.0	1.2	.65	.37	.26		
6	0	2.2	.22	.20	7.6	.59	.38	1.8	.99	.29	.24	.25		
7	0	1.1	.15	.20	3.5	.43	1.4	1.2	.92	.20	.19	.23		
8	0	.54	.07	.18	2.3	.35	4.0	.96	2.1	.14	.16	.20		
9	0	.47	.05	.21	1.4	.44	1.5	.83	34	.15	.13	.19		
10	0	1.7	.34	.32	1.1	.50	1.1	8.0	205	.50	.11	.18		
11	0	1.1	.54	.13	.92	.41	.88	7.8	15	.45	.09	.14		
12	0	.61	.19	.08	.82	.44	.68	3.8	6.9	1.5	.06	.10		
13	0	.41	.19	.11	.76	.38	.73	25	3.3	.25	.05	.43		
14	27	.35	.19	.25	.69	.37	.70	17	1.7	.16	.04	.65		
15	2.3	.09	.16	.30	.50	.42	.64	5.3	1.2	.10	.04	.54		
16	1.2	.25	.12	.27	.51	.47	.66	2.5	1.2	.09	.04	.43		
17	.35	.16	.14	.27	.44	.43	.68	1.4	1.1	.21	5.6	.38		
18	.04	.14	.17	.28	.46	.54	.63	.97	.90	.14	2.9	.46		
19	0	.21	.13	.26	.35	.40	.34	.86	.77	.37	.70	.93		
20	0	.11	.12	.18	.40	.41	.33	.87	.49	.70	.31	.29		
21	0	.07	.11	.28	.46	.42	.34	.87	.43	.13	.21	.29		
22	0	.12	.14	.25	.74	.41	.35	.79	3.7	.07	.13	.35		
23	0	.18	.16	.31	.72	.43	.34	13	1.5	.04	.10	.27		
24	0	.10	.13	.44	.77	.33	.38	4.8	.77	6.0	.10	.25		
25	0	.02	.09	.41	.58	.32	.29	2.8	.49	86	.07	.21		
26	0	.05	.31	.35	.51	.37	.24	1.7	.43	6.3	89	.25		
27	0	.09	.23	.34	.44	.55	.32	1.7	.34	2.2	12	.24		
28	97	.10	.19	.30	.46	1.7	.64	4.3	.29	1.1	5.0	.19		
29	20	.12	.21	.29	-----	.47	.35	92	.26	.55	2.3	.18		
30	275	.09	.23	.29	-----	.40	.33	88	.23	.33	1.2	.14		
31	266	-----	1.7	.56	-----	.38	-----	8.9	-----	.30	.66	-----		
TOTAL	681.89	283.88	6.93	15.98	101.13	14.38	20.38	511.03	295.61	111.86	128.87	9.44		
MEAN	22.0	9.46	.22	.52	3.61	.46	.68	16.5	9.85	3.61	4.16	.31		
MAX	275	185	1.7	6.1	28	1.7	4.0	177	205	86	89	.93		
MIN	0	.02	.05	.08	.35	.32	.24	.28	.23	.04	.04	.10		
CFSM	1.02	.44	.01	.02	.17	.02	.03	.76	.46	.17	.19	.01		
IN.	1.17	.49	.01	.03	.17	.02	.04	.88	.51	.19	.22	.02		
AC-FT	1,350	563	14	32	201	29	40	1,010	586	222	256	19		
CAL YR 1974	TOTAL	1,262.42	MEAN	3.46	MAX	275	MIN	0	CFSM	.16	IN	2.17	AC-FT	2,500
WTR YR 1975	TOTAL	2,181.38	MEAN	5.98	MAX	275	MIN	0	CFSM	.28	IN	3.76	AC-FT	4,330







UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY  
WATER RESOURCES DIVISION

Sheet \_\_\_\_\_ of \_\_\_\_\_ Sheets

08-0427.00

Monthly and ~~annual~~ yearly mean discharge, in  $\text{ft}^3/\text{s}$ , of North Creek River <sup>near</sup> Jacksboro, Tex.  
[Drainage area, 21.6 square miles]

YEAR	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	ANNUAL
				Station established	Aug. 8, 1956								
1956	-	-	-	-	-	-	-	-	-	-	0.10	0	-
1957	16.0	9.32	1.65	0	13.3	1.62	162	98.6	13.9	0.74	0	0.003	26.3
1958	1.43	21.6	.12	.39	.10	1.85	29.3	23.5	.31	2.77	0	1.01	6.85
1959	.08	0	0	0	0	0	0	.17	21.3	14.4	0	.17	3.00
1960	48.2	0	.006	3.48	3.44	.08	1.57	.67	.41	.30	.32	9.25	5.69
1961	1.51	0	0	13.9	.65	19.8	.02	2.54	.04	17.4	.07	1.10	4.84
1962	3.69	2.13	.01	0	0	.57	.92	.01	45.5	15.2	.57	19.0	7.09
1963	.96	7.49	2.86	.03	.08	.06	14.7	2.09	2.13	0	.05	0	2.52
1964	0	2.38	0	.54	.30	0	.26	15.1	.26	0	.65	.54	1.69
1965	0	16.4	0	.33	.01	.003	1.10	16.7	.003	0	0	18.7	4.42
1966	1.10	0	0	.315	.421	5.40	66.8	3.23	2.59	0	1.17	2.67	6.90
1967	.060	.003	.012	.001	.002	.013	.055	12.5	.706	1.75	0	5.45	1.73
1968	.006	0	0	2.90	.30	13.1	.89	.49	3.25	3.10	0	.18	2.04
1969	0	.098	.005	.016	.51	12.5	3.12	33.6	3.25	0	0	2.64	4.71
1970	.012	.0003	5.50	.085	.55	1.80	23.8	1.39	.003	0	0	0	2.75
			Runoff affected by floodwater-retarding structures										
1971	.005	0	0	0	0	0	0	.40	0	4.52	.62	3.86	.79
1972	1.40	0	1.16	.13	.050	.18	.80	18.9	0	0	0	0	1.91
1973	.23	.001	0	.17	.008	.12	.29	.27	.016	3.97	.003	.77	.49
1974	3.91	.10	0	0	.30	0	1.74	.67	.95	0	3.45	2.43	1.13
1975	22.0	9.46	.22	.52	3.61	.46	.68	16.5	9.85	3.61	4.16	.31	5.98



UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY - TEXAS DISTRICT

WATER BUDGET OF POOL

ANNUAL SUMMARY

1975 WATER YEAR

Creek subwatershed No. 24 near Serapan, Tex Drainage Area 5.47 mi<sup>2</sup>  
~~Continuous~~ <sup>staff-gage</sup> ~~water-gage recorder~~ ratio       . Date of last sediment survey May 21, 1971.  
 Maxima: gage height, 35.00 ft; outflow, 44.1 ft<sup>3</sup>/s; surface area, 45.9 acres; contents, 315 acre-feet; on Oct. 30.  
 Minima: gage height, 28.30 ft; surface area, 15.5 acres; contents, 104 acre-feet; on Oct. 13.  
 Maximum inflow,        ft<sup>3</sup>/s (averaged for 5-min. interval and adjusted for rainfall on pool surface) on       .  
 Averages:        water years, (        ); inflow,        acre-feet/year; outflow,        acre-feet/year; rainfall,        inches/year.

