Mitchell & Wehmeyer

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# Hydrologic Data for Cow Bayou Brazos River Basin Texas, 1975

**U. S. GEOLOGICAL SURVEY**
**Open-File Report No. 76-723**




*Prepared in cooperation with the Texas Water Development Board and the Soil Conservation Service*

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*By R. N. Mitchell and E. E. Wehmeyer*

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May 1977

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Copies of this report may be obtained from the
U.S. Geological Survey
Federal Building
300 East 8th Street
Austin, TX 78701

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# HYDROLOGIC DATA FOR COW BAYOU

# BRAZOS RIVER BASIN, TEXAS

1975

By

R. N. Mitchell and E. E. Wehmeyer
U.S. Geological Survey

## INTRODUCTION

### History of Small-Watershed Projects in Texas

The U.S. Soil Conservation Service is actively engaged in the implementation of flood- and soil-erosion reducing measures 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 a total of approximately 3,500 floodwater-retarding structures to 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 the 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.

Hydrologic investigations of these small watersheds were begun by the U.S. Geological Survey in 1951 and are now being made in two areas (fig. 1). Data collection in ten study areas has been completed. 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 Tarrent 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. Structures have now been built in four of these study areas. A summary of the development of the floodwater-retarding structures in each study area as of September 30, 1975, is shown in table 1.

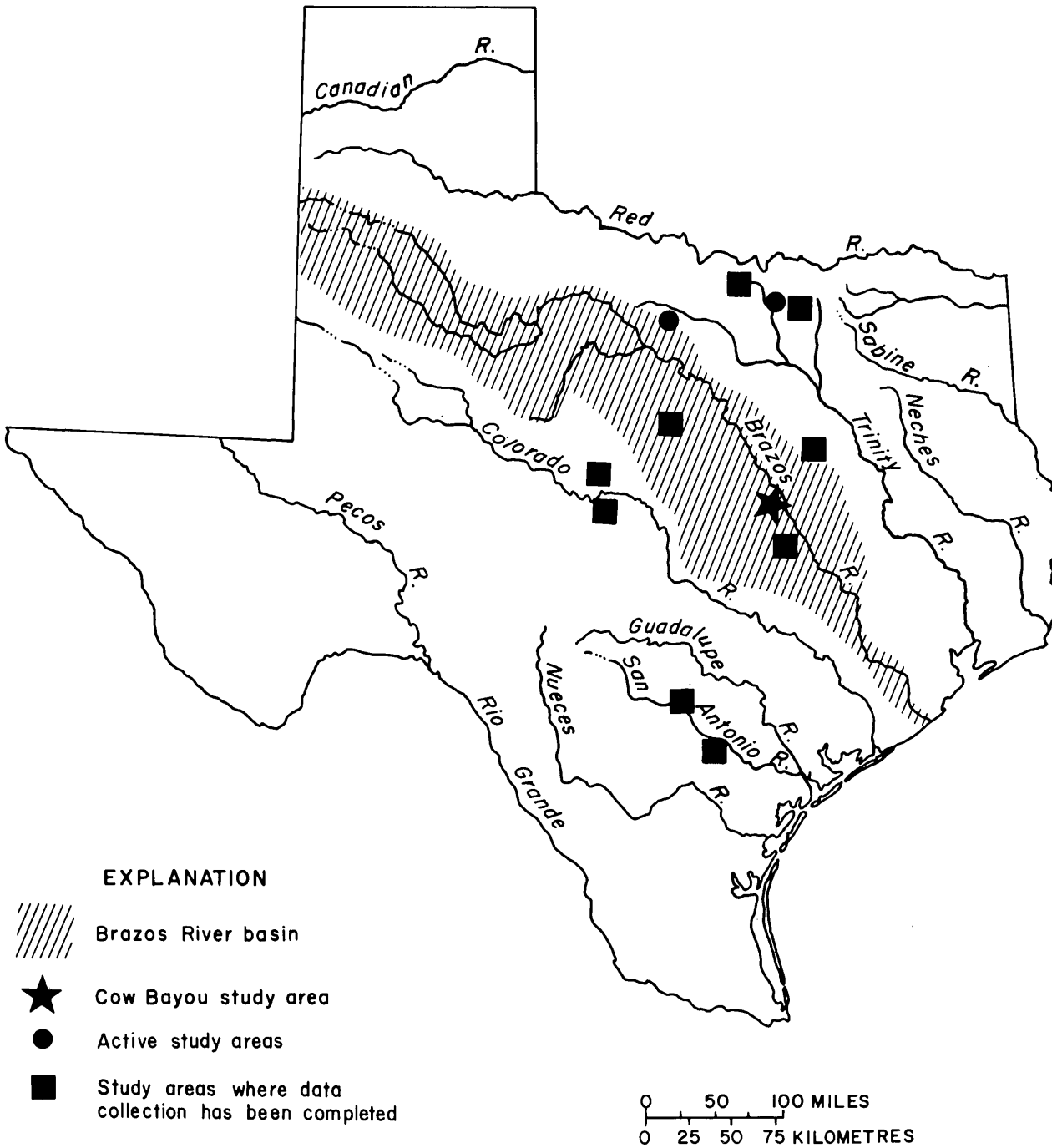



FIGURE 1. – Location of the Cow Bayou study area and other study areas

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

| Watershed | Drainage area above stream-gaging station ($mi^2$) | Data collection period | Floodwater-retarding structures above stream-gaging station | Period the structures were built |
|---|---|---|---|---|
| Trinity River basin: | | | | |
| 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 |
| Brazos River basin: | | | | |
| 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 | - |
| Colorado River basin: | | | | |
| 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 |
| San Antonio River basin: | | | | |
| 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 $mi^2$ 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 | Abbreviation | | Unit | Abbreviation |
| inches | -- | 25.4 | millimeters | mm |
| feet | -- | .3048 | meters | m |
| miles | -- | 1.609 | kilometers | km |
| square miles | $mi^2$ | 2.590 | square kilometers | $km^2$ |
| cubic feet per second | $ft^3/s$ | .02832 | cubic meters per second | $m^3/s$ |
| feet per mile | ft/mi | .189 | meters per kilometer | m/km |
| acre-feet | -- | 1233 | cubic meters | $m^3$ |
| | | .001233 | cubic hectometers | $hm^3$ |

## 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 groundwater 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, which is the fifteenth in a series of basic-data reports published annually for the Cow Bayou study area, contains the rainfall, runoff, and storage data collected during the 1975 water year for the 85.0-$mi^2$ area above the stream-gaging station Cow Bayou at Mooreville, Texas. The location of floodwater-retarding structures and hydrologic instruments in the area are shown on figure 2.

The study of Cow Bayou will be terminated at the end of this water year (1975). The records collected before watershed development (1956-65) and after complete watershed development (1965-75) will be used in the analyses of rainfall-runoff relationships.

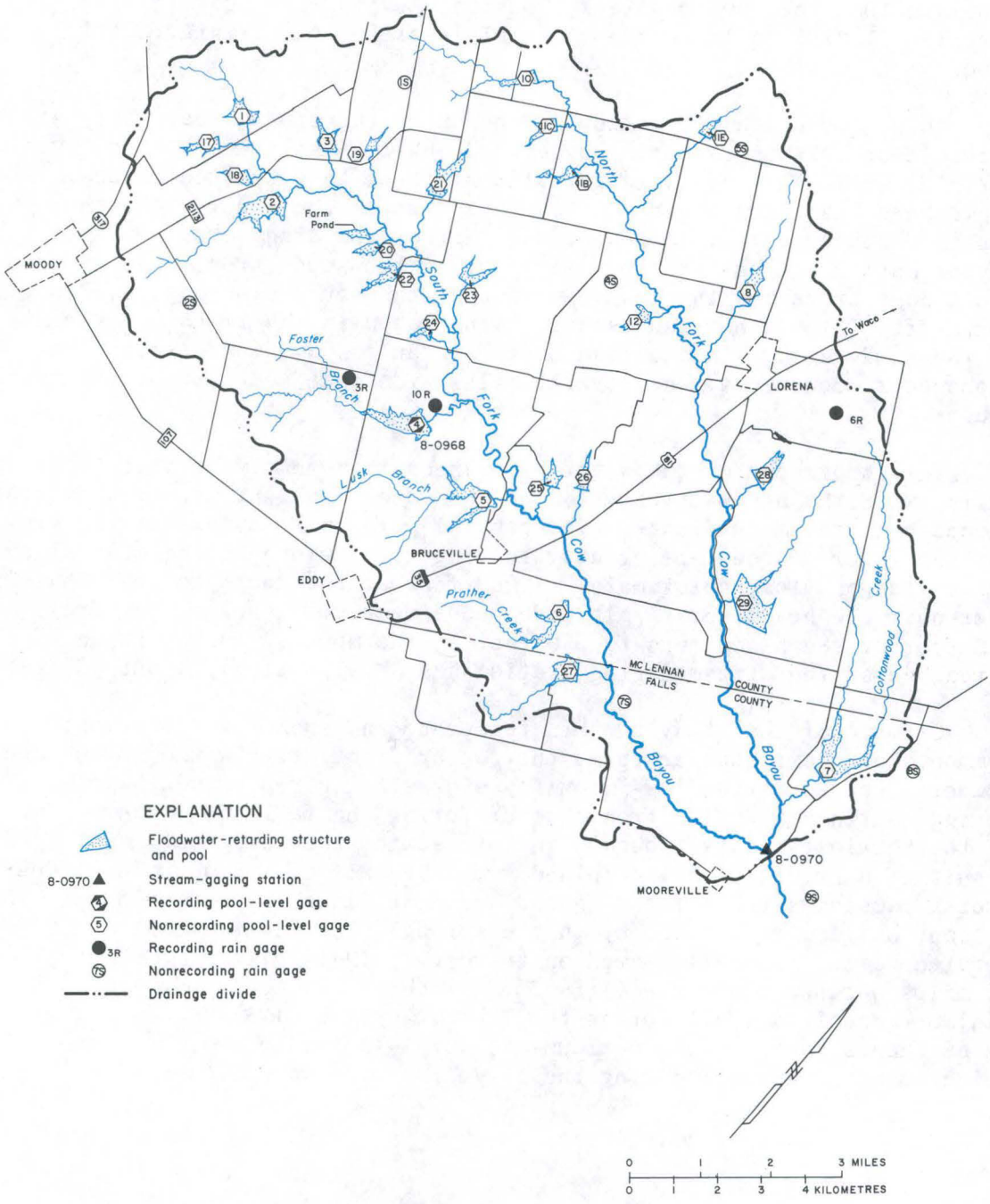
The investigation has been conducted through periods of both above- and below-normal precipitation to define the various factors used in the analyses of rainfall-runoff relationships.

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

## DESCRIPTION OF THE WATERSHED

The headwaters of Cow Bayou are near the town of Moody in the southwestern part of McLennan County. The creek flows southeastward for approximately 27 miles where it empties into the Brazos River near the community of Triangle, Texas, in Falls County. Cow Bayou drains a rectangular basin of about 117 $mi^2$. However, this report is concerned only with the 85.0 $mi^2$ of the watershed above the Geological Survey stream-gaging station near Mooreville, Texas. This area is referred to as the "study area" (fig. 2).

About 75 percent of the land in the watershed is cultivated, and the remaining 25 percent is mostly pasture. A small portion of the land is wooded, primarily along the stream channel. Basically, the economy of this rural watershed is agricultural, with cotton being the predominant crop. Grain sorghums, corn, and Johnson grass hay are the other crops raised in this watershed.




Base from U.S. Geological Survey topographic quadrangles

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

The watershed lies entirely within the Blackland Prairie land-resource area. Soils in the watershed consist of mostly dark clay, developed from shale, limestone, marl, and chalk. The predominant soil types include the Houston Black, Houston, Austin, and Eddy. The highly fertile alluvial soils in the flood plain are of the Trinity-Catalpa type.

Three geological formations crop out in the study area. They are, from oldest to youngest, the Eagle Ford Shale, Austin Chalk, and Taylor Marl (fig. 3). All of these formations are of Late Cretaceous age. The Eagle Ford Shale crops out in the upper part of the study area, the Austin Chalk crops out in the middle part of the study area, and the Taylor Marl crops out in the lower part of the study area. The Balcones Fault Zone traverses the lower portion of the study area east of Bruceville, Texas (fig. 3). Other faults have been traced in the immediate vicinity of the study area. In addition to these faults, numerous small displacements occur in a zone several miles wide east and west of the major faults.

The topography of the watershed ranges from gently to steeply rolling hills, with the headwater portion of the watershed characterized by steep slopes and stream gradients. The central portion is moderately rolling, and the lower reaches are greatly rolling. The width of the main alluvial valley ranges from approximately 4,000 feet at the mouth to less than 150 feet near the headwaters. Altitude above mean sea level ranges from 875 feet at the headwaters to 350 feet at the mouth. The altitude of the streambed at the stream-gaging station near Mooreville is about 405 feet.

Climate of the study area is temperate and subhumid. The most common storms are thunderstorms that occur frequently in the spring and summer. Long-duration low-intensity storms triggered by southward-moving continental polar fronts occur during the fall and winter. Some of the heaviest rainfall occurs in late summer and early fall as a result of hurricanes moving inland from the Gulf of Mexico. Individual storms causing serious flooding and sediment damage may occur during any season, but are most frequent in the spring. The Environmental Data Service normal rainfall (based on the period 1941-70) for McGregor (6 miles northwest of site 1) is 33.04 inches. In the study area, the minimum annual rainfall during the 17-year period, 1959-75, was 17.65 inches in 1967, the maximum was 46.73 inches in 1961, and the weighted-mean rainfall during the 17-year period was 33.64 inches.

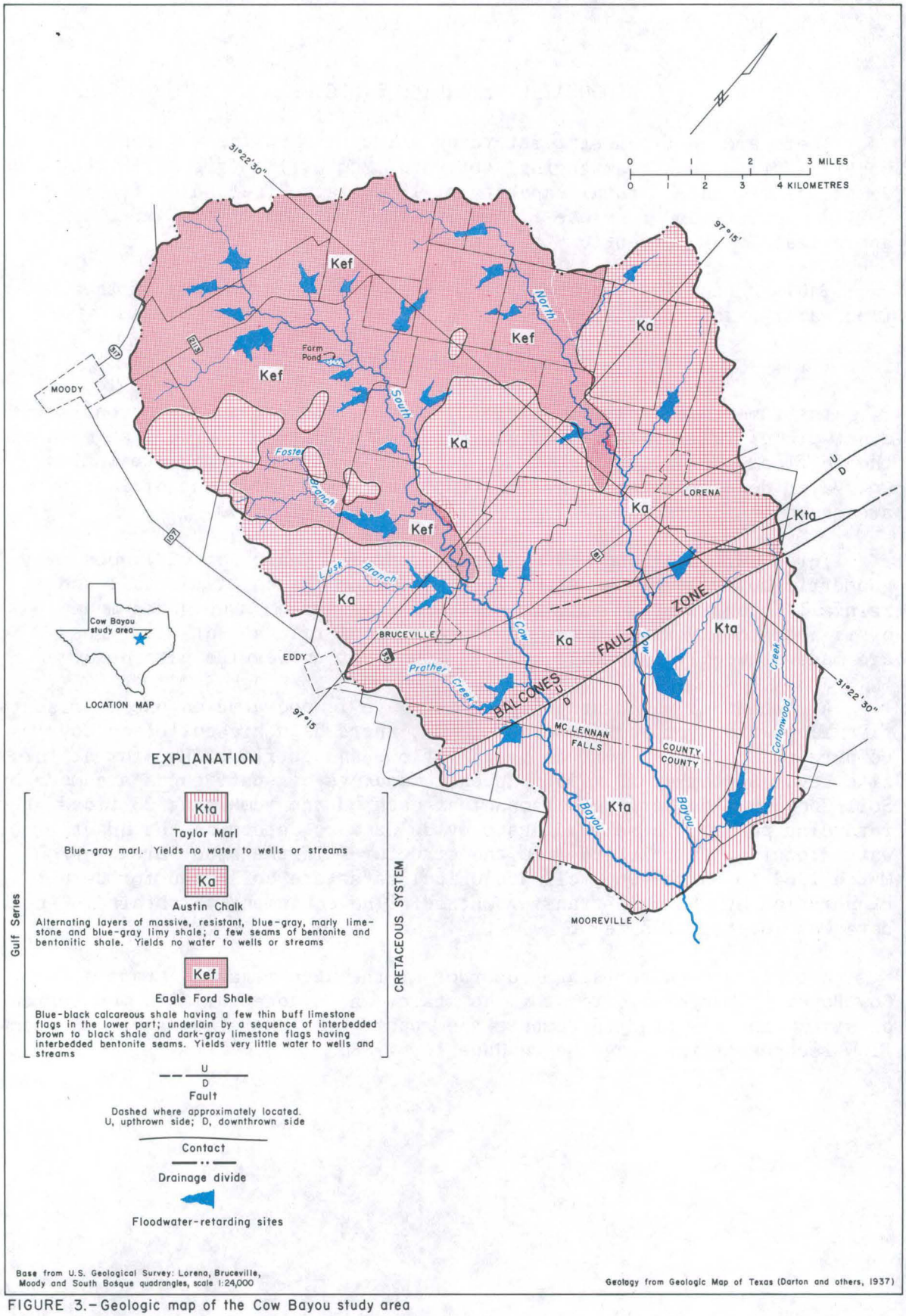



FIGURE 3.–Geologic map of the Cow Bayou study area

## FLOODWATER-RETARDING STRUCTURES

There are 26 floodwater-retarding structures in the watershed upstream from the stream-gaging station at Mooreville (fig. 2). The 26 structures have a total capacity of 15,510 acre-feet below flood-spillway crests and regulate floodflows from an area of 42.7 $mi^2$, or approximately 50 percent of the drainage area.

Table 2 contains a summary of the physical data at each of the 26 floodwater-retarding structures above the stream-gaging station.

## HYDROLOGIC INSTRUMENTS

Instruments to collect rainfall, runoff, and storage data consist of a network of rain gages, staff gages, or water-stage recorders at each of the 26 floodwater-retarding structures, and a stream-gaging station on Cow Bayou downstream from the 26 structures. The locations of instruments are shown on figure 2.

Three recording and seven nonrecording rain gages provide good geometric coverage of the study area to define the total rainfall and rainfall intensities. Basin rainfall is computed on a weighted-mean basis from the 10 rain gages. Measurements of rainfall at all gages are made at weekly intervals by Soil Conservation Service personnel.

A continuous water-stage recording gage is operated on one representative floodwater-retarding pool (site 4), where data are collected to compute the contents, surface area, inflow, and outflow. Records at this site began September 12, 1956. Weekly readings of staff gages are made by Soil Conservation Service personnel at each of the remaining 25 floodwater-retarding pools. These readings provide data to determine the quantity of water retained or released from the structures in the study area. From March 1964 to March 1966, climatological data were collected for computing evaporation by the mass-transfer method. The equipment to obtain these data was located at site 4.

A continuous water-stage recorder at the stream-gaging station on Cow Bayou at Mooreville records the stage, which together with measurements of streamflow, is used to compute the runoff from the study area. Streamflow records at this gage began June 10, 1958.