Pool water budget, in acre-feet, water year October 1974 to September 1975.

	Oct	Nov	Dec	Calendar year 1974	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Water year 1975
Total Inflow 1/	349	220	38	450	2.8	13.1	1.3	7.6	215	102	4.2	19.6	2.0	742
Total Outflow	184	164	0	348	0	8.5	0	0	206	100	0	0	0	662
Total Consumption	11.1	8.1	6.6	81.4	5.2	5.9	6.0	13.3	16.6	18.7	18.5	24.5	13.5	148
†	+166	-148	-2	+54.6	0	+3.1	-2.2	-2.3	+7.8	-9.5	-8.0	+4.0	-9.5	+1.2
‡	19.8	23.7	21.4	11.7	21.5	22.8	22.2	22.2	23.4	22.8	19.9	20.4	19.0	21.6
††	6.80	1.11	1.48	32.64	1.34	2.33	1.35	1.87	8.30	4.08	3.82	5.28	1.20	38.96

1/ Inflow adjusted for rainfall on pool and pool losses.

† Change in contents, in acre-feet.

‡ Mean surface area, in acres.

†† Weighted mean rainfall, in inches.

Peak inflow - (base,        ft<sup>3</sup>/s)

Date	Time	Discharge	Date	Time	Discharge
<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>



## ANNUAL SUMMARY

North

~~Staff - 9092~~  
~~water - 0492~~

Oct. 30

Sept. 30

1

nches/year.

Pool water budget, in acre-feet, water year October 1974 to September 1975.

- U/ Inflow adjusted for rainfall on pool and pool losses.

† Change in contents, in acre-feet.

‡ Mean surface area, in acres.

†† Weighted mean rainfall, in inches.

[illegible]



UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY - TEXAS DISTRICT

WATER BUDGET OF POOL

ANNUAL SUMMARY

1975 WATER YEAR

North Creek subwatershed No. 26 near Sermyn, Tex. Drainage Area 1.41 mi<sup>2</sup>  
Staff-gage recorder: ratio      Date of last sediment survey May 19 1971  
Maxima: gage height, 14.76 ft; outflow, 11.2 ft<sup>3</sup>/s; surface area, 10.4 acres; contents, 63.3 acre-feet; on June 9  
Minima: gage height, 9.41 ft; surface area, 5.8 acres; contents, 20.3 acre-feet; on Oct. 13  
Maximum inflow,      ft<sup>3</sup>/s (averaged for 5-min. interval and adjusted for rainfall on pool surface) on       
Averages:      water years, (      ); inflow,      acre-feet/year; outflow,      acre-feet/year; rainfall,      inches/year.

Pool water budget, in acre-feet, water year October 1974 to September 1975.

	Oct	Nov	Dec	Calendar year	1974	Jan.	Feb.	Mar.	Apr	May	June	July	Aug.	Sept.	Water year
Total Inflow 1/	63.1	66.1	1.6	155	1.4	1.4	.9	1.1	44.6	64.4	28.9	3.9	.5	278	1975
Total Outflow	38.0	87.0	0	125	.4	1.2	0	0	45.5	63.5	25.9	1.3	0	263	
Total Consumption	3.8	2.0	1.8	41.9	1.7	1.7	1.7	2.4	2.7	4.3	4.6	5.5	3.9	36.1	
†	+24.9	-22.3	+.6	+3.2	0	-.2	-.1	-.3	1.9	-1.1	+.4	-.1	-2.8	-.1	
†	6.1	6.7	6.4	5.6	6.4	6.4	6.4	6.4	6.5	6.7	6.4	6.3	6.2	6.4	
††	6.80	1.11	1.48	32.64	1.34	2.33	1.35	1.87	8.30	4.08	3.82	5.28	1.20	38.96	

1/ Inflow adjusted for rainfall on pool and pool losses.

† Change in contents, in acre-feet.

† Mean surface area, in acres

†† Weighted mean rainfall, in inches.

Peak inflow - (base,      ft<sup>3</sup>/s)

Date	Time	Discharge	Date	Time	Discharge
<u>2</u>			<u>2</u>		



UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY - TEXAS DISTRICT

WATER BUDGET OF POOL

ANNUAL SUMMARY

1975 WATER YEAR

North Creek subwatershed No. 30 near Jermano, Tex. Drainage Area 1.20 mi<sup>2</sup>  
51a.88 - gage ratio --- Date of last sediment survey May 20, 1971  
Maxima: gage height, 28.81 ft; outflow, 10.3 ft<sup>3</sup>/s; surface area, 9.60 acres; contents, 743 acre-feet; on Oct. 30  
Minima: gage height, 18.39 ft; surface area, 2.69 acres; contents, 14.3 acre-feet; on Oct. 13  
Maximum inflow, --- ft<sup>3</sup>/s (averaged for 5-min. interval and adjusted for rainfall on pool surface) on ---  
Averages: --- water years, ( --- ); inflow, --- acre-feet/year; outflow, --- acre-feet/year; rainfall, --- inches/year.

Pool water budget, in acre-feet, water year October 1974 to September 1975.

	Oct	Nov	Dec	Calendar year 1974	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Water year 1975
Total Inflow $\downarrow$	83.2	14.5	2.5	129	3.9	9.0	.2	4.6	44.8	29.0	12.7	7.9	.4	213
Total Outflow	36.3	31.5	0	67.8	0	0	0	0	31.6	26.0	3.1	0	0	128
Total Consumption	5.8	7.3	6.8	44.6	5.0	3.0	5.1	6.6	9.0	9.3	9.3	9.8	8.2	85.2
†	+43.3	-23.9	-3.7	+23.7	-6	+7.0	-4.4	-1.4	+8.1	-4.5	+2.6	0	-7.2	+15.3
‡	3.1	6.3	5.0	2.4	4.8	6.2	5.3	5.1	6.5	6.4	5.3	5.8	5.3	5.4
††	6.55	.81	1.43	32.23	1.24	2.13	1.11	1.52	7.51	3.30	5.27	4.17	1.25	36.29

$\downarrow$  Inflow adjusted for rainfall on pool and pool losses.

† Change in contents, in acre-feet.

‡ Mean surface area, in acres.

†† Weighted mean rainfall, in inches.

Peak inflow - (base, --- ft<sup>3</sup>/s)

Date	Time	Discharge	Date	Time	Discharge
<u>2</u>			<u>2</u>		



UNITED STATES DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY-TEXAS DISTRICT

## RAINFALL DATA SUMMARY

STUDY AREA North Creek

1975 WATER YEAR

RAIN GAGE

Date of storm	1-5	2-2	3-5	4-2	5-2	Aug.
Oct. 13, 1974	.40	.20	.40	.30	.50	
14	1.90	1.75	1.85	1.75	1.68	
24	.94	.92	.81	.60	.53	
28	1.60	1.47	1.38	1.15	1.32	
30	2.50	2.16	2.42	2.47	2.54	
31	.30	.30	.46	.28	.36	
October Totals	7.64	6.80	7.32	6.55	6.93	7.05
Nov. 3-4	.49	.45	.40	.35	.39	
9-10	.61	.51	.53	.46	.50	
23	.12	.10	0	0	.13	
30	.03	.05	0	0	.07	
November Totals	1.25	1.11	.93	.81	1.09	1.04
Dec. 9-10	.58	.57	.59	.58	.57	
25-26	.39	.35	.20	.35	.26	
30-31	.55	.56	.61	.50	.54	
December Totals	1.52	1.48	1.40	1.43	1.37	
1974 Calendar Year Total						32.60
Jan. 2, 1975	.60	.53	.59	.52	.59	
9	.31	.33	.21	.20	.20	
24	.16	.08	.12	.07	.14	
31	.48	.40	.57	.45	.46	
January Totals	1.55	1.34	1.49	1.24	1.39	1.40
Feb. 1	.75	.72	.67	.65	.62	
2	.64	.55	.45	.34	.52	
3	.24	.22	.22	.20	.26	
4	.39	.38	.36	.34	.36	
15	.27	.13	.19	.15	.15	
22-23	.46	.33	.52	.45	.57	
February Totals	2.75	2.33	2.41	2.13	2.49	2.42
Mar. 9	.12	.12	.13	0	.08	
11-12	.07	.05	.05	0	0	
14-15	.21	.15	.14	.10	.17	
17	.19	.15	.22	.15	.13	
27-28	.93	.88	.91	.86	1.05	



## RAINFALL DATA SUMMARY

RAIN GAGE

1975 WATER YEAR

Date of storm	1-5	2-2	3-5	4-2	5-2	Aug.
March Totals	1.52	1.35	1.45	1.11	1.43	1.37
Apr 7	1.07	1.02	1.06	.90	1.12	
10	.17	.15	.10	0	.10	
13	.33	.35	.24	.25	.27	
27	.42	.35	.41	.37	.37	
April Totals	1.99	1.87	1.81	1.52	1.86	1.81
May 2	1.40	2.08	2.30	1.92	1.58	
10	.60	1.15	.96	.68	.57	
11	.47	.50	.45	.32	.67	
13	.80	.80	.78	1.00	.94	
14	.27	.15	.13	.20	.06	
19-20	.30	.25	.34	.25	.27	
23	1.45	.85	1.03	1.00	1.08	
24	.30	.25	.16	.20	.16	
26-27	.10	.15	.10	.18	.60	
28	.50	.53	.23	.48	.43	
29	1.96	1.59	1.64	1.28	1.27	
May Totals	8.15	8.30	8.12	7.51	7.63	7.94
June 7	.50	.45	.43	.35	.43	
8	.52	.47	.51	.37	.62	
9	2.49	1.80	1.70	1.40	1.91	
16	.02	.21	.24	.10	.29	
22	.95	1.15	1.32	1.08	.84	
June Totals	4.48	4.08	4.20	3.30	4.09	4.03
July 3	.06	.50	.32	.63	.15	
4	.56	0	.52	.55	.66	
9-11	.90	.67	.42	.99	.98	
18-20	0	.10	.37	.05	.66	
24	.34	.85	1.35	1.20	1.76	
25	1.52	1.70	1.27	1.85	2.02	
July Totals	3.38	3.82	4.25	5.27	6.23	4.59
Aug 2	1.43	1.55	.68	.82	.39	
15	.13	0	.14	.10	.06	
17	1.44	1.60	1.61	1.10	1.38	
26	.97	1.98	2.08	2.10	2.70	



## RAINFALL DATA SUMMARY

1975 WATER YEAR

Date of storm	1-5	2-2	3-5	4-R	5-R	Aug.
Aug 27	0	.15	.21	0	.05	
Aug 31	0	0	0	.05	.05	
August Totals	3.97	5.28	4.72	4.17	4.63	4.55
Sept 12	.14	.28	.35	.20	.18	
13	.45	.47	.40	.30	.40	
14	.46	.13	.29	.20	.20	
15	.16	.15	.08	.07	.15	
18	0	0	0	.18	.47	
21	.39	.17	.19	.30	.10	
September Totals	1.60	1.20	1.31	1.25	1.50	1.37
1975 Water Year Total						39.01