Table 2.--Floodwater-retarding structure data, Cow Bayou study area

| Site number | Drainage area mi² | Date dam completed | Date station established | Datum of gage above mean sea level | Emergency spillway | | | Principal spillway | | | | | Controlled opening | | Range of staff gages (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Width (ft) | Gage height (ft) | Content (acre-ft) | Gage height (ft) | Contnet (acre-ft) | Reference mark elev. (ft) | Pipe through dam (in) | Control for maximum discharge | Gage height of bottom (ft) | Content (acre-ft) | |
| 1 | 1.51 | Dec. 1954 | 8-14-58 | 696.0 | 150 | 27.3 | 474 | 18.0 | 78.3 | 18.00 | 12 | Pipe | e/ 4.5 | 0 | 11.5-30.5 |
| 2 | 4.40 | June 1958 | 8-14-58 | 661.0 | 200 | 31.5 | 1,760 | a/ 18.0 | 491 | 18.00 | 17 | 12" Baffle plate | e/ -1.5 | 17.1 | 6.8-37.3 |
| 3 | 1.40 | Nov. 1955 | 8-14-58 | 655.4 | 175 | 28.6 | 395 | 18.0 | 78.8 | 18.00 | 22 | Pipe | e/ 2.5 | 0 | 10.2 30.5 |
| 4 | 5.25 | July 1956 | 9-12-56 | 574.46 | 400 | 37.7 | 1,740 | b/ 18.0 | 241 | 18.00 | 17 | Pipe | e/ 6.1 | 13.3 | 6.7-42.6 |
| 5 | 3.48 | Feb. 1957 | 8-13-58 | 533.0 | 300 | 49.2 | 1,370 | 18.0 | 166 | 18.00 | 17 | Pipe | e/ 2.5 | 19.7 | 6.8-50.9 |
| 6 | 1.99 | Dec. 1956 | 8-14-58 | 507.6 | 300 | 35.0 | 697 | 18.0 | 168 | 18.00 | 17 | Pipe | e/ -1.5 | 6.0 | 10.2-37.3 |
| 7 | 5.47 | Jan. 1958 | 8-15-58 | 441.0 | 250 | 31.7 | 2,250 | c/ 18.0 | 644 | 18.00 | 17 | Pipe | e/ -.5 | 11.3 | 2.0-36.6 |
| 8 | 1.69 | May 1955 | 8-14-58 | 586.0 | 200 | 28.9 | 587 | 18.0 | 126 | 18.00 | 12 | Pipe | e/ 6.5 | 6.6 | 6.2-30.5 |
| 10 | 2.84 | June 1958 | 8-13-58 | 639.7 | 100 | 27.3 | 1,110 | d/ 18.0 | 314 | 18.00 | 17 | Pipe | e/ 6.5 | 27.0 | 6.8-30.5 |
| 11-B | .87 | Oct. 1964 | 11-24-64 | 613.1 | 60 | 25.0 | 307 | 17.2 | 77.5 | 19.50 | 18 | Pipe | None | - | 6.7-30.5 |
| 11-C | .75 | Nov. 1964 | 11-23-64 | 630.1 | 50 | 19.9 | 261 | 12.8 | 67.0 | 14.12 | 21 | 15.5" dia. orifice | f/ 4.2 | 4.2 | 3.4-23.7 |
| 11-E | .59 | Dec. 1964 | 1-14-65 | 662.7 | 50 | 15.9 | 211 | 9.2 | 63.0 | 10.56 | 18 | Pipe | f/ .7 | 5.3 | 0 - 20.3 |
| 12 | 1.51 | Oct. 1964 | 11-17-64 | 561.9 | 200 | 39.0 | 496 | 17.4 | 43.5 | 18.99 | 24 | 9" dia. orifice | f/ 10.8 | 5.4 | 10.2-44.1 |
| 17 | .79 | Aug. 1964 | 8-28-64 | 707.0 | 60 | 26.4 | 271 | 16.0 | 73.3 | 17.56 | 24 | 14.7" dia. orifice | f/ 7.4 | 12.2 | 6.8-30.5 |
| 18 | .79 | Aug. 1964 | 8-27-64 | 678.3 | 80 | 30.0 | 274 | 18.0 | 71.6 | 19.65 | 24 | 14.3" dia. orifice | f/ 10.5 | 11.9 | 10.2-33.9 |
| 19 | .46 | Aug. 1964 | 8-28-64 | 663.0 | 60 | 26.4 | 161 | 20.0 | 59.3 | 21.30 | 21 | 16.5" dia. orifice | f/ 11.4 | 5.6 | 10.2-30.5 |
| 20 | .48 | Sept. 1964 | 1-15-65 | 617.1 | 50 | 29.7 | 157 | 19.4 | 42.3 | 21.60 | 18 | 15" dia. orifice | None | - | 13.6-32.4 |
| 21 | 1.00 | Sept. 1964 | 1-14-65 | 635.9 | 50 | 19.9 | 394 | 11.1 | 107 | 12.82 | 24 | 15.5" dia. orifice | f/ -1.1 | 2.8 | 0 - 23.7 |
| 22 | .65 | Sept. 1964 | 1-15-65 | 598.1 | 60 | 44.1 | 208 | 35.2 | 62.1 | 37.32 | 18 | 15" dia. orifice | None | - | 30.6-47.5 |
| 23 | .97 | Nov. 1964 | 11-24-64 | 602.4 | 50 | 25.1 | 343 | 14.9 | 90.6 | 16.58 | 24 | 14.6" dia. orifice | f/ 4.4 | 3.5 | 3.4-30.5 |
| 24 | .39 | Sept. 1964 | 1-14-65 | 580.2 | 50 | 37.3 | 124 | 28.0 | 38.0 | 30.20 | 18 | 15" dia. orifice | None | - | 20.4-40.7 |
| 25 | .68 | Oct. 1964 | 11-23-64 | 549.0 | 50 | 27.8 | 198 | 16.6 | 33.7 | 18.27 | 24 | 15.5" dia. orifice | f/ -3.4 | 0 | 0 - 30.5 |
| 26 | .68 | Oct. 1964 | 11-24-64 | 553.9 | 50 | 28.7 | 196 | 17.7 | 34.4 | 19.93 | 18 | 14.7" dia. orifice | None | - | 10.2-33.9 |
| 27 | 1.16 | Apr. 1965 | 6- 4-65 | 477.6 | 50 | 31.6 | 426 | 22.7 | 112 | 24.31 | 24 | 15" dia. orifice | f/ 15.1 | 7.2 | 13.6-37.5 |
| 28 | .90 | Oct. 1965 | 11-19-65 | 540.6 | 60 | 24.4 | 319 | 16.4 | 84.3 | 18.00 | 24 | 15.5" dia. orifice | f/ 3.9 | 2.6 | 10.3-30.5 |
| 29 | 2.03 | Apr. 1965 | 6- 4-65 | 475.3 | 140 | 34.9 | 780 | 24.3 | 131 | 25.91 | 24 | 14.5" dia. orifice | f/ 10.8 | 1.0 | 17.0-37.3 |

a/ Gage height at bottom of four 8x8-inch portholes = 11.0 feet; pool content, 200 acre-feet.
b/ Gage height at bottom of two 8x8-inch portholes = 14.8 feet; pool content, 146 acre-feet.
c/ Gage height at bottom of four 8x8-inch portholes = 9.5 feet; pool content, 202 acre-feet.
d/ Gage height at bottom of four 8x8-inch portholes = 15.3 feet; pool content, 196 acre-feet.
e/ Eight-inch opening.
f/ Twelve-inch opening.

## SUMMARY OF DATA FOR THE 1975 WATER YEAR

The weighted-mean rainfall over the study area during the 1975 water year was 41.65 inches, or 124 percent of the 17-year (1959-75) average of 33.64 inches for the study area. Monthly rainfall ranged from 1.52 inches in January to 7.99 inches in May. Yearly mean discharge at the stream-gaging station was 61.0 $ft^3/s$, compared with the 17-year average of 36.5 $ft^3/s$. Annual runoff at the stream-gaging station was 44,150 acre-feet or 9.74 inches.

Weighted-mean rainfall for subwatershed No. 4 was 37.79 inches, or 112 percent of the 19-year (1957-75) average of 33.78 inches for the area. Inflow was 1,960 acre-feet; outflow was 1,850 acre-feet with a net change in pool contents of -19.5 acre-feet. Total runoff into site 4 during the 1975 water year was 7.00 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 at the reservoir and stream-gaging stations, and the assurance of good rainfall and runoff records for the storm periods selected. These storms will be used later in calibrating a watershed response model to show the effects of floodwater-retarding structures.

For the 1975 water year, three storm periods were selected for detailed computation. These computations include detailed time breakdown of rainfall and discharge. Hydrographs and mass curves are drawn for illustrations. The storms selected occurred Oct. 31, 1974, Nov. 23-24, 1974, and Feb. 1-2, 1975. A summary of rainfall-runoff data for the storms is shown on table 3. Computations and graphs for the storms are shown 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 | Rainfall (inches) | | | | | Runoff (inches) | Ratio runoff to rainfall | Maximum discharge ($ft^3/s$) |
|---|---|---|---|---|---|---|---|---|
| | Duration (hours) | Total | Maximum increment | | | | | |
| | | | 15-minute | 30-minute | 60-minute | | | |
| **Cow Bayou subwatershed No. 4 near Bruceville, Texas (Drainage area, 5.25 $mi^2$)** | | | | | | | | |
| Oct. 31, 1974 | 11 | 3.58 | 0.58 | 0.92 | 1.60 | 0.92 | 0.26 | 1,050 |
| Nov. 23-24, 1974 | 25 | 1.44 | .41 | .48 | .58 | .27 | .19 | 260 |
| Feb. 1-2, 1975 | 42 | 2.66 | .21 | .32 | .38 | .84 | .32 | 448 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Cow Bayou at Mooreville, Texas (Drainage area, 85.0 $mi^2$, of which 42.7 $mi^2$ is above floodwater-retarding structures)** | | | | | | | | |
| Oct. 31, 1974 | 11 | 3.25 | .39 | .52 | .89 | 1.27 | .39 | 5,800 |
| Nov. 23-24, 1974 | 22 | 1.50 | .23 | .38 | .47 | .38 | .25 | 2,580 |
| Feb. 1-2, 1975 | 41 | 2.51 | .18 | .27 | .35 | .84 | .33 | 4,330 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

# COMPILATION OF DATA

08096800 Cow Bayou subwatershed No. 4 near Bruceville, Tex.

LOCATION.--Lat 31°19'59", long 97°16'02", McLennan County, near center of dam on Foster Branch, 1.0 mile (1.6 km) upstream from South Fork Cow Bayou, and 2.1 miles (3.4 km) west of Bruceville.

DRAINAGE AREA.--5.25 mi² (13.60 km²).

PERIOD OF RECORD.--September 1956 to September 1975 (discontinued).

GAGE.--Water-stage recorder with drop-inlet structure as control. Datum of gage is 574.46 ft (175.10 m) above mean sea level (levels by Soil Conservation Service).

AVERAGE INFLOW.--19 years, 1,490 acre-ft/yr (1.84 hm³/yr), adjusted for rainfall on pool and pool losses.

AVERAGE OUTFLOW.--19 years, 1,380 acre-ft/yr (1.70 hm³/yr).

EXTREMES.--Current year: Maximum outflow, 29.4 ft³/s (0.83 m³/s) Feb. 4 (gage height, 22.25 ft or 6.782 m); no outflow for many days. Maximum inflow, 1,070 ft³/s (30.3 m³/s), average for 5-minute interval, Oct. 31, computed and adjusted as explained below; no inflow for many days.
Period of record: Maximum outflow, 2,290 ft³/s (64.9 m³/s) May 11, 1957 (gage height, 40.16 ft or 12.241 m), from rating curve extended above 35 ft³/s (0.99 m³/s) on basis of slope-area measurement of peak outflow measured below dam during time when emergency spillway was partially washed out; no outflow for many days each year. Maximum inflow, 6,900 ft³/s (195 m³/s), average for 15-minute interval, May 11, 1957, computed from change in pool contents and adjusted for outflow and rainfall on pool surface during time of peak inflow; no inflow at times.

REMARKS.--Records good. The pool is formed by a rolled earthfill dam, 1,285 ft (392 m) long. A grass sodded emergency spillway section 400 ft (120 m) wide is located at left end of dam. The gage height at crest of emergency spillway is 38.1 ft (11.61 m); prior to May 11, 1957, gage height was 37.7 ft (11.49 m) after spillway was repaired. The dam was completed in August 1956, but no appreciable storage began before Mar. 20, 1957. The outlet structure consists of a 2.5-foot (0.8-metre) square uncontrolled drop-inlet structure covered with an antivortex baffle and two 8-inch (203-millimetre) square uncontrolled portholes on the downstream face. The gage height at crest of the drop inlet is 18.0 ft (5.49 m) and at the bottom of the portholes, 14.76 ft (4.499 m). The drop-inlet structure is connected to a 17-inch-diameter (432-millimetre) outlet pipe at the base of dam. There is also an 8-inch (203-millimetre) controlled water-supply outlet at a gage height of 6.07 ft (1.850 m). The pool capacity is 1,740 acre-ft (2.15 hm³) at the spillway crest, 241 acre-ft (0.297 hm³) at the crest of the drop inlet, 145 acre-ft (0.179 hm³) at the bottom of 8-inch (203-millimetre) portholes, and 13 acre-ft (16,030 m³) at the controlled outlet pipe. The area and capacity tables are based on a sediment survey made Sept. 24, 1969. The dam was built by the Soil Conservation Service for flood control and conservation. Three rain gages (two recording and one nonrecording) are located in the watershed, one at station and two in the watershed above station to compute the weighted-mean rainfall for hydrologic studies.

REVISIONS (WATER YEARS).--WSP 1922: 1957-60. WRD Texas 1973: 1972.

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/ | 264 | 254 | 197 | 236 | 652 | 102 | 39.5 | 161 | 24.5 | 21.0 | 2.2 | 2.0 |
| Outflow | 39.7 | 403 | 217 | 237 | 646 | 102 | 32.1 | 97.3 | 60.4 | 19.3 | 0 | 0 |
| (†) | +220 | -154 | -26.0 | -8.7 | +1.7 | -11.2 | -4.8 | +56.2 | -53.5 | -14.1 | -15.5 | -9.6 |
| (††) | 6.04 | 3.67 | 2.21 | 1.53 | 3.53 | 1.58 | 1.44 | 6.80 | 3.24 | 2.74 | 2.43 | 2.58 |

CAL YR 1974: Inflow 904 Outflow 753 † +25.2 †† 32.73
WTR YR 1975: Inflow 1,960 Outflow 1,850 † -19.5 †† 37.79

PEAK INFLOW (BASE, 200 FT³/S)

| DATE | TIME | DISCHARGE | DATE | TIME | DISCHARGE |
|---|---|---|---|---|---|
| 10-31 | 0555 | *1,070 | 5-24 | 1500 | *278 |
| 11-23 | 2215 | *261 | 5-29 | 0955 | *322 |
| 2- 2 | 1310 | *458 | | | |

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.

9-220c
(Oct. 1961)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Sheet 1 of _____ Sheets

8-0968.00

Monthly and ~~annual discharge~~ yearly weighted-mean rainfall, in inches, of Cow Bayou Subwatershed No. 4 River at near Bruceville, Tex.

[Drainage area, 5.25 square miles]

16—26489-5 U. S. GOVERNMENT PRINTING OFFICE

| YEAR | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | ANNUAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1957 | 0.99 | 1.91 | 1.76 | 1.17 | 3.07 | 5.60 | 16.44 | 10.15 | 1.92 | 0.14 | 0.57 | 5.78 | 49.50 | |
| 1958 | 9.22 | 4.04 | .54 | 1.67 | 4.92 | 1.02 | 4.47 | 2.22 | 4.03 | .50 | 2.69 | 2.42 | 37.74 | |
| 1959 | .92 | 1.38 | 1.13 | .43 | 3.19 | 1.08 | 3.16 | 2.92 | 9.42 | 3.70 | 3.27 | 3.55 | 34.15 | |
| 1960 | 8.41 | 1.89 | 4.54 | 1.47 | 2.28 | .75 | 2.88 | 1.87 | 3.74 | 1.33 | 1.92 | 1.73 | 32.81 | |
| 1961 | 6.78 | 1.75 | 7.14 | 4.33 | 4.01 | 2.85 | .65 | 1.51 | 7.35 | 3.16 | .65 | 3.81 | 43.99 | |
| 1962 | 1.69 | 3.08 | 1.05 | .84 | 1.04 | .84 | 2.76 | 3.05 | 6.41 | 0 | .35 | 1.57 | 22.68 | |
| 1963 | 2.19 | 2.39 | 1.05 | .33 | .80 | .89 | 1.73 | 2.08 | 2.28 | .43 | .54 | 3.01 | 17.72 | |
| 1964 | .22 | 4.34 | 1.40 | 3.51 | 1.69 | 2.43 | 3.55 | 1.70 | 5.34 | .14 | 3.52 | 4.52 | 32.36 | |
| 1965 | 1.20 | 2.92 | 1.24 | 3.52 | 3.68 | 5.09 | .66 | 11.01 | 1.70 | 1.06 | .99 | 4.74 | 37.81 | |
| 1966 | 2.61 | 4.57 | 2.79 | 1.54 | 3.53 | 1.01 | 7.18 | 4.64 | 1.30 | .18 | 5.44 | 6.95 | 41.74 | |
| 1967 | .13 | .08 | .98 | .24 | .44 | .84 | 1.94 | 3.97 | .01 | 1.04 | 3.39 | 3.98 | 17.05 | |
| 1968 | 3.55 | 3.99 | 2.78 | 5.76 | 2.46 | 2.77 | 3.90 | 6.13 | 4.40 | 5.73 | .41 | 3.21 | 45.09 | |
| 1969 | 1.64 | 5.22 | .55 | .74 | 2.58 | 3.22 | 5.35 | 2.28 | .55 | .38 | 4.90 | 1.37 | 28.78 | |
| 1970 | 5.04 | 2.55 | 3.16 | 1.04 | 3.77 | 3.89 | 2.13 | 2.57 | .43 | .06 | 1.57 | 5.75 | 31.96 | |
| 1971 | 3.84 | .08 | .59 | .01 | 1.08 | .37 | 4.68 | 4.26 | .70 | 9.19 | 2.34 | 1.14 | 28.28 | |
| 1972 | 3.11 | 4.23 | 3.37 | 2.88 | .34 | .16 | 1.57 | 2.79 | 2.51 | 3.39 | 3.92 | 2.57 | 30.84 | |
| 1973 | 5.50 | 3.49 | 1.67 | 4.38 | 1.56 | 4.17 | 4.57 | 3.71 | 5.63 | 1.68 | .07 | 5.54 | 41.97 | |
| 1974 | 7.39 | .91 | .41 | 2.12 | .87 | .86 | 1.52 | 2.60 | .52 | 1.48 | 6.81 | 4.03 | 29.52 | |
| 1975 | 6.04 | 3.67 | 2.21 | 1.53 | 3.53 | 1.58 | 1.44 | 6.80 | 3.24 | 2.74 | 2.43 | 2.58 | 37.79 | |

9-220c
(Oct. 1961)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Sheet 1 of _____ Sheets

8-0968.00

Monthly and ~~annual discharge~~ yearly net inflow, in acre-feet, of Subwatershed No. 4 Cow Bayou ~~River~~ near Bruceville, Tex.

[Drainage area, 5.25 square miles]

16—26489-5 U. S. GOVERNMENT PRINTING OFFICE

| YEAR | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1957 | 0 | 0 | 0 | 0 | 0 | 70.1 | 2,180 | 1,960 | 68.5 | 0.8 | 0 | 11.1 | 4,290 |
| 1958 | 547 | 362 | 175 | 39.7 | 694 | 239 | 148 | 324 | 80.5 | 19.0 | 4.0 | 8.1 | 2,640 |
| 1959 | .3 | 2.5 | 3.7 | 2.5 | 7.5 | 4.6 | 11.1 | 6.5 | 282 | 37.0 | 11.4 | 14.8 | 384 |
| 1960 | 601 | 177 | 441 | 370 | 161 | 161 | 94.0 | 44.8 | 20.1 | 3.2 | .4 | 1.1 | 2,070 |
| 1961 | 120 | 32.2 | 997 | 1,120 | 665 | 207 | 40.6 | 11.6 | 174 | 37.5 | 6.1 | 20.1 | 3,430 |
| 1962 | 10.3 | 36.2 | 13.7 | 15.4 | 12.0 | 10.9 | 13.9 | 9.8 | 58.0 | 7.0 | 0 | 2.8 | 190 |
| 1963 | .7 | 1.2 | 1.2 | .5 | 1.6 | 1.2 | .9 | .6 | .2 | 0 | 0 | .7 | 8.8 |
| 1964 | 0 | 5.9 | .8 | 20.5 | 6.2 | 21.7 | 11.8 | 5.5 | 31.7 | 0 | 1.6 | 1.4 | 107 |
| 1965 | 1.1 | 2.1 | 1.8 | 51.9 | 63.6 | 352 | 126 | 1,370 | 298 | 8.8 | 1.2 | 4.8 | 2,280 |
| 1966 | 5.6 | 105 | 72.4 | 31.1 | 411 | 172 | 462 | 589 | 87.3 | 4.3 | 39.7 | 145 | 2,120 |
| 1967 | 8.7 | 4.9 | 9.4 | 4.4 | 3.0 | 3.7 | .4 | 1.6 | 0 | 2.5 | .5 | 5.7 | 44.8 |
| 1968 | 2.4 | 75.7 | 96.3 | 602 | 312 | 402 | 311 | 627 | 77.2 | 234 | 4.1 | .4 | 2,740 |
| 1969 | 3.6 | 42.8 | 25.0 | 12.7 | 84.8 | 264 | 525 | 236 | 10.4 | .2 | 3.4 | 2.7 | 1,210 |
| 1970 | 5.7 | 13.7 | 111 | 82.7 | 220 | 715 | 187 | 31.9 | 3.0 | .7 | 1.1 | 8.1 | 1,380 |
| 1971 | 23.4 | .2 | .3 | .1 | 1.9 | 1.9 | 143 | 57.6 | 1.4 | 138 | 27.0 | 2.4 | 397 |
| 1972 | 2.4 | 118 | 231 | 187 | 110 | 20.6 | 3.8 | 8.8 | 1.0 | 1.9 | .3 | 2.2 | 687 |
| 1973 | 6.5 | 47.3 | 62.6 | 241 | 160 | 355 | 408 | 203 | 472 | 25.9 | 4.4 | 4.5 | 1,990 |
| 1974 | 214 | 38.4 | 18.3 | 47.6 | 35.6 | 22.3 | 6.6 | 19.7 | 2.0 | 2.6 | 8.7 | 44.1 | 460 |
| 1975 | 264 | 254 | 197 | 236 | 652 | 102 | 39.5 | 161 | 24.5 | 21.0 | 2.2 | 2.0 | 1,960 |

9-220c
(Oct. 1951)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION



8-0968.00

Monthly and ~~annual discharge~~ yearly outflow, in acre-feet, of Subwatershed No. 4 Cow Bayou ~~River~~ at near Bruceville, Tex.

[Drainage area, 5.25 square miles]

16—26489-5 U. S. GOVERNMENT PRINTING OFFICE

| YEAR | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1957 | 0 | 0 | 0 | 0 | 0 | 0 | 727 | 2,990 | 416 | 2.6 | 3.0 | 0 | 4,140 |
| 1958 | 479 | 320 | 237 | 19.2 | 405 | 444 | 138 | 312 | 70.4 | 28.0 | 11.7 | 5.6 | 2,470 |
| 1959 | 0 | 6.0 | 0 | 3.5 | 3.2 | 6.5 | 8.0 | 0 | 193 | 3.5 | 5.0 | 2.0 | 231 |
| 1960 | 592 | 149 | 441 | 424 | 277 | 187 | 1.1 | 3.8 | 3.1 | 7.8 | 3.4 | 2.5 | 2,090 |
| 1961 | 37.5 | 45.4 | 940 | 1,130 | 649 | 237 | 32.5 | 0 | 128 | 64.7 | 8.4 | 6.9 | 3,280 |
| 1962 | 2.0 | 21.6 | 9.0 | 5.5 | 3.7 | 2.7 | .9 | 1.2 | 7.6 | 31.6 | 5.2 | 6.0 | 97.0 |
| 1963 | 3.8 | .9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.7 |
| 1964 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1965 | 0 | 0 | 0 | 0 | 2.2 | 152 | 309 | 1,060 | 582 | 4.2 | 0 | 0 | 2,110 |
| 1966 | 0 | 72.2 | 58.9 | 21.3 | 340 | 224 | 353 | 649 | 121 | .7 | 20.7 | 120 | 1,980 |
| 1967 | 14.3 | 0 | .1 | .3 | 0 | 0 | 0 | 0 | 0 | 2.2 | 1.2 | 0 | 18.1 |
| 1968 | 0 | 2.0 | 85.2 | 531 | 360 | 369 | 329 | 603 | 111 | 226 | 1.0 | 0 | 2,620 |
| 1969 | 0 | .7 | 31.0 | 4.5 | 92.1 | 228 | 509 | 264 | 6.8 | 0 | 0 | 0 | 1,140 |
| 1970 | 0 | 0 | 60.0 | 77.3 | 140 | 742 | 220 | 20.8 | 2.8 | 0 | 0 | 0 | 1,260 |
| 1971 | .1 | .1 | .1 | .1 | .1 | 2.0 | 61.2 | 49.9 | .1 | 65.2 | 55.9 | .2 | 235 |
| 1972 | .2 | 81.3 | 217 | 112 | 178 | 18.6 | .9 | .1 | 0 | 0 | 0 | 0 | 608 |
| 1973 | 0 | 0 | 36.6 | 185 | 189 | 304 | 381 | 245 | 447 | 6.1 | 23.5 | 0 | 1,820 |
| 1974 | 180 | 39.2 | 13.2 | 34.3 | 32.8 | 14.5 | 1.3 | 8.8 | 0 | 0 | 0 | 0 | 324 |
| 1975 | 39.7 | 403 | 217 | 237 | 646 | 102 | 32.1 | 97.3 | 60.4 | 19.3 | 0 | 0 | 1,850 |

TX-74a
Rev. 2-74

# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

08096800 Cow Bayou Creek subwatershed No. 4 near Bruceville, Tex. Drainage Area 5.25 mi$^2$

Continuous water-stage recorder: ratio 1:6. Date of last sediment survey Sept. 24, 1969.

Maxima: gage height, 22.25 ft; outflow, 29.4 ft$^3$/s; surface area, 53.0 acres; contents, 434 acre-feet; on Feb. 4.

Minima: gage height, 13.53 ft; surface area, 21.8 acres; contents, 121 acre-feet; on Sept. 30.

Maximum inflow, 1070 ft$^3$/s (averaged for 5-min. interval and adjusted for rainfall on pool surface) on Oct. 31.

Averages: 19 water years, (1956 - 75); inflow, 1,490 acre-feet/year; outflow, 1,380 acre-feet/year; rainfall, 33.78 inches/year.

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

| | Oct. | Nov. | Dec. | Calendar year 1974 | Jan. | Feb. | Mar. | Apr. | May. | June | July | Aug. | Sept. | Water year 1975 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Inflow 1/ | 264 | 254 | 197 | 904 | 236 | 652 | 102 | 39.5 | 161 | 24.5 | 21.0 | 2.2 | 2.0 | 1960 |
| Total Outflow | 39.7 | 403 | 217 | 753 | 237 | 646 | 102 | 32.1 | 97.3 | 60.4 | 19.3 | 0 | 0 | 1850 |
| Total Consumption | 13.2 | 13.1 | 9.9 | 181 | 10.3 | 12.4 | 13.7 | 14.8 | 20.4 | 22.3 | 20.8 | 20.3 | 16.1 | 187 |
| † | +220 | -154 | -26.0 | +25.2 | -8.7 | +1.7 | -11.2 | -4.8 | +56.2 | -53.5 | -14.1 | -15.5 | -9.6 | -19.5 |
| ‡ | 23.6 | 32.0 | 29.0 | — | 29.5 | 35.5 | 27.4 | 26.4 | 27.5 | 26.6 | 26.0 | 23.9 | 22.3 | — |
| †† | 6.04 | 3.67 | 2.21 | 32.73 | 1.53 | 3.53 | 1.58 | 1.44 | 6.80 | 3.24 | 2.74 | 2.43 | 2.58 | 37.79 |

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, 200 ft$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| Oct. 31 | 0555 | * 1070 | May 24 | 1500 | * 278 |
| Nov. 23 | 2215 | * 261 | May 29 | 0955 | * 322 |
| Feb. 2 | 1310 | * 458 | | | |

* Average for 5-minute interval

## 08097000 Cow Bayou at Mooreville, Tex.

LOCATION.--Lat 31°18'45", long 97°08'16", Falls County, on right bank at downstream side of county bridge, 500 ft (150 m) downstream from confluence of North Cow Bayou and South Cow Bayou, 0.8 mile (1.3 km) north of Mooreville, and 5.0 miles (8.0 km) northwest of Chilton.

DRAINAGE AREA.--85.0 mi² (220.2 km²).

PERIOD OF RECORD.--September 1954 to May 1958 (annual maximum only), and June 1958 to September 1975 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 399.58 ft (121.792 m) above mean sea level (levels by Soil Conservation Service). Prior to June 10, 1958, crest-stage gage at same site and datum.

AVERAGE DISCHARGE.--17 years (1958-75), 36.5 ft³/s (1.034 m³/s), 26,400 acre-ft/yr (32.6 hm³/yr).

EXTREMES.--Current year: Maximum discharge, 5,800 ft³/s (164 m³/s) Oct. 31 (gage height, 22.23 ft or 6.776 m); minimum daily, 0.34 ft³/s (0.010 m³/s) Sept. 12.
Period of record: Maximum discharge, 7,960 ft³/s (225 m³/s) May 11, 1957 (gage height, 23.88 ft or 7.279 m), and Oct. 4, 1959 (gage height, 23.86 ft or 7.273 m), from rating curve extended above 4,500 ft³/s (127 m³/s); no flow at times.
Maximum stage since at least 1900, 31 ft (9.4 m) about May 1, 1944, from information by local resident.

REMARKS.--Records good. At end of year, flow from 42.7 mi² (110.6 km²) above this station was partly controlled by 26 floodwater-retarding structures with a combined capacity of 15,510 acre-ft (19.1 hm³) below the flood-spillway crests, of which 2,760 acre-ft (3.40 hm³) is sediment-pool capacity. The capacity in these pools allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. Ten rain gages (seven standard and three recording) were operating in the basin above this station. Small diversion for irrigation above station.

REVISIONS.--WSP 2122: Drainage area.

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 | 9.7 | 427 | 91 | 64 | 56 | 53 | 18 | 9.7 | 75 | 23 | 4.5 | .66 |
| 2 | 8.7 | 233 | 87 | 71 | 1490 | 52 | 17 | 7.7 | 66 | 72 | 5.2 | .65 |
| 3 | 7.7 | 162 | 83 | 76 | 620 | 50 | 15 | 7.2 | 56 | 118 | 9.6 | .60 |
| 4 | 7.8 | 147 | 81 | 67 | 528 | 51 | 15 | 6.5 | 47 | 49 | 5.1 | .38 |
| 5 | 7.2 | 125 | 78 | 63 | 246 | 50 | 14 | 7.1 | 41 | 34 | 3.7 | .57 |
| 6 | 6.6 | 108 | 84 | 59 | 182 | 50 | 14 | 6.8 | 37 | 22 | 3.0 | .74 |
| 7 | 5.8 | 192 | 76 | 58 | 150 | 49 | 16 | 6.2 | 34 | 18 | 2.2 | .59 |
| 8 | 5.0 | 151 | 72 | 55 | 131 | 46 | 27 | 6.5 | 32 | 14 | 1.8 | .52 |
| 9 | 4.3 | 116 | 69 | 53 | 115 | 40 | 23 | 5.5 | 30 | 15 | 5.2 | .82 |
| 10 | 3.7 | 154 | 104 | 61 | 106 | 39 | 19 | 4.4 | 29 | 15 | 7.7 | .66 |
| 11 | 3.3 | 119 | 135 | 53 | 95 | 37 | 16 | 160 | 29 | 9.8 | 5.8 | .44 |
| 12 | 2.8 | 94 | 89 | 148 | 87 | 36 | 14 | 50 | 27 | 7.5 | 4.9 | .34 |
| 13 | 2.6 | 85 | 78 | 87 | 83 | 72 | 16 | 38 | 27 | 6.7 | 5.7 | .56 |
| 14 | 4.2 | 74 | 71 | 78 | 80 | 55 | 17 | 35 | 25 | 6.1 | 3.6 | 1.1 |
| 15 | 6.7 | 68 | 65 | 72 | 77 | 48 | 15 | 32 | 23 | 8.4 | 3.2 | .86 |
| 16 | 4.7 | 62 | 61 | 66 | 76 | 63 | 13 | 28 | 21 | 7.0 | 2.8 | 15 |
| 17 | 3.8 | 58 | 57 | 64 | 72 | 40 | 13 | 25 | 18 | 4.5 | 3.0 | 5.1 |
| 18 | 4.0 | 54 | 55 | 62 | 68 | 43 | 8.0 | 20 | 16 | 3.8 | 2.5 | 2.6 |
| 19 | 3.0 | 52 | 52 | 60 | 64 | 34 | 6.2 | 18 | 14 | 3.4 | 3.2 | 2.0 |
| 20 | 2.5 | 48 | 51 | 55 | 63 | 31 | 5.8 | 25 | 12 | 3.2 | 3.5 | 8.3 |
| 21 | 2.5 | 44 | 49 | 54 | 63 | 30 | 6.6 | 24 | 11 | 3.1 | 1.9 | 4.3 |
| 22 | 2.3 | 42 | 48 | 52 | 62 | 29 | 8.2 | 20 | 10 | 2.5 | 1.8 | 3.7 |
| 23 | 2.7 | 407 | 49 | 50 | 62 | 28 | 6.9 | 281 | 9.3 | 2.5 | 3.0 | 2.7 |
| 24 | 3.8 | 468 | 50 | 51 | 59 | 25 | 5.1 | 1480 | 7.4 | 2.8 | 2.7 | 2.2 |
| 25 | 5.6 | 163 | 50 | 50 | 57 | 20 | 4.1 | 315 | 62 | 3.9 | 3.2 | 2.2 |
| 26 | 4.4 | 119 | 50 | 48 | 56 | 20 | 3.6 | 145 | 60 | 4.2 | 2.9 | 2.4 |
| 27 | 3.8 | 105 | 52 | 47 | 54 | 22 | 3.4 | 107 | 44 | 4.5 | 5.3 | 2.1 |
| 28 | 5.3 | 98 | 51 | 46 | 54 | 23 | 13 | 94 | 33 | 3.6 | 6.5 | 1.8 |
| 29 | 5.0 | 103 | 53 | 46 | --- | 21 | 7.8 | 224 | 27 | 3.3 | 5.3 | 1.7 |
| 30 | 4.0 | 101 | 53 | 45 | --- | 19 | 12 | 125 | 24 | 4.2 | 2.2 | 1.4 |
| 31 | 2470 | --- | 70 | 47 | --- | 18 | --- | 92 | --- | 3.5 | 1.2 | --- |
| TOTAL | 2613.5 | 4179 | 2114 | 1908 | 4856 | 1194 | 372.7 | 3405.6 | 946.7 | 478.5 | 122.2 | 66.99 |
| MEAN | 84.3 | 139 | 68.2 | 61.5 | 173 | 38.5 | 12.4 | 110 | 31.6 | 15.4 | 3.94 | 2.23 |
| MAX | 2470 | 468 | 135 | 148 | 1490 | 72 | 27 | 1480 | 75 | 118 | 9.6 | 15 |
| MIN | 2.3 | 42 | 48 | 45 | 54 | 18 | 3.4 | 4.4 | 7.4 | 2.5 | 1.2 | .34 |
| CFSM | .99 | 1.64 | .80 | .72 | 2.04 | .45 | .15 | 1.29 | .37 | .18 | .05 | .03 |
| IN. | 1.14 | 1.83 | .93 | .84 | 2.13 | .52 | .16 | 1.49 | .41 | .21 | .05 | .03 |
| AC-FT | 5180 | 8290 | 4190 | 3780 | 9630 | 2370 | 739 | 6760 | 1880 | 949 | 242 | 133 |
| (††) | 6.10 | 4.33 | 2.38 | 1.52 | 3.69 | 1.54 | 2.01 | 7.99 | 2.63 | 2.92 | 3.31 | 3.23 |

CAL YR 1974 TOTAL 11762.02 MEAN 32.2 MAX 2470 MIN 0 CFSM .38 IN 5.15 AC-FT 23330 †† 34.80
WTR YR 1975 TOTAL 22257.19 MEAN 61.0 MAX 2470 MIN .34 CFSM .72 IN 9.74 AC-FT 44150 †† 41.65

9-220 c
(Oct. 1951)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Sheet 1 of 1 Sheets

yearly weighted-mean rainfall
Monthly and ~~annual discharge~~, in inches, of 8-0970. Cow Bayou River at near Mooreville, Tex.
[Drainage area, 85.0 square miles]