Storm period Oct. 30-31, 1974

Tex. D.A. 682 sq mi

- 32 -



## Storm period Oct 30-31, 1974

Creek subwatershed No. 28-A near

Sermsa

Tex. D.A. 6.82 sq mi

- 33 -



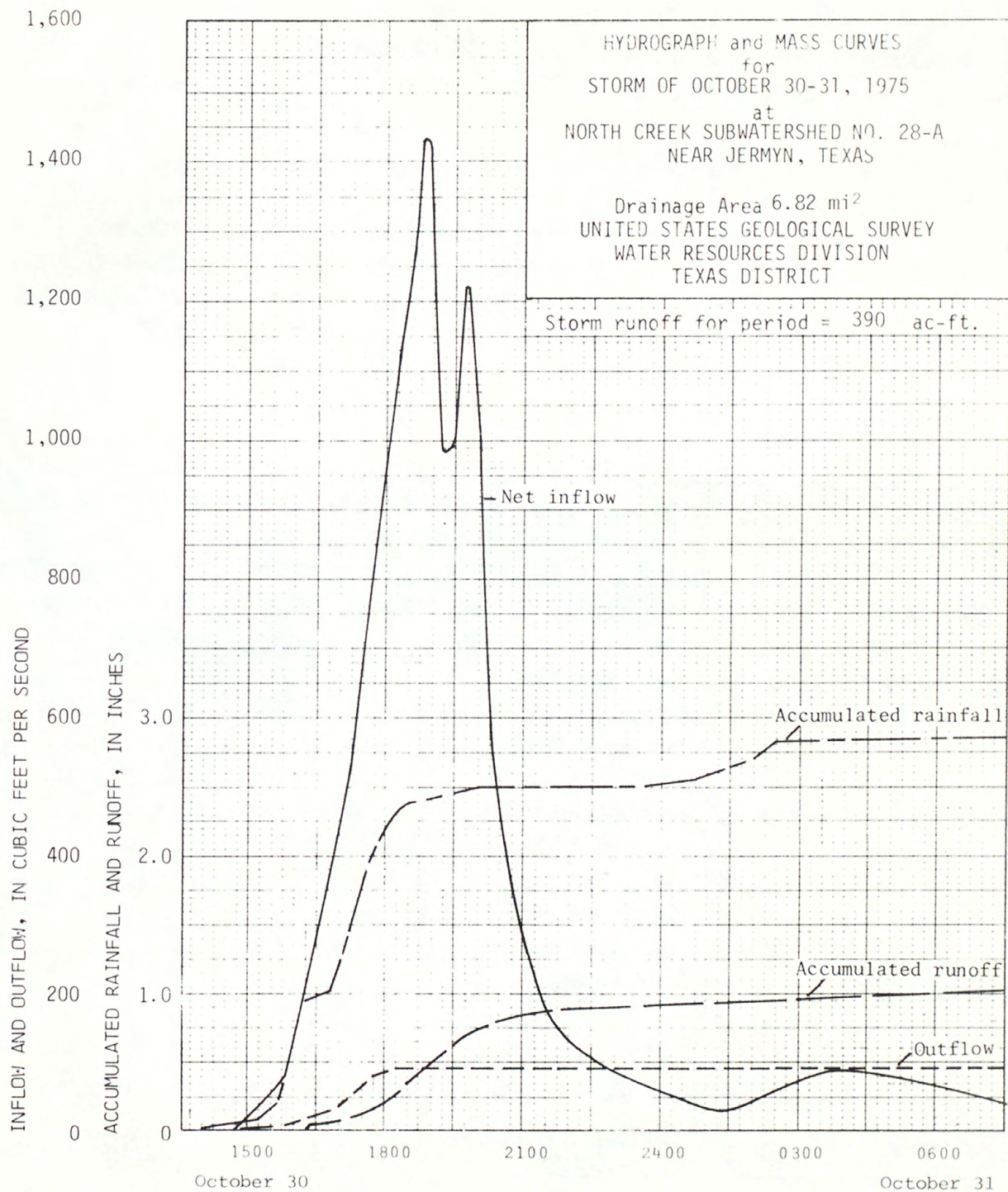
UNITED STATES DEPARTMENT OF INTERIOR  
GEOLOGICAL SURVEY - WATER RESOURCES DIVISION  
TEXAS DISTRICT

Sheet 1 of 1  
Comp. by: CCR  
Date 2/02/76  
Check by EDL  
Date 2/10/76

## WEIGHTED-PRECIPITATION RECORD

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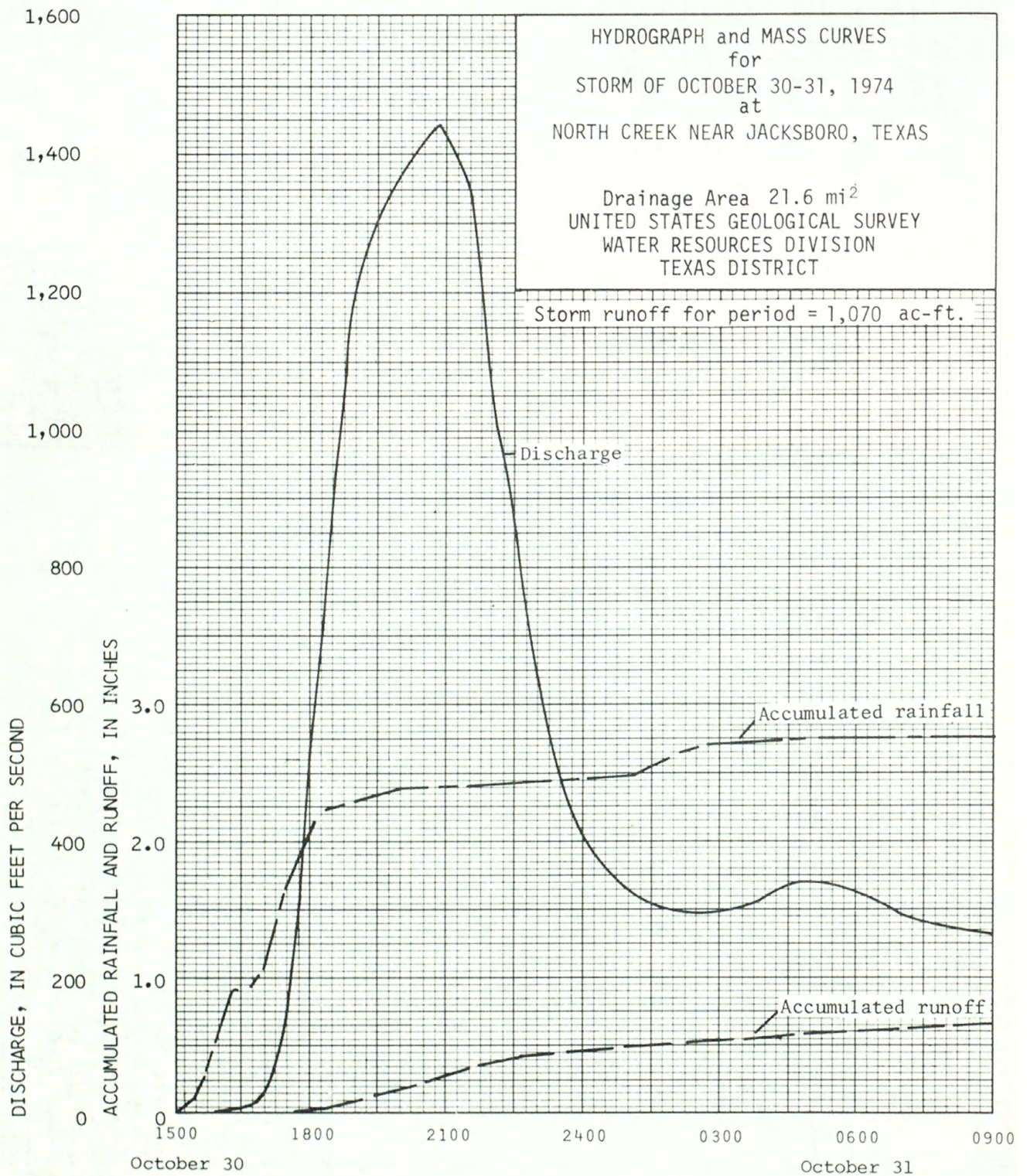