16—26489-5 U. S. GOVERNMENT PRINTING OFFICE

| YEAR | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | ANNUAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1958 | | | | | | | | | | | | | |
| 1959 | 1.30 | 1.44 | 1.23 | 0.52 | 3.23 | 0.86 | 3.33 | 2.72 | 8.85 | 3.43 | 3.70 | 2.94 | 33.55 |
| 1960 | 8.74 | 1.91 | 4.74 | 1.69 | 2.33 | .81 | 2.16 | 1.94 | 5.06 | 2.59 | 1.87 | 1.48 | 35.32 |
| 1961 | 7.41 | 1.72 | 7.46 | 4.99 | 4.05 | 2.50 | .78 | 1.43 | 7.98 | 3.09 | 1.33 | 3.99 | 46.73 |
| 1962 | 1.93 | 2.94 | 1.41 | .94 | 1.10 | .96 | 3.32 | 2.74 | 7.06 | .06 | .59 | 1.61 | 24.66 |
| 1963 | 2.48 | 2.61 | 1.24 | .39 | .90 | .98 | 1.84 | 1.99 | 2.85 | .48 | .86 | 2.56 | 19.18 |
| 1964 | .20 | 3.96 | 1.70 | 3.36 | 1.94 | 2.58 | 3.65 | 1.93 | 5.02 | .14 | 3.97 | 4.93 | 33.38 |
| 1965 | 1.30 | 2.69 | 1.32 | 3.84 | 3.56 | 4.51 | .78 | 11.05 | 1.85 | .53 | 1.77 | 5.39 | 38.59 |
| 1966 | 2.65 | 5.08 | 2.85 | 1.74 | 3.06 | 1.06 | 7.89 | 4.77 | 1.46 | .25 | 6.22 | 7.18 | 44.21 |
| 1967 | .24 | .13 | 1.26 | .37 | .53 | .86 | 2.67 | 3.70 | .09 | .67 | 3.74 | 3.40 | 17.65 |
| 1968 | 4.00 | 3.92 | 3.05 | 5.59 | 2.84 | 2.86 | 3.89 | 5.95 | 5.00 | 5.33 | .54 | 2.99 | 45.96 |
| 1969 | 1.48 | 5.28 | .67 | .97 | 2.71 | 3.75 | 5.02 | 2.27 | .62 | .26 | 3.56 | 1.50 | 28.09 |
| 1970 | 4.98 | 2.50 | 3.35 | 1.11 | 3.83 | 3.60 | 2.17 | 2.86 | .30 | .11 | 1.13 | 6.93 | 32.87 |
| 1971 | 3.65 | .11 | .73 | .02 | 1.32 | .37 | 3.72 | 3.02 | .96 | 9.59 | 2.95 | 1.20 | 27.64 |
| 1972 | 4.07 | 3.64 | 3.51 | 2.81 | .33 | .20 | 1.90 | 3.24 | 1.72 | 2.89 | 2.31 | 2.83 | 29.45 |
| 1973 | 5.18 | 3.32 | 1.79 | 4.35 | 1.52 | 4.00 | 4.09 | 3.49 | 5.97 | 1.43 | .10 | 6.04 | 41.28 |
| 1974 | 7.93 | 1.11 | .58 | 2.43 | .89 | .92 | 1.82 | 3.04 | .62 | 1.17 | 6.56 | 4.54 | 31.61 |
| 1975 | 6.10 | 4.33 | 2.38 | 1.52 | 3.69 | 1.54 | 2.01 | 7.99 | 2.63 | 2.92 | 3.31 | 3.23 | 41.65 |

9-220c
(Oct. 1951)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Sheet 1 of 1 Sheets

8-0970.00

Monthly and ~~annual discharge~~ yearly mean discharge, in ft$^3$/s, of 8-0970. Cow Bayou River at near Mooreville, Tex.
[Drainage area, 85.0 square miles]

16—26489-5 U. S. GOVERNMENT PRINTING OFFICE

| YEAR | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | ANNUAL | CAL. YR. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 1958 | | | | | | | | | | 3.15 | 1.49 | 4.89 | | |
| 1959 | 0.93 | 1.73 | 2.10 | 2.82 | 4.60 | 2.25 | 5.45 | 4.12 | 121 | 15.6 | 5.22 | 3.88 | 14.0 | |
| 1960 | 211 | 50.6 | 118 | 112 | 55.1 | 32.9 | 26.7 | 12.2 | 27.8 | 27.5 | 4.02 | .56 | 56.9 | 59.0 |
| 1961 | 81.1 | 22.6 | 300 | 354 | 226 | 65.9 | 20.7 | 7.52 | 106 | 27.8 | 6.30 | 18.4 | 103 | 70.9 |
| 1962 | 7.30 | 11.5 | 10.9 | 8.95 | 7.10 | 5.98 | 10.2 | 10.2 | 67.2 | 16.7 | .25 | .20 | 13.0 | 10.7 |
| 1963 | .19 | .89 | 1.01 | 1.43 | 1.16 | 1.16 | .86 | .06 | 0 | 0 | 0 | 1.14 | .65 | 0.58 |
| 1964 | 0 | .66 | .52 | 2.23 | 4.27 | 6.49 | 18.5 | 7.29 | 39.8 | 1.08 | .02 | .90 | 6.73 | 6.77 |
| 1965 | 0 | .73 | .96 | 28.8 | 40.4 | 91.6 | 72.2 | 357 | 89.2 | 3.75 | .46 | 11.0 | 58.3 | 68.1 |
| 1966 | 6.13 | 70.7 | 42.1 | 28.8 | 100 | 46.7 | 183 | 215 | 29.3 | 5.60 | 22.2 | 112 | 71.2 | 63.7 |
| 1967 | 15.6 | 6.45 | 6.22 | 5.26 | 4.85 | 4.35 | 4.77 | 2.56 | .14 | 0 | 1.21 | 1.49 | 4.42 | 7.79 |
| 1968 | 5.47 | 31.5 | 31.7 | 190 | 111 | 123 | 105 | 178 | 48.9 | 121 | 5.84 | 2.84 | 79.8 | 76.7 |
| 1969 | 3.06 | 8.55 | 20.4 | 7.20 | 26.0 | 74.9 | 103 | 45.6 | 5.45 | .74 | .95 | .34 | 24.6 | 24.0 |
| 1970 | 1.40 | 1.94 | 20.0 | 17.7 | 47.2 | 168 | 42.0 | 14.7 | 6.84 | .90 | .13 | 5.02 | 27.1 | 26.6 |
| 1971 | 10.6 | 3.66 | 2.78 | 2.96 | 2.98 | 1.85 | 16.0 | 10.8 | .11 | 66.5 | 28.0 | 1.55 | 12.5 | 21.0 |
| 1972 | 8.79 | 38.9 | 71.1 | 50.7 | 42.4 | 11.4 | 2.95 | 11.0 | 1.36 | 2.72 | .005 | .22 | 20.1 | 14.7 |
| 1973 | 10.3 | 24.2 | 19.6 | 70.2 | 54.8 | 107 | 93.4 | 59.4 | 136 | 8.03 | 2.11 | 4.59 | 48.9 | 55.0 |
| 1974 | 91.7 | 22.2 | 11.6 | 17.5 | 15.7 | 11.0 | 4.62 | 11.7 | 1.67 | .044 | 5.34 | 27.0 | 18.4 | 32.2 |
| 1975 | 84.3 | 139 | 68.2 | 61.5 | 173 | 38.5 | 12.4 | 110 | 31.6 | 15.4 | 3.94 | 2.23 | 61.0 | |
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TX-74a
Rev. 2-74

# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 1 near Bruceville, Tex. Drainage Area 1.51 mi²

Continuous/~~water-stage recorder~~/Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 24.95 ft; outflow, 11.4 ft³/s; surface area, 50.8 acres; contents, 343 acre-feet; on Nov. 1.

Minima: gage height, 16.35 ft; surface area, 18.4 acres; contents, 42.5 acre-feet; on Sept. 30.

Maximum inflow, -- ft³/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/ | 114 | 241 | 33.1 | 572 | 34.0 | 210 | 59.2 | 49.8 | 202 | 115 | 44.6 | 1.2 | 0 | 1,100 |
| Total Outflow | 16.7 | 325 | 30.0 | 450 | 28.5 | 210 | 51.6 | 37.2 | 180 | 113 | 48.7 | 0 | 0 | 1,040 |
| Total Consumption | 14.3 | 16.7 | 10.8 | 190 | 8.9 | 10.9 | 12.4 | 16.3 | 21.8 | 24.9 | 23.9 | 23.7 | 21.4 | 206 |
| † | +96.7 | -87.9 | -2.5 | +2.1 | 0 | -.3 | -1.0 | +2.3 | -23.4 | -15.3 | -19.2 | -17.5 | -10.8 | -78.9 |
| ‡ | 23.8 | 33.4 | 25.6 | -- | 25.5 | 30.2 | 25.4 | 25.4 | 29.0 | 26.2 | 25.2 | 22.6 | 20.4 | -- |
| †† | 6.78 | 4.29 | 2.48 | 35.97 | 1.60 | 4.06 | 1.79 | 2.67 | 9.23 | 3.50 | 3.87 | 2.72 | 5.86 | 48.85 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 2 near Bruceville, Tex. Drainage Area 4.40 mi$^2$

Continuous/~~water-stage recorder~~ Staff gage: ratio --. Date of last sediment survey --.

Maxima: gage height, 18.50 ft; outflow, 29.4 ft$^3$/s; surface area, 61.8 acres; contents, 521 acre-feet; on Nov. 1.

Minima: gage height, 8.84 ft; surface area, 22.2 acres; contents, 147 acre-feet; on Oct. 29.

Maximum inflow, -- ft$^3$/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 | 352 | 156 | 949 | 154 | 546 | 77.6 | 23.1 | 356 | 107 | 6.5 | 3.1 | 0 | 2,130 |
| Total Outflow | 72.4 | 569 | 157 | 842 | 150 | 552 | 69.4 | 14.8 | 285 | 129 | 11.2 | 0 | 0 | 2,010 |
| Total Consumption | 12.5 | 14.3 | 9.8 | 172 | 8.6 | 10.9 | 12.8 | 16.8 | 21.3 | 26.5 | 26.2 | 23.7 | 20.8 | 204 |
| † | +279 | -219 | -4.3 | +9.9 | -.2 | -4.3 | -.5 | -4.2 | +53.5 | -40.0 | -24.9 | -14.0 | -13.7 | +7.4 |
| ‡ | 22.7 | 32.6 | 28.9 | -- | 28.8 | 34.1 | 28.4 | 28.0 | 29.2 | 28.2 | 27.6 | 26.3 | 24.5 | -- |
| †† | 6.43 | 4.15 | 2.52 | 33.12 | 1.53 | 4.06 | 1.74 | 1.83 | 7.49 | 3.25 | 2.59 | 2.99 | 3.45 | 42.03 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 3 near Bruceville, Tex. Drainage Area 1.40 mi$^2$

Staff gages ~~Continuous water stage recorder~~ ratio --. Date of last sediment survey --.

Maxima: gage height, 23.24 ft; outflow, 52.7 ft$^3$/s; surface area, 28.1 acres; contents, 189 acre-feet; on Nov. 1.

Minima: gage height, 16.95 ft; surface area, 12.4 acres; contents, 64.1 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 161 | 296 | 51.9 | 626 | 39.9 | 182 | 68.7 | 35.4 | 429 | 88.5 | 176 | 4.2 | 0.8 | 1,530 |
| Total Outflow | 106 | 344 | 50.6 | 564 | 39.0 | 182 | 63.8 | 29.4 | 423 | 87.1 | 168 | 4.1 | 0 | 1,500 |
| Total Consumption | 7.9 | 6.4 | 4.5 | 97.4 | 4.2 | 5.3 | 7.7 | 9.2 | 12.0 | 12.9 | 15.8 | 13.2 | 11.0 | 110 |
| † | +56.4 | -51.8 | 0 | 3.3 | -1.2 | -.3 | -.5 | +.5 | +6.3 | -7.0 | -2.3 | -9.9 | -3.2 | -13.0 |
| ‡ | 14.6 | 15.9 | 15.5 | -- | 15.5 | 15.6 | 15.4 | 15.4 | 15.6 | 15.4 | 15.5 | 14.7 | 13.0 | -- |
| †† | 6.87 | 4.33 | 2.47 | 36.68 | 1.62 | 4.06 | 1.80 | 2.88 | 9.66 | 3.56 | 4.19 | 2.65 | 6.46 | 50.55 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 5 near Bruceville, Tex. Drainage Area 3.48 mi²

Continuous / ~~water stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 19.10 ft; outflow, 30.4 ft³/s; surface area, 17.7 acres; contents, 185 acre-feet; on Nov. 1.

Minima: gage height, 16.40 ft; surface area, 15.7 acres; contents, 140 acre-feet; on Sept. 30.

Maximum inflow, -- ft³/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/ | 57.1 | 396 | 252 | 1,010 | 228 | 479 | 163 | 74.1 | 76.9 | 62.0 | 38.0 | 4.4 | 4.1 | 1,830 |
| Total Outflow | 34.2 | 407 | 250 | 924 | 225 | 476 | 157 | 63.9 | 69.4 | 49.0 | 27.2 | 2.7 | 3.4 | 1,760 |
| Total Consumption | 10.1 | 7.7 | 5.1 | 118 | 5.2 | 5.8 | 8.9 | 11.1 | 14.7 | 17.3 | 19.6 | 15.7 | 13.5 | 134.7 |
| † | +19.1 | -14.5 | -.5 | 2.9 | -.7 | +.3 | -1.2 | -.8 | +1.0 | -1.2 | -5.6 | -12.2 | -9.6 | -26.2 |
| ‡ | 16.9 | 17.2 | 17.1 | -- | 17.2 | 17.2 | 17.1 | 17.1 | 17.1 | 17.0 | 17.0 | 16.5 | 15.9 | -- |
| †† | 4.66 | 3.00 | 1.67 | 27.21 | 1.26 | 2.81 | 1.08 | 1.20 | 5.90 | 2.33 | 2.33 | 1.44 | 2.44 | 30.12 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 6 near Bruceville, Tex. Drainage Area 1.99 mi$^2$

Continuous ~~water-stage recorder~~ Staff gages ratio --. Date of last sediment survey --.

Maxima: gage height, 22.28 ft; outflow, 30.4 ft$^3$/s; surface area, 22.8 acres; contents, 255 acre-feet; on Nov. 1.

Minima: gage height, 17.21 ft; surface area, 16.5 acres; contents, 155 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 114 | 482 | 163 | 1,010 | 143 | 297 | 86.9 | 42.2 | 241 | 63.8 | 54.7 | 0 | 0.2 | 1,690 |
| Total Outflow | 78.3 | 516 | 161 | 929 | 143 | 298 | 28.0 | 34.8 | 238 | 53.4 | 43.4 | 2.0 | 0 | 1,600 |
| Total Consumption | 9.2 | 6.6 | 5.0 | 128 | 4.3 | 5.4 | 7.4 | 9.5 | 14.1 | 16.3 | 19.7 | 15.1 | 9.2 | 122 |
| † | +36.5 | -32.6 | +1.1 | +3.9 | -2.2 | -1.0 | -.4 | +.2 | +1.2 | -1.7 | -2.0 | -8.7 | -4.5 | -14.1 |
| ‡ | 17.6 | 17.9 | 17.8 | -- | 17.8 | 18.0 | 17.7 | 17.6 | 17.9 | 17.7 | 17.6 | 17.2 | 16.7 | -- |
| †† | 5.92 | 5.13 | 2.60 | 35.43 | 1.39 | 3.43 | 1.37 | 1.53 | 7.88 | 2.78 | 4.17 | 5.79 | 3.16 | 45.15 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 7 near Bruceville, Tex. Drainage Area 5.47 mi²

Staff gages
~~Continuous water-stage recorder~~ ratio --. Date of last sediment survey --.

Maxima: gage height, 20.15 ft; outflow, 32.4 ft³/s; surface area, 85.7 acres; contents, 814 acre-feet; on Feb. 4.

Minima: gage height, 5.90 ft; surface area, 22.3 acres; contents, 103 acre-feet; on Sept. 30.

Maximum inflow, -- ft³/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/ | 350 | 878 | 215 | 3,110 | 425 | 899 | 73.8 | 4.6 | 836 | 164 | 17.2 | 6.9 | 1.1 | 3,870 |
| Total Outflow | 68.1 | 958 | 370 | 3,010 | 394 | 856 | 123 | 47.2 | 472 | 530 | 60.7 | 13.1 | 0 | 3,890 |
| Total Consumption | 22.4 | 24.0 | 14.4 | 270 | 11.6 | 17.3 | 16.8 | 20.7 | 31.2 | 35.3 | 27.1 | 21.6 | 15.7 | 258 |
| † | +281 | -81.7 | -162 | -42.6 | +25.2 | +42.8 | -58.9 | -55.0 | +364 | -394 | -64.5 | -11.5 | -11.0 | -126 |
| ‡ | 36.1 | 54.5 | 42.3 | -- | 43.1 | 61.9 | 43.1 | 38.3 | 45.9 | 41.5 | 28.8 | 24.5 | 22.7 | -- |
| †† | 5.63 | 5.38 | 2.37 | 36.41 | 1.65 | 3.67 | 1.80 | 2.41 | 8.21 | 1.95 | 2.13 | 5.92 | 1.88 | 43.00 |

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, ____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 8 near Bruceville, Tex. Drainage Area 1.69 mi$^2$

Continuous / ~~water-stage recorder~~ / Staff gages ratio --. Date of last sediment survey --.

Maxima: gage height, 23.24 ft; outflow, 11.6 ft$^3$/s; surface area, 41.0 acres; contents, 293 acre-feet; on Feb. 3.

Minima: gage height, 14.62 ft; surface area, 14.6 acres; contents, 61.7 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 193 | 392 | 170 | 1,100 | 219 | 392 | 27.1 | 14.8 | 152 | 96.3 | 6.4 | 0 | 2.6 | 1,670 |
| Total Outflow | 31.7 | 522 | 155 | 906 | 207 | 382 | 10.4 | 0 | 130 | 87.0 | .2 | 0 | 0 | 1,530 |
| Total Consumption | 25.4 | 28.6 | 18.6 | 239 | 18.3 | 22.4 | 22.1 | 22.5 | 25.5 | 27.5 | 27.7 | 28.6 | 22.5 | 290 |
| † | +151 | -149 | +1.2 | +14.7 | -2.8 | -3.3 | -2.5 | -2.2 | +13.9 | -15.1 | -15.1 | -22.1 | -16.7 | -62.7 |
| ‡ | 23.1 | 30.1 | 23.3 | -- | 23.4 | 29.5 | 23.0 | 22.5 | 23.0 | 22.9 | 21.8 | 19.1 | 15.7 | -- |
| †† | 6.77 | 3.80 | 2.56 | 36.21 | 1.76 | 3.77 | 1.50 | 2.94 | 9.09 | 1.73 | 3.47 | 4.31 | 2.47 | 44.17 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 10 near Bruceville, Tex. Drainage Area 2.84 mi$^2$

Continuous ~~water stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 22.19 ft; outflow, 28.2 ft$^3$/s; surface area, 81.6 acres; contents, 592 acre-feet; on Nov. 1.

Minima: gage height, 14.07 ft; surface area, 29.7 acres; contents, 155 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 266 | 289 | 161 | 1,040 | 202 | 387 | 54.8 | 44.8 | 460 | 177 | 175 | 10.5 | 0 | 2,230 |
| Total Outflow | 23.0 | 514 | 156 | 884 | 200 | 394 | 48.8 | 27.7 | 352 | 222 | 210 | 1.5 | 0 | 2,150 |
| Total Consumption | 20.8 | 19.4 | 10.4 | 248 | 9.3 | 14.4 | 16.8 | 20.2 | 28.4 | 34.2 | 40.8 | 31.2 | 27.0 | 273 |
| † | +243 | -228 | +1.9 | +14.0 | -2.3 | -4.8 | -5.4 | +5.4 | +113 | -68.5 | -62.1 | -14.8 | -11.0 | -33.6 |
| ‡ | 34.6 | 44.1 | 37.1 | -- | 37.3 | 42.3 | 36.5 | 36.0 | 40.0 | 38.4 | 38.1 | 33.9 | 31.0 | -- |
| †† | 6.87 | 4.33 | 2.47 | 36.68 | 1.62 | 4.06 | 1.80 | 2.88 | 9.66 | 3.56 | 4.19 | 2.65 | 6.46 | 50.55 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 11-B near Bruceville, Tex. Drainage Area 0.87 mi$^2$

Continuous water stage recorder: Staff gages ratio --. Date of last sediment survey --.

Maxima: gage height, 19.05 ft; outflow, 18.6 ft$^3$/s; surface area, 20.0 acres; contents, 100 acre-feet; on Feb. 3.

Minima: gage height, 15.59 ft; surface area, 13.9 acres; contents, 53.5 acre-feet; on Oct. 14.

Maximum inflow, -- ft$^3$/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/ | 52.7 | 291 | 57.8 | 459 | 57.9 | 191 | 19.6 | 7.7 | 198 | 22.0 | 25.8 | 3.2 | 0.5 | 927 |
| Total Outflow | 4.0 | 309 | 52.7 | 370 | 59.1 | 193 | 15.1 | 1.7 | 184 | 23.8 | 12.9 | 0 | 0 | 855 |
| Total Consumption | 9.9 | 8.0 | 6.2 | 122 | 5.5 | 6.3 | 8.4 | 10.4 | 12.3 | 15.1 | 18.3 | 9.9 | 13.4 | 124 |
| † | +46.9 | -20.4 | +2.9 | +13.2 | -4.5 | -1.6 | -1.7 | -1.3 | +12.9 | -13.7 | -3.1 | -4.5 | -9.0 | +2.9 |
| ‡ | 14.2 | 17.1 | 16.7 | -- | 16.8 | 16.9 | 16.4 | 16.2 | 16.6 | 16.4 | 16.3 | 15.2 | 14.9 | -- |
| †† | 6.80 | 3.95 | 2.61 | 36.98 | 1.54 | 4.33 | 1.66 | 2.38 | 8.48 | 2.63 | 2.20 | 1.91 | 3.82 | 42.31 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 11-C near Bruceville, Tex. Drainage Area 0.75 mi$^2$

Continuous ~~water-stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 16.71 ft; outflow, 13.3 ft$^3$/s; surface area, 27.1 acres; contents, 150 acre-feet; on Nov. 1.

Minima: gage height, 11.84 ft; surface area, 13.7 acres; contents, 52.8 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 102 | 133 | 78.5 | 401 | 61.1 | 144 | 49.1 | 11.8 | 157 | 32.5 | 62.4 | 5.7 | 0.4 | 838 |
| Total Outflow | 19.4 | 210 | 76.8 | 338 | 58.4 | 144 | 45.0 | 4.5 | 153 | 27.4 | 55.8 | 0 | 0 | 794 |
| Total Consumption | 9.3 | 7.7 | 6.1 | 105 | 5.1 | 6.3 | 7.9 | 8.9 | 12.2 | 14.2 | 15.6 | 12.8 | 11.2 | 117 |
| † | +82.0 | -78.6 | -.8 | +2.3 | -.3 | -.5 | -1.5 | +1.8 | +4.7 | -5.2 | -5.2 | -4.4 | -5.2 | -13.2 |
| ‡ | 15.7 | 17.5 | 16.4 | -- | 16.4 | 17.0 | 16.2 | 15.9 | 16.9 | 16.1 | 15.9 | 15.1 | 14.0 | -- |
| †† | 6.86 | 4.28 | 2.49 | 36.71 | 1.61 | 4.09 | 1.78 | 2.82 | 9.51 | 3.44 | 3.94 | 2.56 | 6.13 | 49.51 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 11-E near Bruceville, Tex. Drainage Area 0.59 mi$^2$

Continuous ~~water-stage recorder~~ Staff gages; ratio --. Date of last sediment survey --.

Maxima: gage height, 11.57 ft; outflow, 18.6 ft$^3$/s; surface area, 19.3 acres; contents, 101 acre-feet; on Nov. 1.

Minima: gage height, 7.02 ft; surface area, 9.2 acres; contents, 38.6 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 66.2 | 147 | 66.2 | 384 | 61.2 | 86.7 | 22.1 | 11.6 | 69.2 | 36.0 | 28.2 | 2.1 | 0.1 | 597 |
| Total Outflow | 41.5 | 170 | 64.7 | 322 | 59.5 | 87.4 | 18.0 | 5.1 | 66.6 | 29.5 | 28.3 | 0 | 0 | 571 |
| Total Consumption | 5.9 | 6.2 | 5.2 | 90.2 | 4.6 | 4.7 | 6.4 | 8.4 | 10.5 | 11.9 | 14.4 | 14.0 | 7.3 | 99.5 |
| † | +27.0 | -25.4 | -.2 | 7.2 | -.9 | -1.1 | -.6 | +1.3 | +2.3 | -3.5 | -10.7 | -8.1 | -5.3 | -25.2 |
| ‡ | 13.4 | 13.8 | 13.6 | -- | 13.6 | 13.7 | 13.4 | 13.3 | 13.5 | 13.4 | 12.7 | 11.2 | 9.7 | -- |
| †† | 6.77 | 3.80 | 2.56 | 36.21 | 1.76 | 3.77 | 1.50 | 2.94 | 9.09 | 1.73 | 3.47 | 4.31 | 2.47 | 44.17 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 12 near Bruceville, Tex. Drainage Area 1.51 mi²

Continuous water-stage recorder: Staff gages ratio --. Date of last sediment survey --.

Maxima: gage height, 19.10 ft; outflow, 3.5 ft³/s; surface area, 11.1 acres; contents, 60.8 acre-feet; on Nov. 1.

Minima: gage height, 16.55 ft; surface area, 8.2 acres; contents, 36.2 acre-feet; on Sept. 16.

Maximum inflow, -- ft³/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/ | 25.5 | 89.1 | 71.3 | 279 | 79.4 | 81.5 | 15.4 | 3.1 | 44.4 | 54.9 | 12.2 | 2.6 | 3.5 | 483 |
| Total Outflow | 12.3 | 101 | 70.7 | 246 | 78.8 | 82.2 | 12.0 | 0 | 41.6 | 50.2 | 5.2 | 0 | 0 | 454 |
| Total Consumption | 4.6 | 3.6 | 2.7 | 59.1 | 2.3 | 2.9 | 3.9 | 5.0 | 6.6 | 8.4 | 9.2 | 8.0 | 6.2 | 63.4 |
| † | +13.7 | -12.5 | -.1 | +1.8 | -.5 | -.2 | -.7 | -.2 | +2.4 | -1.9 | -.9 | -4.2 | -.5 | -5.6 |
| ‡ | 9.1 | 9.3 | 9.2 | -- | 9.2 | 9.3 | 9.0 | 9.0 | 9.1 | 9.2 | 9.0 | 8.8 | 8.4 | -- |
| †† | 6.78 | 3.86 | 2.64 | 37.03 | 1.52 | 4.40 | 1.62 | 2.26 | 8.19 | 2.40 | 1.70 | 1.72 | 3.16 | 40.25 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 17 near Bruceville, Tex. Drainage Area 0.79 mi²

Staff gages ~~Continuous / water-stage recorder~~ ratio --. Date of last sediment survey --.

Maxima: gage height, 21.96 ft; outflow, 13.8 ft³/s; surface area, 19.7 acres; contents, 165 acre-feet; on Nov. 1.

Minima: gage height, 14.56 ft; surface area, 10.0 acres; contents, 57.7 acre-feet; on Sept. 30.

Maximum inflow, -- ft³/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/ | 42.1 | 166 | 22.1 | 305 | 28.0 | 97.9 | 33.2 | 16.8 | 48.4 | 52.3 | 12.7 | 0.1 | 0.3 | 520 |
| Total Outflow | .1 | 202 | 20.4 | 245 | 25.8 | 98.3 | 29.6 | 11.7 | 45.7 | 46.5 | 4.0 | .1 | 0 | 484 |
| Total Consumption | 6.1 | 5.7 | 4.1 | 87.4 | 3.8 | 4.4 | 5.8 | 7.0 | 8.8 | 10.6 | 13.1 | 11.4 | 8.5 | 89.3 |
| † | +42.0 | -38.0 | +.1 | +2.1 | -.1 | -.5 | -.5 | -.1 | +1.2 | -1.6 | -1.9 | -8.6 | -5.3 | -13.3 |
| ‡ | 11.1 | 12.6 | 11.8 | -- | 11.8 | 12.1 | 11.7 | 11.6 | 11.6 | 11.7 | 11.6 | 11.0 | 10.3 | -- |
| †† | 6.43 | 4.15 | 2.52 | 33.12 | 1.53 | 4.06 | 1.74 | 1.83 | 7.49 | 3.25 | 2.59 | 2.99 | 3.45 | 42.03 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 18 near Bruceville, Tex. Drainage Area 0.79 mi$^2$

Continuous / ~~water-stage recorder~~ Staff gages ratio --. Date of last sediment survey --.

Maxima: gage height, 24.16 ft; outflow, 13.0 ft$^3$/s; surface area, 17.2 acres; contents, 158 acre-feet; on Nov. 1.

Minima: gage height, 16.46 ft; surface area, 10.0 acres; contents, 55.4 acre-feet; on Oct. 30.

Maximum inflow, -- ft$^3$/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/ | 102 | 45.1 | 82.0 | 292 | 40.3 | 122 | 24.5 | 14.2 | 104 | 106 | 7.8 | 0.2 | 0.2 | 648 |
| Total Outflow | 23.8 | 108 | 79.6 | 234 | 39.1 | 122 | 21.3 | 9.7 | 98.9 | 101 | 3.3 | 0 | 0 | 607 |
| Total Consumption | 6.4 | 5.5 | 3.8 | 83.6 | 3.4 | 3.7 | 5.2 | 6.4 | 8.6 | 10.3 | 11.9 | 9.2 | 8.5 | 82.9 |
| † | +77.8 | -64.5 | +.9 | +2.9 | -.8 | -.5 | -.4 | -.2 | +3.6 | -2.1 | -5.0 | -6.3 | -5.3 | -2.8 |
| ‡ | 10.3 | 11.3 | 11.2 | -- | 11.2 | 11.3 | 11.1 | 11.1 | 11.3 | 11.3 | 11.0 | 10.8 | 10.4 | -- |
| †† | 6.43 | 4.15 | 2.52 | 33.12 | 1.53 | 4.06 | 1.74 | 1.83 | 7.49 | 3.25 | 2.59 | 2.99 | 3.45 | 42.03 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 19 near Bruceville, Tex. Drainage Area 0.46 mi$^2$

Continuous / ~~water-stage recorder~~ Staff gages ratio --. Date of last sediment survey --.

Maxima: gage height, 21.62 ft; outflow, 8.80 ft$^3$/s; surface area, 13.0 acres; contents, 78.8 acre-feet; on Feb. 3.

Minima: gage height, 15.55 ft; surface area, 5.9 acres; contents, 22.3 acre-feet; on Oct. 30.

Maximum inflow, -- ft$^3$/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/ | 59.5 | 105 | 56.8 | 287 | 40.4 | 76.8 | 39.5 | 12.6 | 82.2 | 53.6 | 44.9 | 3.2 | 0 | 574 |
| Total Outflow | 16.7 | 118 | 56.0 | 256 | 39.0 | 76.8 | 36.4 | 8.0 | 81.4 | 48.7 | 39.0 | 0 | 0 | 520 |
| Total Consumption | 3.7 | 4.6 | 3.3 | 61.5 | 3.3 | 3.7 | 5.3 | 6.6 | 8.3 | 10.2 | 11.5 | 11.7 | 8.8 | 81 |
| † | +42.6 | -4.4 | -.2 | +1.6 | -.4 | +.1 | -.5 | +.6 | +1.4 | -2.0 | -1.8 | -6.2 | -3.5 | +25.7 |
| ‡ | 6.1 | 11.2 | 11.1 | -- | 11.1 | 11.2 | 11.1 | 11.0 | 11.2 | 11.1 | 11.1 | 10.6 | 9.8 | -- |
| †† | 6.87 | 4.33 | 2.47 | 36.68 | 1.62 | 4.06 | 1.80 | 2.88 | 9.66 | 3.56 | 4.19 | 2.65 | 6.46 | 50.55 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 20 near Bruceville, Tex. Drainage Area 0.48 mi²

Continuous ~~water-stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 22.23 ft; outflow, 8.3 ft³/s; surface area, 9.6 acres; contents, 65.4 acre-feet; on Feb. 3.

Minima: gage height, 16.75 ft; surface area, 5.5 acres; contents, 25.8 acre-feet; on Oct. 24.

Maximum inflow, -- ft³/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/ | 20.0 | 49.1 | 26.2 | 130 | 19.3 | 77.6 | 14.1 | 15.3 | 120 | 116 | 24.5 | 1.9 | 0.7 | 485 |
| Total Outflow | 0 | 50.2 | 24.9 | 93.1 | 18.2 | 78.4 | 12.0 | 10.9 | 106 | 122 | 22.9 | 0 | 0 | 446 |
| Total Consumption | 3.9 | 3.2 | 2.7 | 51.5 | 2.2 | 2.6 | 3.3 | 4.3 | 5.6 | 7.0 | 7.7 | 7.1 | 5.8 | 55.4 |
| † | +19.2 | -2.1 | 0 | +2.5 | -.1 | -1.0 | -.2 | +.9 | +12.3 | -10.9 | -4.4 | -3.8 | -3.8 | +6.1 |
| ‡ | 5.6 | 7.2 | 7.2 | -- | 7.2 | 7.3 | 7.1 | 7.1 | 7.4 | 7.4 | 7.1 | 6.7 | 6.3 | -- |
| †† | 6.29 | 3.70 | 2.27 | 33.96 | 1.60 | 3.58 | 1.67 | 1.40 | 6.85 | 3.46 | 2.88 | 2.53 | 2.40 | 38.63 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 21 near Bruceville, Tex. Drainage Area 1.00 mi²

Continuous / ~~water stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 16.60 ft; outflow, 13.7 ft³/s; surface area, 35.4 acres; contents, 256 acre-feet; on Feb. 2.

Minima: gage height, 10.30 ft; surface area, 18.2 acres; contents, 92.1 acre-feet; on Sept. 30.

Maximum inflow, -- ft³/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/ | 53.1 | 199 | 69.4 | 465 | 58.3 | 206 | 64.6 | 29.2 | 154 | 40.2 | 82.3 | 4.5 | 0.2 | 961 |
| Total Outflow | 10.9 | 218 | 70.2 | 369 | 54.7 | 207 | 57.9 | 18.2 | 132 | 49.8 | 75.2 | 0 | 0 | 894 |
| Total Consumption | 10.7 | 9.1 | 7.6 | 141 | 7.3 | 8.2 | 12.0 | 14.2 | 17.2 | 19.8 | 23.8 | 25.5 | 20.6 | 176 |
| † | +44.2 | -19.0 | -3.9 | +13.6 | -.7 | -.4 | -2.0 | +2.0 | +24.0 | -23.0 | -9.0 | -16.5 | -9.4 | -13.7 |
| ‡ | 19.5 | 22.1 | 22.3 | -- | 22.2 | 24.7 | 22.3 | 21.8 | 22.9 | 22.2 | 22.2 | 20.1 | 18.7 | -- |
| †† | 6.87 | 4.33 | 2.47 | 36.68 | 1.62 | 4.06 | 1.80 | 2.88 | 9.66 | 3.56 | 4.19 | 2.65 | 6.46 | 50.55 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 22 near Bruceville, Tex. Drainage Area 0.65 mi²

Continuous/~~water-stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 38.10 ft; outflow, 9.0 ft³/s; surface area, 14.1 acres; contents, 98.6 acre-feet; on Nov. 1.

Minima: gage height, 33.20 ft; surface area, 8.3 acres; contents, 42.9 acre-feet; on Oct. 28.

Maximum inflow, -- ft³/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/ | 24.7 | 192 | 28.8 | 270 | 31.5 | 101 | 18.4 | 12.8 | 75.4 | 21.4 | 19.7 | 1.6 | 0.3 | 528 |
| Total Outflow | 0 | 195 | 27.7 | 223 | 30.6 | 101 | 15.7 | 8.3 | 65.3 | 19.6 | 18.0 | 0 | 0 | 381 |
| Total Consumption | 4.5 | 5.2 | 3.8 | 68.5 | 3.4 | 4.1 | 5.3 | 6.7 | 8.6 | 10.1 | 11.0 | 9.4 | 6.9 | 79.0 |
| † | +25.4 | -4.6 | -.6 | +5.1 | -1.0 | +.1 | -1.0 | -.9 | +8.0 | -5.2 | -6.6 | -5.6 | -4.7 | +3.3 |
| ‡ | 8.6 | 12.1 | 11.4 | -- | 11.5 | 11.7 | 11.3 | 11.2 | 11.4 | 11.3 | 11.2 | 10.3 | 9.4 | -- |
| †† | 6.29 | 3.70 | 2.27 | 34.00 | 1.60 | 3.58 | 1.67 | 1.40 | 6.85 | 3.46 | 2.88 | 2.53 | 2.40 | 38.63 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 23 near Bruceville, Tex. Drainage Area 0.97 mi²

Continuous / ~~water / stage / recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 17.68 ft; outflow, 9.3 ft³/s; surface area, 20.0 acres; contents, 141 acre-feet; on Nov. 1.

Minima: gage height, 13.55 ft; surface area, 13.8 acres; contents, 70.5 acre-feet; on Oct. 28.

Maximum inflow, -- ft³/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/ | 63.8 | 42.4 | 25.4 | 190 | 30.4 | 61.2 | 17.3 | 6.5 | 24.0 | 15.0 | 18.2 | 6.2 | 5.6 | 316 |
| Total Outflow | 9.7 | 75.7 | 21.1 | 106 | 28.6 | 59.9 | 12.4 | .1 | 17.2 | 5.5 | 11.6 | 0 | 0 | 242 |
| Total Consumption | 8.0 | 8.2 | 6.5 | 116 | 5.8 | 7.5 | 9.3 | 10.6 | 12.4 | 15.5 | 15.6 | 13.8 | 11.2 | 124 |
| † | +54.0 | -36.3 | +1.4 | +10.4 | -1.9 | -.2 | -2.2 | -1.2 | +5.3 | -2.8 | -6.7 | -5.4 | -1.8 | +2.2 |
| ‡ | 14.2 | 16.4 | 16.2 | -- | 16.2 | 16.4 | 16.1 | 16.1 | 16.1 | 16.1 | 15.9 | 15.3 | 14.6 | -- |
| †† | 6.78 | 3.86 | 2.64 | 37.03 | 1.52 | 4.40 | 1.62 | 2.26 | 8.19 | 2.40 | 1.70 | 1.72 | 3.16 | 40.25 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 24 near Bruceville, Tex. Drainage Area 0.39 mi$^2$

Continuous / ~~water-stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 31.10 ft; outflow, 9.5 ft$^3$/s; surface area, 7.9 acres; contents, 60.7 acre-feet; on Nov. 1.