# WATER-LOGGED-PRECIPITATION RECORD

Date of storm

Study Area 08042100 North Creek near Jacksboro, Tex.										Date of Storm October 30, 31, 1977									
Accumulated Precipitation in Inches for Recording Rain Gages										Accumulated Precipitation in Inches for Recording Weighing Rain Gages									
Weight Factor		Gage		Gage		Gage		Gage		Gage		Gage		Gage		Gage		Gage	
Date & Time	Recorded	Weight Factor	Recorded	Weight Factor	Recorded	Weight Factor	Recorded	Weight Factor	Recorded	Weight Factor	Recorded	Weight Factor	Recorded	Weight Factor	Recorded	Weight Factor	Recorded	Weight Factor	Recorded
Oct 30, 1974																			
1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1515	.05	.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	.13	.09	.13	.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	.31	.22	.41	.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600	.58	.41	.65	.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	.82	.57	1.01	.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	.85	.60	1.12	.28	.17	.01	0	0	0	0	0	0	0	0	0	0	0	0	0
1700	1.03	.72	1.15	.29	.43	.02	0	0	0	0	0	0	0	0	0	0	0	0	0
30	1.55	1.08	1.72	.43	1.20	.06	0	0	0	0	0	0	0	0	0	0	0	0	0
1800	1.92	1.34	2.17	.54	1.32	.07	0	0	0	0	0	0	0	0	0	0	0	0	0
30	2.23	1.42	2.29	.57	1.72	.09	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	2.13	1.49	2.40	.60	2.40	.12	0	0	0	0	0	0	0	0	0	0	0	0	0
2200	2.14	1.50	2.45	.61	2.53	.13	0	0	0	0	0	0	0	0	0	0	0	0	0
2400	2.16	1.51	2.47	.62	2.54	.13	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct 31																			
0100	2.20	1.54	2.52	.63	2.57	.13	0	0	0	0	0	0	0	0	0	0	0	0	0
45	2.27	1.59	2.60	.65	2.62	.13	0	0	0	0	0	0	0	0	0	0	0	0	0
0230	2.41	1.69	2.72	.68	2.69	.13	0	0	0	0	0	0	0	0	0	0	0	0	0
0500	2.46	1.72	2.75	.69	2.90	.14	0	0	0	0	0	0	0	0	0	0	0	0	0
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North Creek subwatershed No. 28-A near

, Tex. D.A. 6.82 sq mi

, Tex. D.A. 6.82 sq mi

- 39 -



UNITED STATES DEPARTMENT OF INTERIOR  
GEOLOGICAL SURVEY - WATER RESOURCES DIVISION  
TEXAS DISTRICT

## WEIGHTED-PRECIPITATION RECORD

Study Area 08042650 North Creek Swis #28 A near Secoy, Tex										Date of storm May 2, 1975										Accumulated	
Weight Factor		Gage Recorded		x Factor		Gage Recorded		x Factor		Gage Recorded		x Factor		Gage Recorded		x Factor		Weighted Precipitation			
Date & Time		Gage Recorded		x Factor		Gage Recorded		x Factor		Gage Recorded		x Factor		Gage Recorded		x Factor		Recording Gages(Rec. Gages x K)			
																		All Gages			
May 2, 1975																					
0340		0.00																0.00			
45		.12																.12			
0400		.50																.50			
15		1.10																1.10			
20		1.53																1.53			
30		1.78																1.78			
40		2.05																2.05			
45		2.07																2.07			
0500		2.08																2.08			

WMR : Sum of Precipitation x Weight Factor	K : $\frac{\text{WMR}}{\text{Total Recording Gages}}$	Weighted Precipitation : $\frac{2.30}{2.08} = 1.106$
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# HYDROGRAPH and MASS CURVES