Minima: gage height, 26.94 ft; surface area, 5.4 acres; contents, 31.8 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 14.7 | 48.5 | 34.8 | 126 | 26.1 | 44.9 | 23.6 | 6.6 | 56.7 | 45.3 | 31.9 | 1.9 | 0.2 | 335 |
| Total Outflow | 2.4 | 51.1 | 33.8 | 88.9 | 27.4 | 42.8 | 22.3 | 4.2 | 25.9 | 64.1 | 32.9 | 0 | 0 | 307 |
| Total Consumption | 3.5 | 2.7 | 2.3 | 41.4 | 2.2 | 2.7 | 3.2 | 3.9 | 5.1 | 6.3 | 7.1 | 6.0 | 4.2 | 49.2 |
| † | +11.0 | -3.6 | -.4 | +7.9 | -2.8 | 0 | -1.3 | -.8 | +29.1 | -23.9 | -6.7 | -3.4 | -2.9 | -5.7 |
| ‡ | 6.2 | 7.0 | 7.1 | -- | 7.1 | 7.3 | 6.9 | 6.7 | 7.3 | 7.4 | 7.0 | 6.2 | 5.6 | -- |
| †† | 5.93 | 3.54 | 2.14 | 32.49 | 1.52 | 3.41 | 1.54 | 1.36 | 6.64 | 3.21 | 2.76 | 2.29 | 2.41 | 36.75 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 25 near Bruceville, Tex. Drainage Area 0.68 mi$^2$

Continuous ~~water stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 17.60 ft; outflow, 6.3 ft$^3$/s; surface area, 9.9 acres; contents, 42.7 acre-feet; on Nov. 1.

Minima: gage height, 15.45 ft; surface area, 5.7 acres; contents, 25.9 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 15.6 | 60.9 | 27.2 | 196 | 25.8 | 55.3 | 13.9 | 7.4 | 35.0 | 21.7 | 19.5 | 0.5 | 1.7 | 284 |
| Total Outflow | 10.7 | 62.9 | 26.1 | 159 | 25.1 | 54.3 | 11.4 | 4.0 | 30.6 | 17.9 | 12.2 | 0 | 0 | 255 |
| Total Consumption | 4.7 | 3.5 | 2.5 | 51.2 | 2.0 | 2.7 | 3.7 | 4.4 | 6.1 | 7.5 | 9.1 | 6.1 | 5.9 | 58.2 |
| † | +3.2 | -3.5 | -.3 | +1.0 | -.5 | +.2 | -.5 | -.2 | +2.2 | -2.2 | -.3 | -4.8 | -3.0 | -9.7 |
| ‡ | 8.2 | 8.6 | 8.3 | -- | 8.4 | 8.5 | 8.3 | 8.1 | 8.3 | 8.2 | 8.2 | 7.2 | 6.2 | -- |
| †† | 4.94 | 3.11 | 1.81 | 28.57 | 1.28 | 3.06 | 1.14 | 1.40 | 6.27 | 2.24 | 2.16 | 1.40 | 2.58 | 31.39 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 26 near Bruceville, Tex. Drainage Area 0.68 mi$^2$

Continuous / ~~water-stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 20.73 ft; outflow, 9.0 ft$^3$/s; surface area, 10.8 acres; contents, 62.0 acre-feet; on Feb. 3.

Minima: gage height, 16.61 ft; surface area, 5.6 acres; contents, 27.4 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 27.7 | 150 | 38.6 | 361 | 31.5 | 118 | 22.3 | 4.4 | 33.5 | 22.9 | 16.5 | 1.6 | 0.7 | 468 |
| Total Outflow | 27.7 | 145 | 38.3 | 321 | 30.9 | 118 | 20.3 | 1.2 | 26.8 | 18.9 | 12.3 | 0 | 0 | 439 |
| Total Consumption | 4.6 | 4.2 | 3.0 | 53.4 | 2.5 | 2.7 | 3.8 | 4.5 | 5.9 | 7.0 | 8.4 | 6.9 | 4.2 | 57.7 |
| † | -1.7 | +2.4 | -1.7 | +1.7 | -1.1 | -.4 | -1.1 | -.6 | +4.4 | -2.3 | -2.8 | -4.6 | -2.3 | -11.8 |
| ‡ | 7.8 | 8.5 | 8.0 | -- | 7.9 | 8.5 | 7.7 | 7.5 | 7.7 | 7.7 | 7.6 | 6.8 | 6.0 | -- |
| †† | 4.94 | 3.11 | 1.81 | 28.59 | 1.28 | 3.06 | 1.14 | 1.40 | 6.27 | 2.24 | 2.16 | 1.40 | 2.58 | 31.39 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 27 near Bruceville, Tex. Drainage Area 1.16 mi$^2$

Continuous water-stage recorder ratio --. Date of last sediment survey --.

Staff gages

Maxima: gage height, 24.84 ft; outflow, 22.6 ft$^3$/s; surface area, 28.7 acres; contents, 169 acre-feet; on Nov. 1.

Minima: gage height, 20.50 ft; surface area, 18.0 acres; contents, 66.4 acre-feet; on Oct. 24.

Maximum inflow, -- ft$^3$/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/ | 81.6 | 114 | 9.8 | 284 | 11.2 | 125 | 14.4 | 13.5 | 14.5 | 9.1 | 14.3 | 0.1 | 3.8 | 411 |
| Total Outflow | 0 | 149 | 6.7 | 157 | 5.6 | 123 | 7.0 | 1.5 | 8.5 | 1.0 | 1.0 | 0 | 0 | 303 |
| Total Consumption | 13.3 | 12.9 | 9.7 | 179 | 8.3 | 9.9 | 12.2 | 14.9 | 18.4 | 21.8 | 26.3 | 25.5 | 18.4 | 192 |
| † | +78.8 | -36.4 | -1.2 | +11.1 | 0 | -.5 | -1.9 | +.2 | +3.9 | -8.2 | -4.4 | -13.9 | -9.2 | +7.2 |
| ‡ | 18.5 | 24.9 | 24.3 | -- | 24.3 | 24.8 | 24.3 | 24.1 | 24.2 | 23.7 | 23.7 | 22.0 | 20.5 | -- |
| †† | 6.08 | 5.38 | 2.71 | 36.42 | 1.41 | 3.51 | 1.41 | 1.57 | 8.11 | 2.84 | 4.38 | 6.29 | 3.24 | 46.93 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 28 near Bruceville, Tex. Drainage Area 0.90 mi$^2$

Continuous water-stage recorder: Staff gages ratio --. Date of last sediment survey --.

Maxima: gage height, 18.16 ft; outflow, 13.3 ft$^3$/s; surface area, 21.6 acres; contents, 118 acre-feet; on Feb. 3.

Minima: gage height, 13.79 ft; surface area, 12.0 acres; contents, 44.2 acre-feet; on Sept. 30.

Maximum inflow, -- ft$^3$/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/ | 36.7 | 57.8 | 37.4 | 256 | 38.3 | 95.2 | 14.5 | 1.1 | 83.4 | 3.4 | 11.1 | 4.6 | 2.2 | 387 |
| Total Outflow | 19.2 | 66.1 | 33.9 | 144 | 35.1 | 93.9 | 9.4 | 0 | 69.9 | 3.0 | 0 | 0 | 0 | 330 |
| Total Consumption | 10.2 | 9.6 | 7.4 | 146 | 7.3 | 7.8 | 9.8 | 8.7 | 14.4 | 14.4 | 23.2 | 18.2 | 12.3 | 143 |
| † | +17.2 | -11.8 | -.8 | +6.4 | -1.8 | -1.4 | -2.9 | -5.2 | +11.3 | -12.4 | -10.1 | -12.2 | -8.3 | -38.4 |
| ‡ | 17.3 | 17.8 | 17.7 | -- | 17.7 | 17.8 | 17.5 | 17.1 | 17.4 | 17.2 | 16.6 | 15.2 | 13.1 | -- |
| †† | 6.01 | 4.08 | 2.09 | 35.70 | 1.58 | 3.37 | 1.26 | 1.68 | 8.34 | 1.17 | 1.44 | 1.12 | 1.77 | 33.91 |

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$^3$/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

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# UNITED STATES DEPARTMENT OF THE INTERIOR
# GEOLOGICAL SURVEY - TEXAS DISTRICT

## WATER BUDGET OF POOL

### ANNUAL SUMMARY

1975 WATER YEAR

Cow Bayou Creek subwatershed No. 29 near Bruceville, Tex. Drainage Area 2.03 mi²

Continuous ~~water-stage recorder~~ Staff gages: ratio --. Date of last sediment survey --.

Maxima: gage height, 28.50 ft; outflow, 18.4 ft³/s; surface area, 50.1 acres; contents, 338 acre-feet; on Feb. 3.

Minima: gage height, 15.34 ft; surface area, 6.7 acres; contents, 29.7 acre-feet; on Oct. 30.

Maximum inflow, -- ft³/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/ | 46.4 | 218 | 19.6 | 381 | 23.6 | 90.0 | 11.2 | 0.2 | 122 | 4.5 | 11.3 | 0 | 0.8 | 548 |
| Total Outflow | 0 | 98.2 | 2.6 | 188 | 4.0 | 75.8 | 0 | 0 | 27.2 | 0.8 | 0 | 0 | 0 | 209 |
| Total Consumption | 14.4 | 29.9 | 30.7 | 157 | 27.6 | 28.7 | 35.2 | 32.5 | 38.1 | 57.0 | 49.7 | 35.3 | 21.3 | 400 |
| † | +37.7 | +99.1 | -8.8 | +72.8 | -4.2 | -6.1 | -21.3 | -29.2 | +74.1 | -50.9 | -35.6 | -33.8 | -18.8 | +2.2 |
| ‡ | 7.8 | 26.0 | 29.0 | -- | 29.1 | 30.9 | 26.1 | 22.4 | 24.6 | 26.5 | 21.6 | 15.7 | 11.5 | -- |
| †† | 6.01 | 4.08 | 2.09 | 35.70 | 1.58 | 3.37 | 1.26 | 1.68 | 8.34 | 1.17 | 1.44 | 1.12 | 1.77 | 33.91 |

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, _____ ft³/s)

| Date | Time | Discharge | Date | Time | Discharge |
|---|---|---|---|---|---|
| | | | | | |

Form A-88
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UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY-AUSTIN DISTRICT



RAINFALL DATA SUMMARY

STUDY AREA Cow Bayou

1975 WATER YEAR

RAIN GAGES

| Date of storm | 1-S | 2-S | 3-R | 4-S | 5-S | 6-R | 7-S | 8-S | 9-S | 10-R | | | | | | | | | | BY V RNM EEW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight factor | .135 | .096 | .076 | .139 | .062 | .115 | .167 | .057 | .032 | .121 | | | | | | | | | | |
| 1974 | | | | | | | | | | | | | | | | | | | | |
| Oct. 14 | .92 | .82 | .87 | .72 | .68 | .76 | .85 | 1.00 | .76 | .57 | | | | | | | | | | |
| 24 | .32 | .30 | .29 | .37 | .31 | .27 | .27 | .23 | .20 | .24 | | | | | | | | | | |
| 28 | .18 | .17 | .16 | .19 | .41 | .35 | .35 | .30 | .27 | .12 | | | | | | | | | | |
| 30 | 1.50 | 1.42 | 1.37 | .42 | 1.95 | 1.68 | 1.67 | 1.43 | 1.27 | .27 | | | | | | | | | | |
| 31 | 3.95 | 3.72 | 3.60 | 5.08 | 3.42 | 2.95 | 2.94 | 2.51 | 2.23 | 3.28 | | | | | | | | | | |
| Oct. totals | 6.87 | 6.43 | 6.29 | 6.78 | 6.77 | 6.01 | 6.08 | 5.47 | 4.73 | 4.48 | | | | | | | | | | |
| WMR= 6.10 | | | | | | | | | | | | | | | | | | | | |
| Nov. 3 | — | — | — | .02 | .08 | .16 | .08 | .07 | .09 | .02 | | | | | | | | | | |
| 4 | .90 | .61 | .31 | .32 | .28 | .53 | .26 | .22 | .31 | .37 | | | | | | | | | | |
| 6 | .08 | .08 | .07 | — | .10 | .08 | .10 | .10 | .10 | — | | | | | | | | | | |
| 7 | .99 | .99 | .87 | 1.07 | 1.41 | 1.15 | 1.38 | 1.46 | 1.50 | .87 | | | | | | | | | | |
| 8 | .02 | .02 | .02 | — | — | — | — | — | — | — | | | | | | | | | | |
| 9 | .15 | .15 | .13 | — | — | — | — | — | — | — | | | | | | | | | | |
| 10 | .40 | .40 | .35 | .51 | — | — | — | — | — | .41 | | | | | | | | | | |
| 23 | .86 | 1.18 | 1.34 | .92 | 1.21 | 1.76 | 2.90 | 3.27 | 4.52 | .66 | | | | | | | | | | |
| 24 | .14 | .19 | .21 | .45 | .08 | .12 | .20 | .22 | .31 | .32 | | | | | | | | | | |
| 29 | .79 | .53 | .40 | .57 | .64 | .28 | .46 | .60 | .45 | .27 | | | | | | | | | | |
| Nov. totals | 4.33 | 4.15 | 3.70 | 3.86 | 3.80 | 4.08 | 5.38 | 5.94 | 7.28 | 2.92 | | | | | | | | | | |
| WMR = 4.33 | | | | | | | | | | | | | | | | | | | | |
| Dec. 5 | .29 | .30 | .27 | .19 | .21 | .16 | .20 | .17 | .19 | .12 | | | | | | | | | | |
| 10 | 1.05 | 1.08 | .97 | 1.13 | 1.10 | .85 | 1.04 | .92 | .99 | .72 | | | | | | | | | | |
| 24 | .24 | .25 | .22 | .28 | .19 | .18 | .24 | .20 | .23 | .13 | | | | | | | | | | |
| 25 | .02 | .02 | .02 | — | — | — | — | — | — | — | | | | | | | | | | |
| 26 | .23 | .24 | .21 | .30 | .25 | .23 | .31 | .26 | .29 | .14 | | | | | | | | | | |
| 27 | .09 | .09 | .08 | .18 | .19 | .16 | .22 | .22 | .21 | .12 | | | | | | | | | | |
| 28 | .06 | .05 | .05 | .09 | .06 | .05 | .07 | .07 | .06 | .06 | | | | | | | | | | |
| 30 | .25 | .25 | .23 | .24 | .33 | .27 | .37 | .38 | .35 | .16 | | | | | | | | | | |
| 31 | .24 | .24 | .22 | .23 | .23 | .19 | .26 | .27 | .25 | .15 | | | | | | | | | | |
| Dec. totals | 2.47 | 2.52 | 2.27 | 2.64 | 2.56 | 2.09 | 2.71 | 2.49 | 2.57 | 1.60 | | | | | | | | | | |
| WMR = 2.38 | | | | | | | | | | | | | | | | | | | | |
| Cal. yr. totals | 36.68 | 33.12 | 34.00 | 37.03 | 36.21 | 35.70 | 36.42 | 36.69 | 37.80 | 26.47 | | | | | | | | | | |
| Cal. yr. WMR | 34.80 | | | | | | | | | | | | | | | | | | | |

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UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY-AUSTIN DISTRICT



RAINFALL DATA SUMMARY

STUDY AREA Cow Bayou

1975 WATER YEAR

RAIN GAGES

| Date of storm | 1-S | 2-S | 3-R | 4-S | 5-S | 6-R | 7-S | 8-S | 9-S | 10-R | | | | | | | | | | By: V; RWM; EEW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1975 | | | | | | | | | | | | | | | | | | | | |
| Jan. 1 | .03 | .03 | .03 | — | .06 | .05 | .07 | .07 | .06 | — | | | | | | | | | | |
| 2 | .31 | .31 | .28 | .29 | .33 | .27 | .37 | .38 | .35 | .19 | | | | | | | | | | |
| 9 | .34 | .32 | .37 | .20 | .35 | .35 | .25 | .33 | .32 | .18 | | | | | | | | | | |
| 10 | — | — | — | .02 | — | — | — | — | — | .02 | | | | | | | | | | |
| 11 | .53 | .50 | .57 | .59 | .66 | .66 | .46 | .62 | .60 | .52 | | | | | | | | | | |
| 12 | .25 | .23 | .27 | .35 | .14 | .14 | .10 | .13 | .13 | .31 | | | | | | | | | | |
| 17 | .02 | .03 | — | .03 | .02 | — | .02 | .03 | .03 | — | | | | | | | | | | |
| 24 | .05 | .03 | — | .04 | .08 | — | .03 | .03 | .02 | — | | | | | | | | | | |
| 30 | .03 | .03 | .03 | — | .10 | .09 | .09 | .10 | .09 | — | | | | | | | | | | |
| 31 | .06 | .05 | .05 | — | .02 | .02 | .02 | .02 | .02 | — | | | | | | | | | | |
| Jan. totals | 1.62 | 1.53 | 1.60 | 1.52 | 1.76 | 1.58 | 1.41 | 1.68 | 1.62 | 1.22 | | | | | | | | | | |
| WMR = 1.52 | | | | | | | | | | | | | | | | | | | | |
| Feb. 1 | .93 | .89 | .81 | .87 | .81 | .75 | .73 | .80 | .73 | .58 | | | | | | | | | | |
| 2 | 2.16 | 2.07 | 1.89 | 2.28 | 2.06 | 1.92 | 1.88 | 2.04 | 1.86 | 1.53 | | | | | | | | | | |
| 3 | .73 | .70 | .64 | .91 | .68 | .63 | .62 | .67 | .61 | .61 | | | | | | | | | | |
| 15 | .05 | .02 | .02 | .05 | .05 | .02 | .09 | .20 | .13 | — | | | | | | | | | | |
| 22 | .07 | .14 | .08 | — | — | — | — | — | — | — | | | | | | | | | | |
| 23 | .12 | .24 | .14 | .29 | .17 | .05 | .19 | .09 | .16 | — | | | | | | | | | | |
| Feb. totals | 4.06 | 4.06 | 3.58 | 4.40 | 3.77 | 3.37 | 3.51 | 3.80 | 3.49 | 2.72 | | | | | | | | | | |
| WMR = 3.69 | | | | | | | | | | | | | | | | | | | | |
| March 3 | .03 | .04 | .03 | — | — | — | — | — | — | — | | | | | | | | | | |
| 4 | .04 | .06 | .05 | .08 | .06 | .02 | .09 | .11 | .12 | — | | | | | | | | | | |
| 9 | .05 | .05 | .05 | — | .08 | .08 | .08 | .12 | .11 | — | | | | | | | | | | |
| 13 | .92 | .86 | .87 | .76 | .87 | .82 | .80 | 1.22 | 1.14 | .55 | | | | | | | | | | |
| 15 | .58 | .54 | .55 | .58 | .11 | .10 | .10 | .15 | .14 | .42 | | | | | | | | | | |
| 17 | .06 | .06 | .06 | .07 | .25 | .24 | .24 | .36 | .33 | .05 | | | | | | | | | | |
| 28 | .12 | .13 | .06 | .13 | .13 | — | .10 | .07 | .05 | — | | | | | | | | | | |
| March totals | 1.80 | 1.74 | 1.67 | 1.62 | 1.50 | 1.26 | 1.41 | 2.03 | 1.89 | 1.02 | | | | | | | | | | |
| WMR = 1.54 | | | | | | | | | | | | | | | | | | | | |
| Apr. 7 | .60 | .44 | .30 | .49 | .60 | .33 | .29 | .34 | .29 | .30 | | | | | | | | | | |
| 8 | .60 | .44 | .30 | .45 | .60 | .33 | .29 | .34 | .29 | .27 | | | | | | | | | | |
| 13 | .29 | .48 | .40 | .50 | .46 | .37 | .32 | .40 | .46 | .38 | | | | | | | | | | |
| 28 | 1.25 | .42 | .36 | .82 | .57 | .29 | .30 | .73 | .80 | .23 | | | | | | | | | | |
| 29 | .14 | .05 | .04 | — | .53 | .27 | .28 | .68 | .75 | — | | | | | | | | | | |
| 30 | — | — | — | — | .18 | .09 | .09 | .23 | .25 | — | | | | | | | | | | |