for

STORM OF MAY 2, 1975

at

NORTH CREEK SUBWATERSHED NO. 28-A

NEAR JERMYN, TEXAS

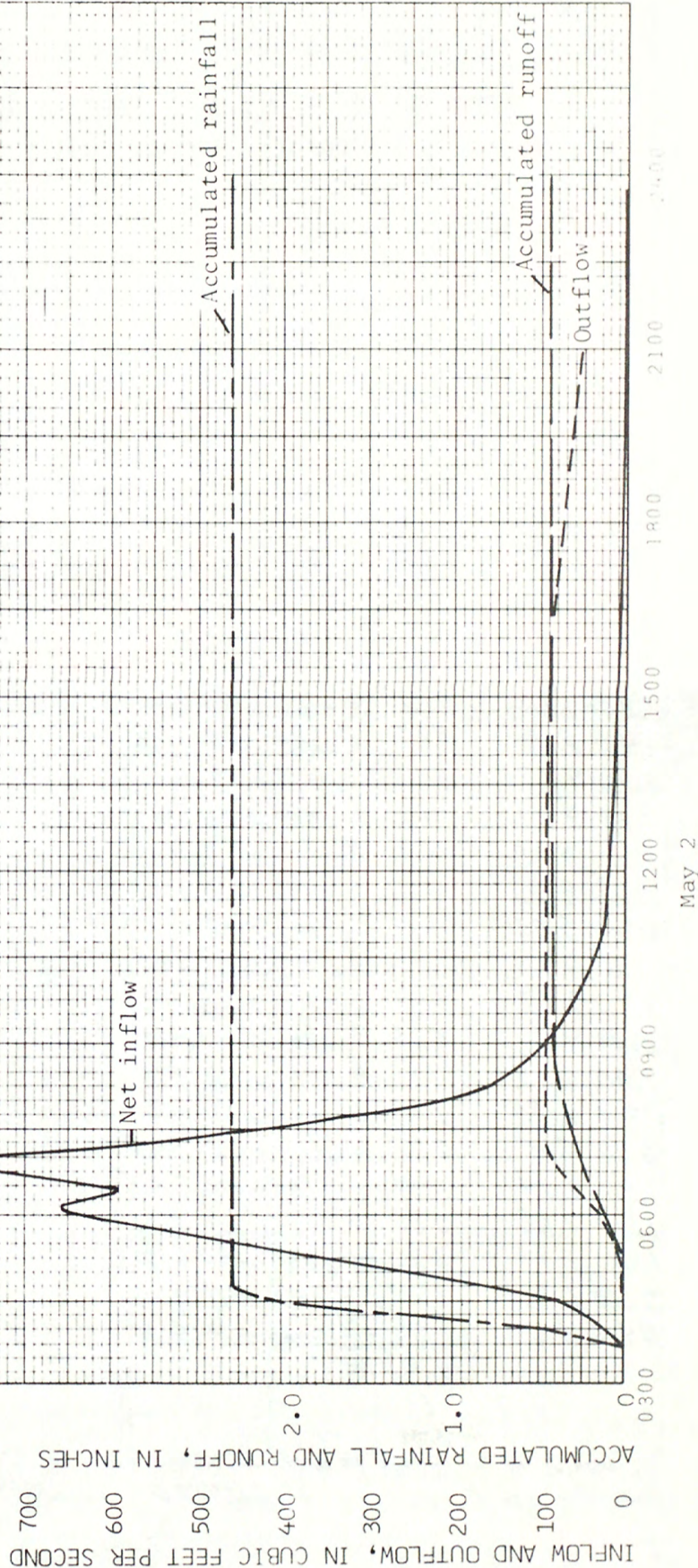
Drainage Area 6.82 mi<sup>2</sup>

UNITED STATES GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

TEXAS DISTRICT

Storm runoff for period = 160 ac-ft.





UNITED STATES DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY - TEXAS DISTRICT

## RUNOFF COMPUTATIONS

Station 08042700 North Creek near Jacksboro, TexPeriod of Record May 2, 3, 1975Drainage Area 21.6 mi.<sup>2</sup> of which 16.3 mi.<sup>2</sup>  
is above flood detention structures

Time	G. Ht. Feet	Sh. Adj.	Discharge			Runoff		Time	G. Ht. Feet	Sh. Adj.	Discharge			Runoff			
			Ft <sup>3</sup> /s	Inc.	In/Hr	Inches	Acc. In.				Ft <sup>3</sup> /s	Inc.	In/Hr	Inches	Acc. In.		
May 2, 1975								May 3									
0000	4.54		0	17	.0000	.0000	.0000	0000	6.54		89	1	.0064	.0096	.3157		
0415	4.76		0	18	.0000	.0000	.0000	0300	6.22		58	2	.0042	.0126	.3283		
30	5.38		8.4	2	.0006	.0002	.0002	0600	5.97		39	2	.0028	.0084	.3367		
45	6.28		63	2	.0045	.0011	.0013	0900	5.77		26	2	.0019	.0057	.3424		
0500	7.31		169	2	.0122	.0030	.0043	1200	5.63		19	3	.0014	.0063	.3487		
15	7.53		196	2	.0141	.0035	.0078	1800	5.44		10	4	.0007	.0042	.3529		
30	7.65		212	2	.0153	.0038	.0116	2400	5.32		6.8	2	.0005	.0015	.3544		
45	8.69		359	2	.0258	.0064	.0180				445.6	16					
0600	9.29		458	2	.0330	.0082	.0262				28						
15	9.57		514	2	.0370	.0092	.0354										
30	9.48		496	2	.0357	.0089	.0443										
45	9.33		466	2	.0336	.0094	.0527										
0700	9.36		472	3	.0340	.0128	.0655										
30	9.73		546	3	.0393	.0147	.0802										
45	9.77		554	2	.0399	.0100	.0902										
0800	9.68		536	3	.0386	.0145	.1047										
30	9.05		413	4	.0297	.0148	.1195										
0900	8.36		309	6	.0222	.0166	.1361										
1000	7.65		212	6	.0153	.0115	.1476										
30	7.64		210	4	.0151	.0076	.1552										
1100	7.68		215	18	.0155	.0349	.1901										
1500	7.40		180	40	.0130	.0650	.2551										
2100	6.93		128	36	.0092	.0414	.2965										
2400	6.54		89	12	.0064	.0096	.3061										
			34016.8192														
			177														

☒ Unadjusted for storage in upstream reservoirs  
☐ Adjusted for storage in upstream reservoirs

 Computed by CCK Date 2/24/76 Checked by WJM Date 3/1/76



Sheet \_\_\_\_\_ of \_\_\_\_\_  
Comp. by: CKK  
Date: 3/05/76  
Check by: EDL  
Date: 3/09/76

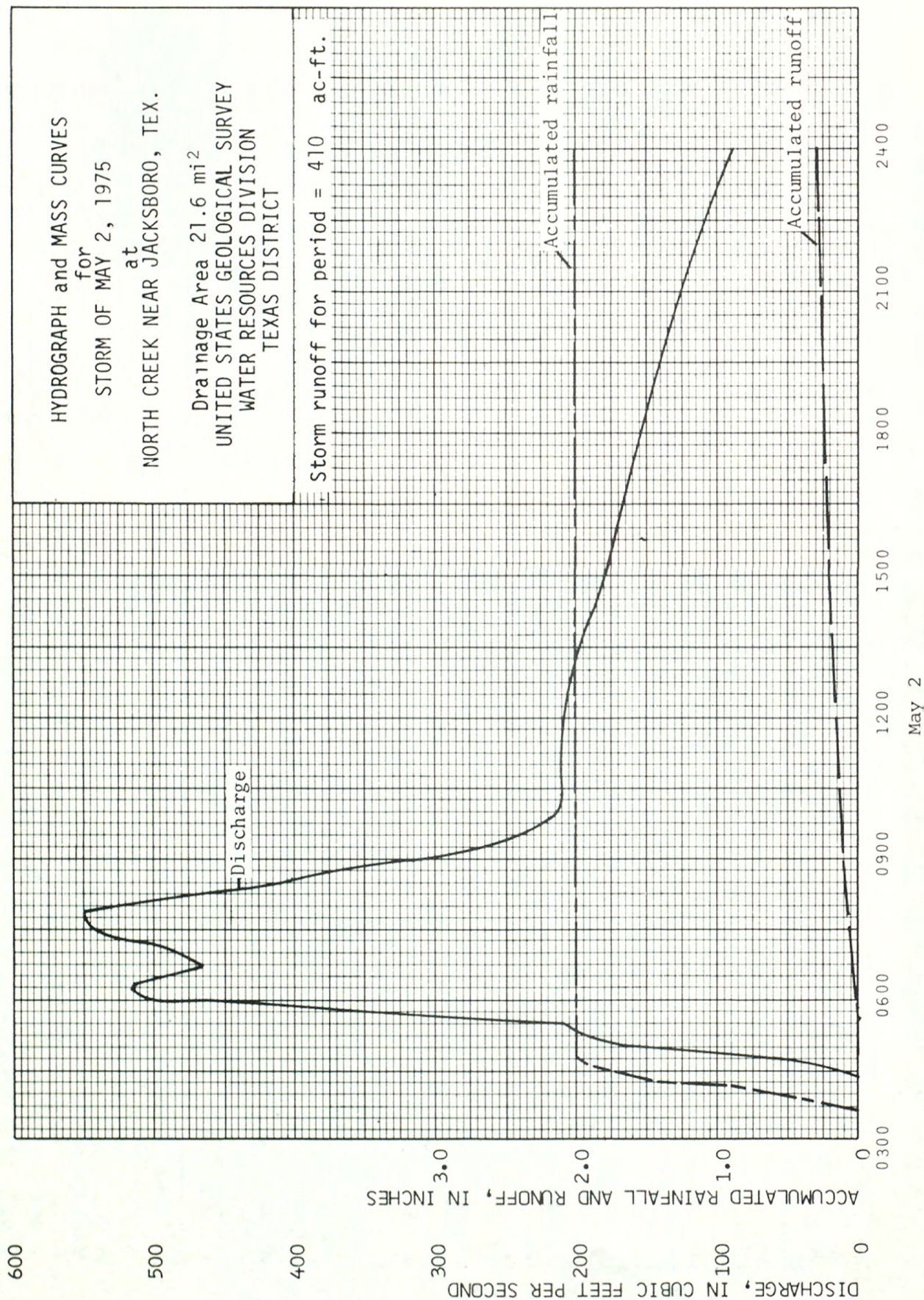
## WEIGHTED-PRECIPITATION RECORD

Study Area 08042700 North Creek near Jacksboro, Tex. Date of Storm May 2, 1975

[illegible]

MMR = Sum of Precipitation x Weight Factor  $\frac{MMR}{\text{Total Recording Gauges Weighted Precipitation}} = 1.00$   
 \* Weight Factors changed 4/25/75 due to F-5 being moved.







Storm period Aug. 26, 1975

Creek subwatershed No. 28-A near

Sermay, Tex. D.A. 6.82 sq mi

Storm period Aug. 26, 1975

-45-



Sheet 1 of 1  
Comp. by: EDL  
Date: 02/10/76  
Check by: CCR  
Date: 02/19/76

## WEIGHTED-PRECIPITATION RECORD

Study Area	08042650 North Creek SWS # 28A near Jermyn, Pa.	Date of storm	Aug. 26, 1975
Accumulated Precipitation in Inches for Recording Rain Gages			

[illegible]



# HYDROGRAPH and MASS CURVES

for  
STORM OF AUGUST 26, 1975  
at

NORTH CREEK SUBWATERSHED NO. 28-A

NEAR JERMYN, TEXAS

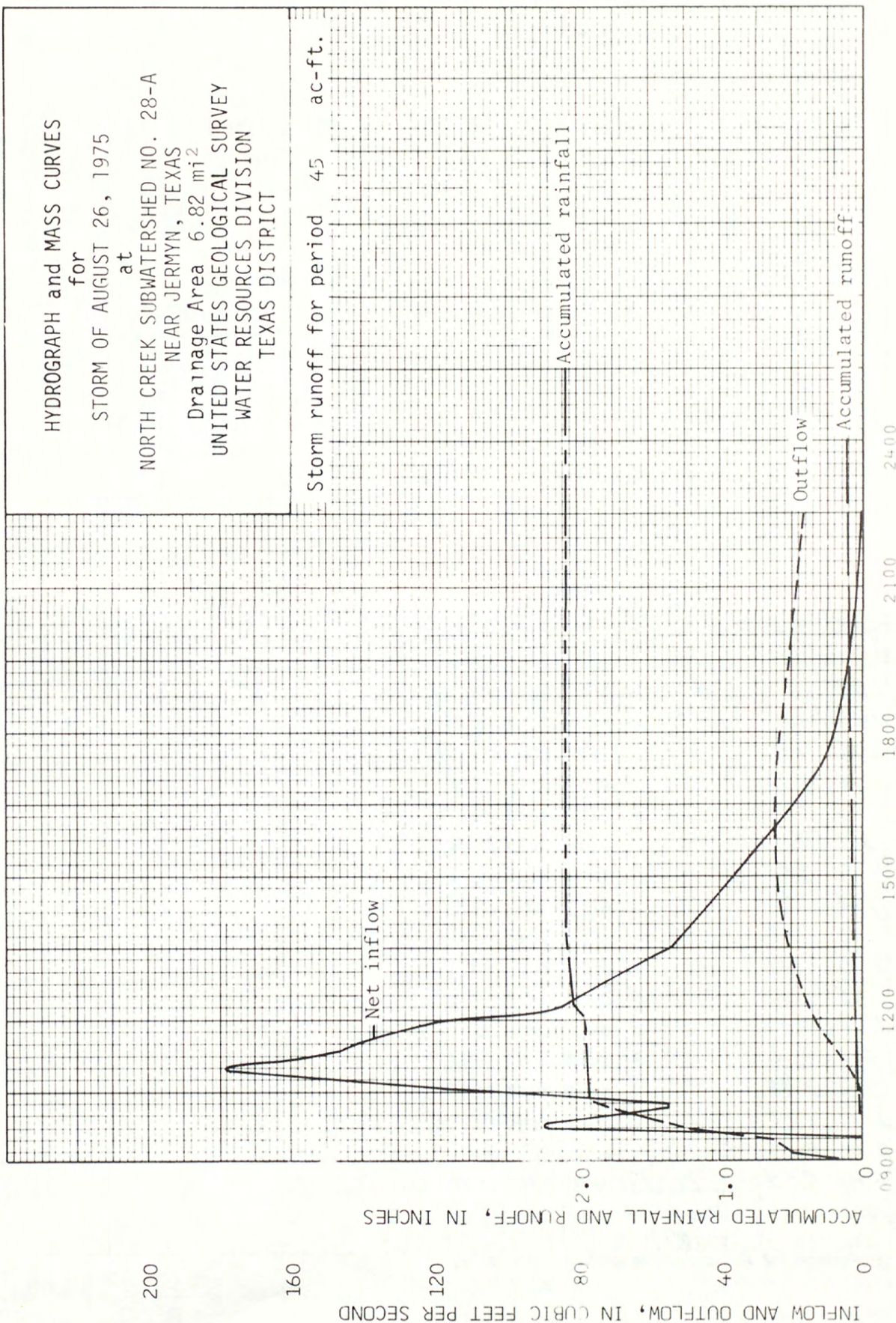
Drainage Area 6.82 mi<sup>2</sup>

UNITED STATES GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

TEXAS DISTRICT

Storm runoff for period 45 ac-ft.