Form A-88
Rev. 1-63

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY-AUSTIN DISTRICT

RAINFALL DATA SUMMARY

STUDY AREA Cow Bayou — 1975 WATER YEAR

RAIN GAGES

| Date of storm | 1-S | 2-S | 3-R | 4-S | 5-S | 6-R | 7-S | 8-S | 9-S | 10-R | | | | | | | | | 5y V / RVM / EGW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apt. totals | 2.88 | 1.83 | 1.40 | 2.26 | 2.94 | 1.68 | 1.57 | 2.72 | 2.84 | 1.18 | | | | | | | | | |
| WMR = 2.01 | | | | | | | | | | | | | | | | | | | |
| May 4 | — | — | — | — | .09 | .06 | .06 | .09 | .06 | — | | | | | | | | | |
| 5 | .23 | .19 | .08 | .18 | .09 | .06 | .06 | .09 | .06 | .07 | | | | | | | | | |
| 6 | .20 | .17 | .07 | .08 | .20 | .13 | .14 | .20 | .14 | .03 | | | | | | | | | |
| 11 | .69 | .35 | .34 | 2.15 | 1.58 | 2.23 | 1.02 | 1.94 | 2.01 | .65 | | | | | | | | | |
| 13 | .51 | .26 | .25 | .20 | .10 | .14 | .06 | .12 | .13 | .06 | | | | | | | | | |
| 14 | .04 | .02 | .02 | .46 | .02 | .03 | .01 | .03 | .03 | .14 | | | | | | | | | |
| 15 | .06 | .06 | .08 | .05 | .14 | .04 | .06 | .09 | .07 | .03 | | | | | | | | | |
| 16 | — | — | — | — | .22 | .06 | .09 | .13 | .10 | — | | | | | | | | | |
| 19 | .39 | .37 | .48 | .13 | .36 | .10 | .15 | .22 | .17 | .08 | | | | | | | | | |
| 20 | .26 | .26 | .33 | .73 | 1.33 | .37 | .55 | .83 | .63 | .45 | | | | | | | | | |
| 23 | 3.92 | 2.65 | 2.53 | 2.29 | 2.23 | 2.22 | 2.76 | 2.19 | 2.30 | 2.28 | | | | | | | | | |
| 24 | 2.26 | 1.53 | 1.46 | 1.11 | 1.49 | 1.49 | 1.85 | 1.47 | 1.54 | 1.10 | | | | | | | | | |
| 28 | — | — | — | .05 | .31 | .35 | .32 | .19 | .27 | .06 | | | | | | | | | |
| 29 | 1.10 | 1.63 | 1.21 | .76 | .93 | 1.06 | .98 | .57 | .83 | .84 | | | | | | | | | |
| May totals | 9.66 | 7.49 | 6.85 | 8.19 | 9.09 | 8.34 | 8.11 | 8.16 | 8.34 | 5.79 | | | | | | | | | |
| WMR = 7.99 | | | | | | | | | | | | | | | | | | | |
| June 9 | .13 | .09 | .07 | .07 | .08 | .03 | .11 | .08 | .10 | — | | | | | | | | | |
| 10 | .14 | .09 | .07 | .08 | .08 | .03 | .11 | .08 | .11 | — | | | | | | | | | |
| 22 | .05 | .05 | .05 | — | — | — | — | — | — | — | | | | | | | | | |
| 25 | 2.44 | 1.45 | 2.20 | 1.68 | 1.34 | .64 | 1.51 | 1.22 | 2.23 | 1.06 | | | | | | | | | |
| 27 | .80 | 1.57 | 1.07 | .56 | .23 | .47 | 1.11 | .90 | 1.64 | 1.12 | | | | | | | | | |
| 28 | — | — | — | .01 | — | — | — | — | — | .02 | | | | | | | | | |
| June totals | 3.56 | 3.25 | 3.46 | 2.40 | 1.73 | 1.17 | 2.84 | 2.28 | 4.08 | 2.20 | | | | | | | | | |
| WMR = 2.63 | | | | | | | | | | | | | | | | | | | |
| July 1 | .10 | .21 | .14 | .04 | .21 | .44 | 1.04 | .84 | 1.53 | .08 | | | | | | | | | |
| 2 | 1.91 | .38 | .83 | .90 | .09 | .03 | .07 | .02 | .05 | 1.01 | | | | | | | | | |
| 3 | — | — | — | .14 | — | — | — | — | — | .16 | | | | | | | | | |
| 4 | .83 | .17 | .36 | .40 | 2.41 | .79 | 1.81 | .40 | 1.30 | .45 | | | | | | | | | |
| 9 | .03 | .44 | .61 | .03 | — | — | — | — | — | .31 | | | | | | | | | |
| 12 | .02 | .38 | .53 | .01 | — | — | — | — | — | .12 | | | | | | | | | |
| 15 | .01 | .11 | .16 | .01 | .35 | .13 | .96 | 1.04 | .69 | .04 | | | | | | | | | |
| 25 | 1.29 | .90 | .25 | .17 | .41 | .05 | .50 | .13 | .19 | .10 | | | | | | | | | |
| July totals | 4.19 | 2.59 | 2.88 | 1.70 | 3.47 | 1.44 | 4.38 | 2.43 | 3.76 | 2.27 | | | | | | | | | |
| WMR = 2.92 | | | | | | | | | | | | | | | | | | | |

Form A-88
Rev. 1-63

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY-AUSTIN DISTRICT



RAINFALL DATA SUMMARY

STUDY AREA Cow Bayou

1975 WATER YEAR

RAIN GAGES

| Date of storm | 1-S | 2-S | 3-R | 4-S | 5-S | 6-R | 7-S | 8-S | 9-S | 10-R | | | | | | | | | | By / RNM / EEW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug. 1 | .36 | .25 | .23 | — | .04 | .04 | .05 | .26 | .12 | — | | | | | | | | | | |
| 2 | 1.40 | .95 | .89 | .17 | .29 | .29 | .36 | 1.87 | .90 | .31 | | | | | | | | | | |
| 9 | .04 | 1.53 | .68 | .58 | .25 | .25 | 3.96 | 3.62 | 3.00 | .50 | | | | | | | | | | |
| 22 | .06 | .04 | .05 | — | .35 | .05 | .08 | .61 | .20 | — | | | | | | | | | | |
| 23 | .17 | .13 | .15 | — | .41 | .06 | .08 | .71 | .22 | — | | | | | | | | | | |
| 24 | — | — | — | .14 | — | — | — | — | — | .04 | | | | | | | | | | |
| 27 | .11 | .09 | .10 | .21 | .76 | .11 | .45 | .23 | .24 | .06 | | | | | | | | | | |
| 28 | .51 | — | .43 | .62 | 2.21 | .32 | 1.31 | .67 | .70 | .41 | | | | | | | | | | |
| Aug. totals | 2.65 | 2.99 | 2.53 | 1.72 | 4.31 | 1.12 | 6.29 | 7.97 | 5.38 | 1.32 | | | | | | | | | | |
| WMR = 3.31 | | | | | | | | | | | | | | | | | | | | |
| Sept. 5 | 2.28 | .44 | .17 | — | — | — | — | — | — | — | | | | | | | | | | |
| 8 | .40 | .08 | .03 | — | — | — | — | — | — | — | | | | | | | | | | |
| 9 | — | — | — | .26 | .04 | — | — | — | — | .26 | | | | | | | | | | |
| 16 | 1.73 | 2.02 | 1.62 | 2.06 | 1.35 | 1.37 | 2.30 | 1.12 | 1.42 | 1.62 | | | | | | | | | | |
| 20 | .99 | .44 | .28 | .52 | .76 | .28 | .66 | .57 | 1.29 | .35 | | | | | | | | | | |
| 21 | 1.06 | .47 | .30 | .32 | .32 | .12 | .28 | .24 | .55 | .21 | | | | | | | | | | |
| Sept. totals | 6.46 | 3.45 | 2.40 | 3.16 | 2.47 | 1.77 | 3.24 | 1.93 | 3.26 | 2.44 | | | | | | | | | | |
| WMR = 3.23 | | | | | | | | | | | | | | | | | | | | |
| Water yr. totals | 49.36 | 40.89 | 37.59 | 40.25 | 42.98 | 32.80 | 45.84 | 45.72 | 48.16 | 29.16 | | | | | | | | | | |
| Water yr. WMR | 40.81 | | | | | | | | | | | | | | | | | | | |

TX-64
1-69

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**GEOLOGICAL SURVEY - TEXAS DISTRICT**

Sheet 1 of 2

## INFLOW AND OUTFLOW COMPUTATIONS

Storm period Oct. 31, 1974

08-0968.00 Cow Bayou Creek subwatershed No. 4 near Bruceville, Tex. D.A. 5.25 sq mi

| Date and time | Gage height | Storage | Time int. | Change in storage | | Mean G. Ht. | Outflow | Total inflow | Rainfall on Pool | | | | Net Inflow | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | area | Storage | | Rate | | | Acc |
| | ft | ac-ft | hrs | ac-ft | cfs | ft | cfs | cfs | in | ac | ac-ft | cfs | cfs | in/hr | in | in |
| Oct. 31 | | | | | | | | | | | | | | | | |
| 0000 | 14.13 | 134.84 | — | — | — | — | — | — | | | | | | | | |
| 0400 | 14.31 | 139.09 | 4.0 | +4.25 | 12.8 | 14.22 | 0 | 12.8 | .84 | 23.6 | 1.65 | 5.0 | 7.8 | .0023 | .0092 | .0092 |
| 30 | 14.38 | 140.77 | .50 | +1.68 | 40.7 | 14.34 | 0 | 40.7 | .01 | 24.0 | .02 | .5 | 40.2 | .0119 | .0060 | .0152 |
| 0500 | 14.60 | 146.14 | .50 | +5.37 | 130 | 14.49 | 0 | 130 | .29 | 24.4 | .59 | 14.3 | 116 | .0342 | .0171 | .0323 |
| 05 | 14.72 | 149.13 | .083 | +2.99 | 434 | 14.66 | 0 | 434 | .03 | 24.9 | .06 | 8.7 | 425 | .1254 | .0104 | .0427 |
| 10 | 14.84 | 152.17 | | +3.04 | 441 | 14.75 | 0 | 441 | .05 | 25.2 | .11 | 16.0 | 425 | .1254 | .0104 | .0531 |
| 15 | 15.00 | 156.28 | | +4.11 | 597 | 14.92 | .06 | 597 | .10 | 25.7 | .21 | 30.5 | 566 | .1670 | .0139 | .0670 |
| 20 | 15.18 | 161.00 | | +4.72 | 685 | 15.09 | .34 | 685 | .02 | 26.2 | .04 | 5.8 | 679 | .2003 | .0166 | .0836 |
| 25 | 15.38 | 166.36 | | +5.36 | 778 | 15.28 | .82 | 779 | .08 | 26.7 | .18 | 26.1 | 753 | .2221 | .0184 | .1020 |
| 30 | 15.59 | 172.10 | | +5.74 | 833 | 15.48 | 1.5 | 834 | .21 | 27.3 | .48 | 69.7 | 764 | .2254 | .0187 | .1207 |
| 35 | 15.81 | 178.24 | | +6.14 | 891 | 15.70 | 2.5 | 894 | .08 | 28.0 | .19 | 27.6 | 866 | .2555 | .0212 | .1419 |
| 40 | 16.04 | 184.83 | | +6.59 | 957 | 15.92 | 3.3 | 960 | .10 | 28.7 | .24 | 34.8 | 925 | .2729 | .0227 | .1646 |
| 45 | 16.27 | 191.57 | | +6.74 | 979 | 16.16 | 4.0 | 983 | .02 | 29.4 | .05 | 7.3 | 976 | .2879 | .0239 | .1885 |
| 50 | 16.50 | 198.47 | | +6.90 | 1000 | 16.38 | 4.5 | 1000 | .05 | 30.0 | .13 | 18.9 | 981 | .2894 | .0240 | .2125 |
| 55 | 16.74 | 205.84 | | +7.37 | 1070 | 16.62 | 4.9 | 1070 | .05 | 30.8 | .13 | 18.9 | 1050 | .3098 | .0257 | .2382 |
| 0600 | 16.97 | 213.07 | | +7.23 | 1050 | 16.86 | 5.4 | 1060 | .14 | 31.5 | .37 | 53.7 | 1010 | .2980 | .0247 | .2629 |
| 05 | 17.18 | 219.82 | | +6.75 | 980 | 17.08 | 5.8 | 986 | .05 | 32.2 | .13 | 18.9 | 967 | .2853 | .0237 | .2866 |
| 10 | 17.39 | 226.72 | | +6.90 | 1000 | 17.28 | 6.1 | 1010 | .05 | 32.9 | .14 | 20.3 | 990 | .2920 | .0242 | .3108 |
| 15 | 17.58 | 233.09 | | +6.37 | 925 | 17.48 | 6.4 | 931 | .05 | 33.5 | .14 | 20.3 | 911 | .2687 | .0223 | .3331 |
| 20 | 17.76 | 239.25 | | +6.16 | 894 | 17.67 | 6.8 | 901 | .05 | 34.2 | .14 | 20.3 | 881 | .2599 | .0216 | .3547 |
| 25 | 17.93 | 245.16 | | +5.91 | 858 | 17.84 | 7.2 | 865 | .05 | 34.8 | .15 | 21.8 | 843 | .2487 | .0206 | .3753 |
| 30 | 18.09 | 250.82 | | +5.66 | 822 | 18.01 | 7.8 | 830 | .05 | 35.3 | .15 | 21.8 | 808 | .2384 | .0198 | .3951 |
| 35 | 18.24 | 256.21 | | +5.39 | 783 | 18.16 | 9.1 | 792 | .05 | 35.9 | .15 | 21.8 | 770 | .2272 | .0189 | .4140 |
| 40 | 18.34 | 259.84 | | +3.63 | 527 | 18.29 | 11.1 | 538 | .05 | 36.4 | .15 | 21.8 | 516 | .1522 | .0126 | .4266 |
| 45 | 18.45 | 263.89 | | +4.05 | 588 | 18.40 | 13.1 | 601 | .03 | 36.8 | .09 | 13.1 | 588 | .1735 | .0144 | .4410 |
| 50 | 18.54 | 267.24 | | +3.35 | 486 | 18.50 | 15.2 | 501 | .03 | 37.2 | .09 | 13.1 | 488 | .1440 | .0120 | .4530 |
| 55 | 18.62 | 270.24 | | +3.00 | 436 | 18.58 | 17.0 | 453 | .01 | 37.5 | .03 | 4.4 | 449 | .1325 | .0110 | .4640 |
| 0700 | 18.68 | 272.50 | | +2.26 | 328 | 18.65 | 18.6 | 347 | .01 | 37.8 | .03 | 4.4 | 343 | .1012 | .0084 | .4724 |
| 05 | 18.74 | 274.79 | | +2.29 | 333 | 18.71 | 20.3 | 353 | .01 | 38.0 | .03 | 4.4 | 349 | .1030 | .0085 | .4809 |
| 10 | 18.79 | 276.70 | .083 | +1.91 | 277 | 18.76 | 21.6 | 299 | .01 | 38.2 | .03 | 4.4 | 295 | .0870 | .0072 | .4881 |

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UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT

Sheet 2 of 2

## INFLOW AND OUTFLOW COMPUTATIONS

Storm period Oct. 31, 1974

08-0968.00 Cow Bayou Creek subwatershed No. 4 near Bruceville, Tex. D.A. 5.25 sq mi

| Date and time | Gage height | Storage | Time int. | Change in storage | | Mean G. Ht. | Outflow | Total inflow | Rainfall on Pool | | | | Net Inflow | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | area | Storage | | Rate | | | Acc |
| | ft | ac-ft | hrs | ac-ft | cfs | ft | cfs | cfs | in | ac | ac-ft | cfs | cfs | in/hr | in | in |
| 0715 | 18.83 | 278.24 | .083 | +1.54 | 224 | 18.82 | 23.5 | 248 | .01 | 38.4 | .03 | 4.4 | 244 | .0720 | .0060 | .4941 |
| 20 | 18.87 | 279.78 | | +1.54 | 224 | 18.85 | 24.5 | 249 | .01 | 38.5 | .03 | 4.4 | 245 | .0723 | .0060 | .5001 |
| 25 | 18.91 | 281.32 | | +1.54 | 224 | 18.89 | 25.8 | 250 | .01 | 38.7 | .03 | 4.4 | 246 | .0726 | .0060 | .5061 |
| 30 | 18.93 | 282.10 | .083 | +.78 | 113 | 18.92 | 26.1 | 139 | .01 | 38.8 | .03 | 4.4 | 135 | .0398 | .0033 | .5094 |
| 0800 | 19.07 | 287.57 | .50 | +5.47 | 132 | 19.00 | 26.7 | 159 | — | 39.1 | — | — | 159 | .0469 | .0234 | .5328 |
| 0900 | 19.19 | 292.32 | 1.0 | +4.75 | 57.5 | 19.13 | 26.8 | 84.3 | — | 39.6 | — | — | 84.3 | .0249 | .0249 | .5577 |
| 15 | 19.26 | 295.13 | .25 | +2.81 | 136 | 19.22 | 26.9 | 163 | .12 | 40.0 | .40 | 19.4 | 144 | .0425 | .0106 | .5683 |
| 30 | 19.37 | 299.57 | | +4.44 | 215 | 19.32 | 27.0 | 242 | .12 | 40.4 | .40 | 19.4 | 223 | .0658 | .0164 | .5847 |
| 45 | 19.59 | 308.62 | | +9.05 | 438 | 19.48 | 27.2 | 465 | .13 | 41.1 | .45 | 21.8 | 443 | .1307 | .0327 | .6174 |
| 1000 | 19.83 | 318.71 | | +10.09 | 488 | 19.71 | 27.4 | 515 | .12 | 42.1 | .42 | 20.3 | 495 | .1460 | .0365 | .6539 |
| 15 | 20.07 | 329.06 | | +10.35 | 501 | 19.95 | 27.6 | 529 | .05 | 43.1 | .18 | 8.7 | 520 | .1534 | .0384 | .6923 |
| 30 | 20.31 | 339.64 | | +10.58 | 512 | 20.19 | 27.8 | 540 | .05 | 44.1 | .18 | 8.7 | 531 | .1566 | .0392 | .7315 |
| 45 | 20.49 | 347.74 | | +8.10 | 392 | 20.40 | 28.0 | 420 | .05 | 45.0 | .19 | 9.2 | 411 | .1212 | .0303 | .7618 |
| 1100 | 20.63 | 354.14 | .25 | +6.40 | 310 | 20.56 | 28.1 | 338 | .02 | 45.7 | .08 | 3.9 | 334 | .0985 | .0246 | .7864 |
| 30 | 20.81 | 362.49 | .50 | +8.35 | 202 | 20.72 | 28.3 | 230 | — | 46.4 | — | — | 230 | .0678 | .0339 | .8203 |
| 1200 | 20.91 | 367.19 | .50 | +4.70 | 114 | 20.86 | 28.4 | 142 | .01 | 47.0 | .04 | 1.0 | 141 | .0416 | .0208 | .8411 |
| 1400 | 21.03 | 372.89 | 2.0 | +5.70 | 34.5 | 20.97 | 28.5 | 63.0 | — | 47.5 | — | — | 63.0 | .0186 | .0372 | .8783 |
| 1600 | 21.03 | 372.89 | 2.0 | 0 | 0 | 21.03 | 28.5 | 28.5 | — | 47.7 | — | — | 28.5 | .0084 | .0168 | .8951 |
| 2000 | 20.92 | 367.67 | 4.0 | -5.22 | -15.8 | 20.98 | 28.5 | 12.7 | — | 47.5 | — | — | 12.7 | .0037 | .0148 | .9099 |
| 2400 | 20.78 | 361.09 | 4.0 | -6.58 | -19.9 | 20.85 | 28.4 | 8.5 | — | 47.0 | — | — | 8.5 | .0025 | .0100 | .9199 |