August 26



UNITED STATES DEPARTMENT OF THE INTERIOR  
 GEOLOGICAL SURVEY - TEXAS DISTRICT

## RUNOFF COMPUTATIONS

Station 08042700 North Creek near Jacksboro, TexPeriod of Record Aug 26, 1975Drainage Area 21.6 mi<sup>2</sup> of which 16.3 mi<sup>2</sup>  
is above flood detention structures

Time	G. Ht. Feet	Sh. Adj.	Discharge		Runoff		Time	G. Ht. Feet	Sh. Adj.	Discharge		Runoff	
			Ft <sup>3</sup> /s	Inc. In/Hr	Inches	Acc. In.				Ft <sup>3</sup> /s	Inc. In/Hr	Inches	Acc. In.
August 26, 1975													
0000	4.08		0	36	0.0000	0.0000							
0900	4.90		1.6	37	0.0001	0.0004							
15	6.05		45	2	0.0032	0.0008							
30	7.13		148	2	0.0107	0.0027							
45	8.29		299	2	0.0215	0.0054							
1000	8.60		345	2	0.0248	0.0062							
15	9.33		466	2	0.0336	0.0084							
30	10.02		604	2	0.0435	0.0109							
45	10.31		668	2	0.0481	0.0120							
1100	10.34		675	2	0.0486	0.0122							
15	10.19		638	2	0.0459	0.0115							
30	9.86		572	2	0.0412	0.0103							
45	9.38		476	2	0.0343	0.0086							
1200	8.71		362	3	0.0261	0.0098							
30	7.49		191	5	0.0138	0.0086							
1315	7.72		221	5	0.0159	0.0099							
45	7.50		192	4	0.0138	0.0069							
1415	7.07		142	4	0.0102	0.0051							
45	6.69		104	4	0.0075	0.0038							
1515	6.42		77	5	0.0055	0.0034							
1600	6.16		53	7	0.0038	0.0033							
1700	5.98		39	12	0.0028	0.0042							
1900	5.80		28	16	0.0020	0.0040							
2100	5.66		20	20	0.0014	0.0035							
2400	5.54		14	12	0.0010	0.0015							
			17069.2	192									
			89										

U Unadjusted for storage in upstream reservoirs

Computed by CCKDate 3/05/76Checked by SDLDate 3/05/76



WEIGHTED-PRECIPITATION RECORD

Study Area 08042700 North Creek near Jacksboro, Tex.

Date of storm	Estimated Rain (inches)
Aug. 26, 1975	

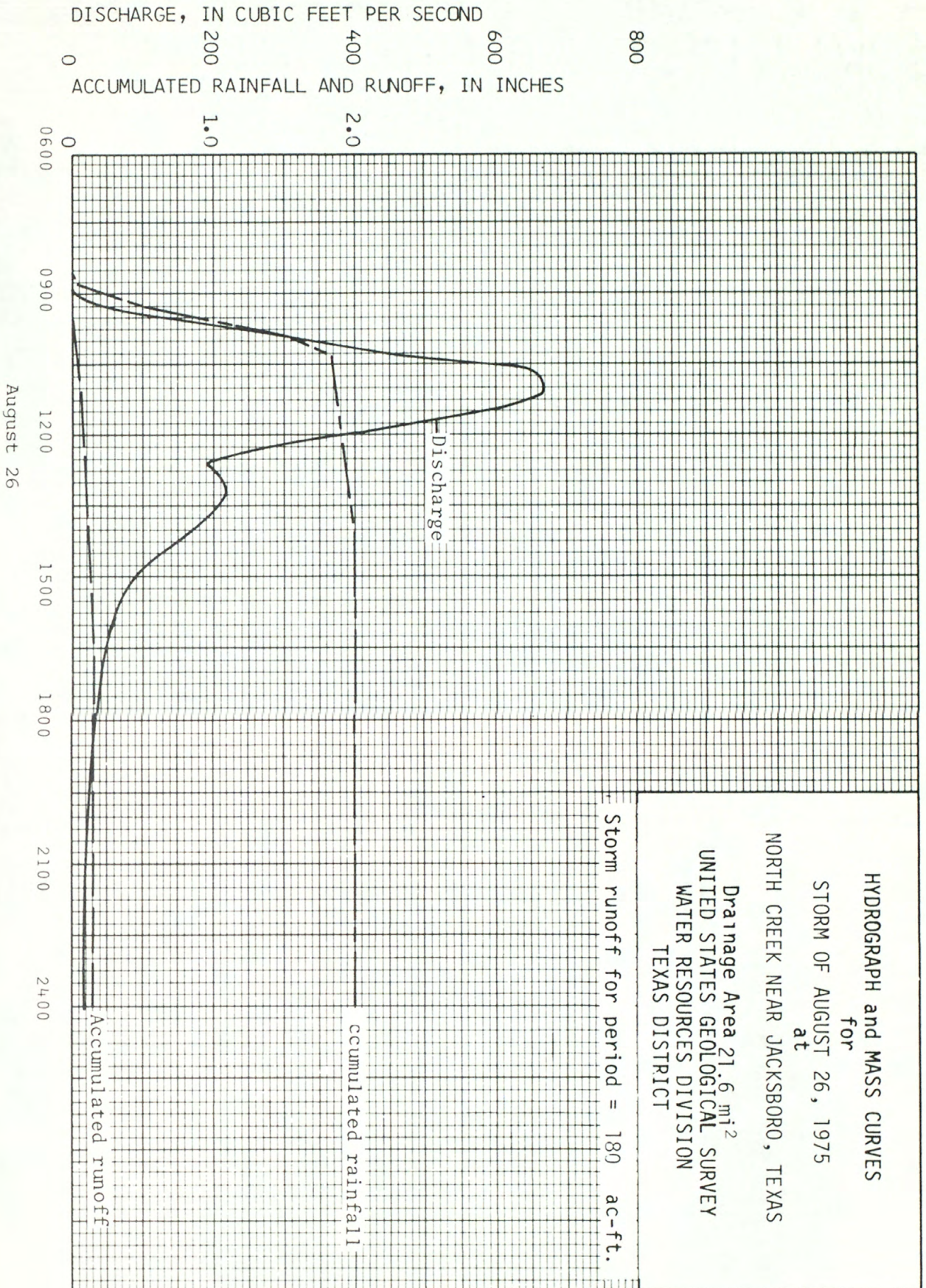
Sheet 1 / 1  
Comp. by CCK  
Date 3/05/76  
Check by EDL  
Date 3/09/76

[illegible]

\* Weight factors changed 4/25/75 due to 1-5 being moved.

$$\frac{2.00}{2.05} = .9756 \quad 2.00$$



















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