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

Sheet 1 of 2
Comp. by: RNM
Date 3-1-76
Check by EEW
Date 3-5-76

Study Area 08096800 Cow Bayou Subwater shed No.4 nr. Bruceville, tx. Date of storm Oct. 31, 1974

| Date & Time | Gage 3-R Recorded | x Factor | Gage 10-R Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Accumulated Weighted Precipitation Recording Gages | Accumulated Weighted Precipitation (Rec. Gages x K) All Gages |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weight Factor .8543 | | .1457 | | | | | | | | | | | |
| Oct. 31 | | | | | | | | | | | | | | |
| 0000 | .00 | .00 | .00 | .00 | | | | | | | | | 00 | 00 |
| 30 | .02 | .02 | .67 | .10 | | | | | | | | | .12 | .12 |
| 0300 | .02 | .02 | .83 | .12 | | | | | | | | | .14 | .14 |
| 05 | .02 | .02 | | | | | | | | | | | .14 | .14 |
| 10 | .32 | .27 | | | | | | | | | | | .39 | .39 |
| 15 | .60 | .51 | | | | | | | | | | | .63 | .63 |
| 20 | .70 | .60 | | | | | | | | | | | .72 | .72 |
| 25 | .80 | .68 | | | | | | | | | | | .80 | .80 |
| 30 | .90 | .77 | .83 | | | | | | | | | | .89 | .90 |
| 35 | 1.09 | .93 | .84 | | | | | | | | | | 1.05 | 1.06 |
| 40 | 1.17 | 1.00 | | | | | | | | | | | 1.12 | 1.13 |
| 45 | 1.26 | 1.08 | | | | | | | | | | | 1.20 | 1.21 |
| 50 | 1.60 | 1.37 | | | | | | | | | | | 1.49 | 1.50 |
| 55 | 1.73 | 1.48 | | | | | | | | | | | 1.60 | 1.61 |
| 0400 | 1.84 | 1.57 | | | | | | | | | | | 1.69 | 1.70 |
| 05 | 1.89 | 1.61 | | | | | | | | | | | 1.73 | 1.74 |
| 10 | 1.97 | 1.68 | | | | | | | | | | | 1.80 | 1.81 |
| 15 | 2.02 | 1.73 | | | | | | | | | | | 1.85 | 1.86 |
| 20 | 2.05 | 1.75 | .84 | | | | | | | | | | 1.87 | 1.88 |
| 25 | 2.16 | 1.85 | .85 | | | | | | | | | | 1.97 | 1.98 |
| 30 | 2.24 | 1.91 | | | | | | | | | | | 2.03 | 2.04 |
| 35 | 2.33 | 1.99 | | | | | | | | | | | 2.11 | 2.12 |
| 40 | 2.39 | 2.04 | | | | | | | | | | | 2.16 | 2.17 |
| 45 | 2.40 | 2.05 | .85 | .12 | | | | | | | | | 2.17 | 2.18 |
| 50 | 2.42 | 2.07 | .95 | .14 | | | | | | | | | 2.21 | 2.22 |
| 55 | 2.44 | 2.08 | 1.10 | .16 | | | | | | | | | 2.24 | 2.25 |
| 0500 | 2.45 | 2.09 | 1.14 | .17 | | | | | | | | | 2.26 | 2.27 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | WMR: | |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation =

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

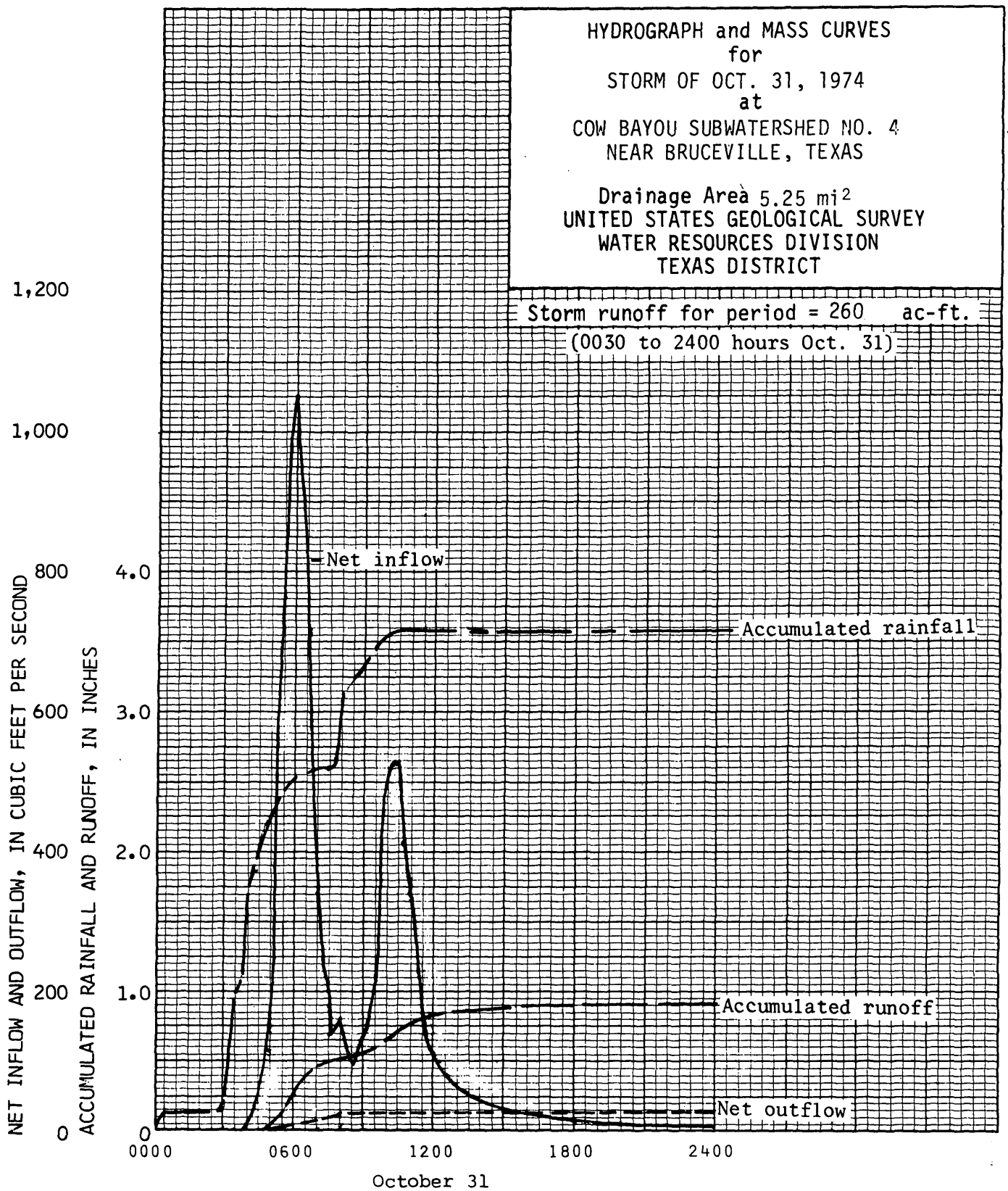
Sheet 2 of 2
Comp. by: RNM
Date 3-1-76
Check by EEW
Date 3-5-76

Study Area 08096800 Cow Bayou Subwater Shed No. 4 nr. Bruceville, tx Date of storm Oct. 31, 1974

| Accumulated Precipitation in Inches for Recording Rain Gages | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | .8543 | | .1457 | | | | | | | | | |
| | Gage 3-R | | Gage 10-R | | Gage | | Gage | | Gage | | Recording Gages | (Rec. Gages x K) |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | All Gages | All Gages |
| Oct. 31 | Cont | | | | | | | | | | | |
| 0505 | 2.47 | 2.11 | 1.17 | .17 | | | | | | | 2.28 | 2.29 |
| 10 | 2.48 | 2.12 | 1.22 | .18 | | | | | | | 2.30 | 2.31 |
| 15 | 2.49 | 2.13 | 1.32 | .19 | | | | | | | 2.32 | 2.33 |
| 20 | 2.51 | 2.14 | 1.34 | .20 | | | | | | | 2.34 | 2.35 |
| 25 | 2.54 | 2.17 | 1.42 | .21 | | | | | | | 2.38 | 2.39 |
| 30 | 2.57 | 2.20 | 1.63 | .24 | | | | | | | 2.44 | 2.45 |
| 35 | 2.57 | 2.20 | 1.71 | .25 | | | | | | | 2.45 | 2.46 |
| 40 | 2.57 | 2.20 | 1.81 | .26 | | | | | | | 2.46 | 2.47 |
| 45 | 2.59 | 2.21 | 1.83 | .27 | | | | | | | 2.48 | 2.49 |
| 50 | 2.59 | 2.21 | 1.88 | .27 | | | | | | | 2.48 | 2.49 |
| 55 | 2.59 | 2.21 | 1.93 | .28 | | | | | | | 2.49 | 2.50 |
| 0600 | 2.60 | 2.22 | 2.07 | .30 | | | | | | | 2.52 | 2.54 |
| 0700 | 2.60 | 2.22 | 2.55 | .37 | | | | | | | 2.59 | 2.61 |
| 0745 | 2.61 | 2.23 | 2.61 | .38 | | | | | | | 2.61 | 2.63 |
| 0800 | 3.14 | 2.68 | 2.61 | | | | | | | | 3.06 | 3.08 |
| 0830 | 3.32 | 2.84 | 2.81 | | | | | | | | 3.22 | 3.24 |
| 0900 | 3.43 | 2.93 | 2.61 | .38 | | | | | | | 3.31 | 3.33 |
| 0930 | 3.54 | 3.02 | 2.85 | .42 | | | | | | | 3.44 | 3.46 |
| 1000 | 3.60 | 3.08 | 3.10 | .45 | | | | | | | 3.53 | 3.55 |
| 1100 | 3.60 | 3.08 | 3.27 | .48 | | | | | | | 3.56 | 3.58 |
| 1200 | 3.60 | 3.08 | 3.28 | .48 | | | | | | | 3.56 | 3.58 |
| 2400 | 3.60 | 3.08 | 3.28 | .48 | | | | | | | 3.56 | 3.58 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-S | .1735 | 3.72 | .65 | | | | | | | | |
| 3-R | .6808 | 3.60 | 2.45 | | | | | | | | |
| 10-R | .1457 | 3.28 | .48 | | | | | | | | |
| | | | | | | | | | | WMR | 3.58 |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 3.58/3.56 = 1.006


HYDROGRAPH and MASS CURVES
for
STORM OF OCT. 31, 1974
at
COW BAYOU SUBWATERSHED NO. 4
NEAR BRUCEVILLE, TEXAS
Drainage Area 5.25 mi²
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 260 ac-ft.
(0030 to 2400 hours Oct. 31)
Net inflow
Accumulated rainfall
Accumulated runoff
Net outflow
NET INFLOW AND OUTFLOW, IN CUBIC FEET PER SECOND
ACCUMULATED RAINFALL AND RUNOFF, IN INCHES
1,200
1,000
800
600
400
200
0
4.0
3.0
2.0
1.0
0
0000
0600
1200
1800
2400
October 31

| STA. NO. 08097000 | STORM RAINFALL AND RUNOFF RECORD | 1975 WATER YEAR |
|---|---|---|

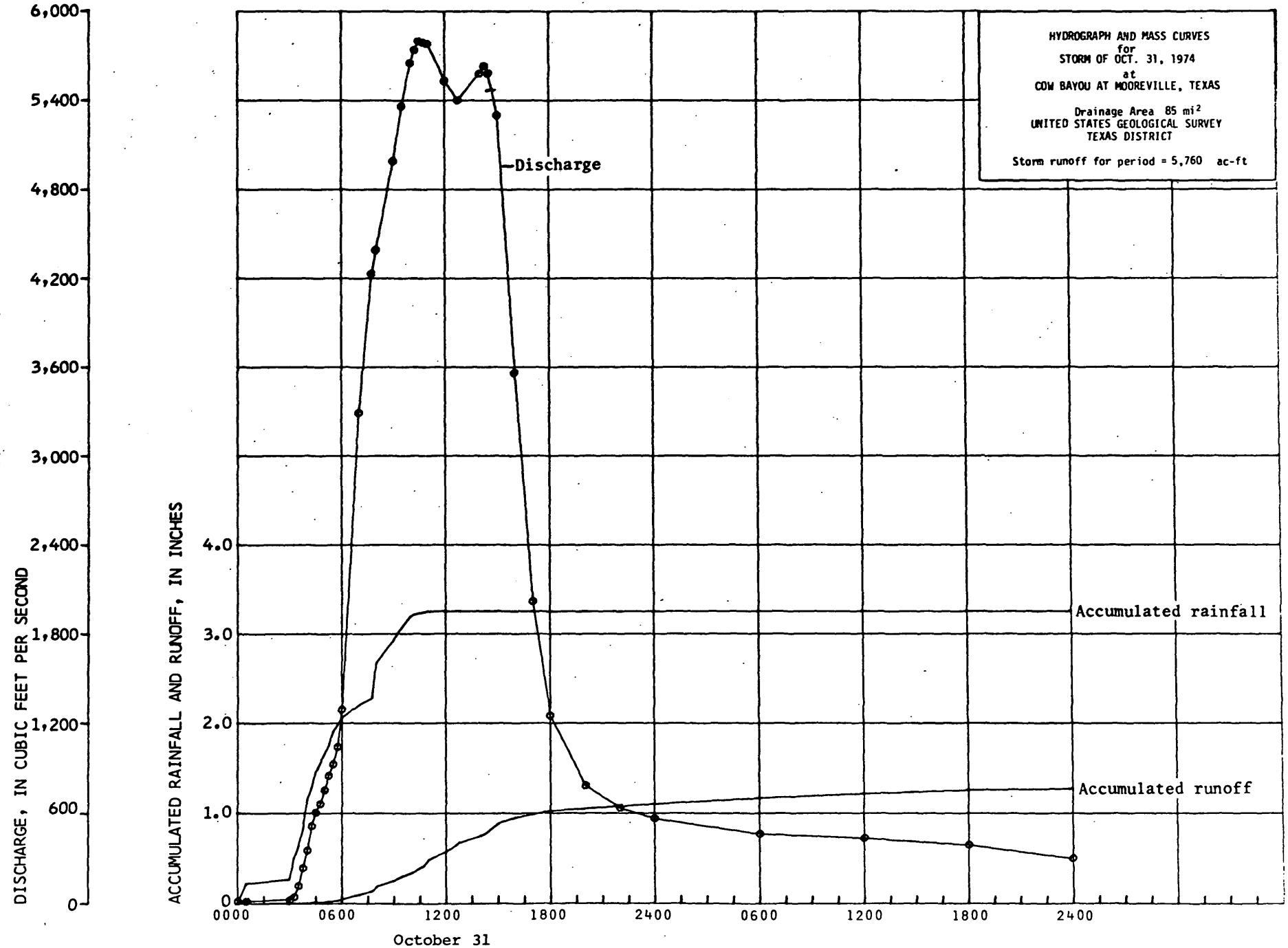
COW BAYOU AT MOOREVILLE, TEXAS — STORM OF OCT. 31, 1974

| DATE & TIME | GAGE NUMBER 3-R | 6-R | 10-R | ACCUM. WEIGHTED PRECIP. IN. | DISCHARGE IN $FT^3/S$ | ACCUM. RUNOFF IN. |
|---|---|---|---|---|---|---|
| OCT. 31 | | | | | | |
| 0000 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 | 0.0001 |
| 0030 | 0.02 | 0.03 | 0.67 | 0.22 | 14.0 | 0.0004 |
| 0300 | 0.02 | 0.03 | 0.83 | 0.27 | 26.0 | 0.0011 |
| 0315 | 0.60 | 0.19 | 0.83 | 0.51 | 44.0 | 0.0013 |
| 0330 | 0.90 | 0.28 | 0.83 | 0.64 | 118.0 | 0.0018 |
| 0345 | 1.26 | 0.45 | 0.84 | 0.82 | 235.0 | 0.0029 |
| 0400 | 1.84 | 0.86 | 0.84 | 1.16 | 352.0 | 0.0045 |
| 0415 | 2.02 | 1.03 | 0.85 | 1.28 | 512.0 | 0.0068 |
| 0430 | 2.24 | 1.29 | 0.85 | 1.45 | 603.0 | 0.0096 |
| 0445 | 2.40 | 1.42 | 0.85 | 1.55 | 660.0 | 0.0126 |
| 0500 | 2.45 | 1.44 | 1.14 | 1.66 | 754.0 | 0.0160 |
| 0515 | 2.49 | 1.59 | 1.32 | 1.75 | 849.0 | 0.0199 |
| 0530 | 2.57 | 1.59 | 1.63 | 1.91 | 925.0 | 0.0241 |
| 0545 | 2.59 | 1.60 | 1.83 | 1.98 | 1040.0 | 0.0289 |
| 0600 | 2.60 | 1.60 | 2.07 | 2.05 | 1290.0 | 0.0436 |
| 0700 | 2.60 | 1.61 | 2.55 | 2.20 | 3290.0 | 0.0960 |
| 0745 | 2.61 | 1.76 | 2.61 | 2.28 | 4230.0 | 0.1346 |
| 0800 | 3.14 | 2.35 | 2.61 | 2.67 | 4390.0 | 0.1846 |
| 0900 | 3.43 | 2.76 | 2.61 | 2.92 | 4990.0 | 0.2528 |
| 0930 | 3.54 | 2.88 | 2.85 | 3.08 | 5360.0 | 0.3017 |
| 1000 | 3.60 | 2.95 | 3.10 | 3.20 | 5650.0 | 0.3403 |
| 1015 | 3.60 | 2.95 | 3.16 | 3.22 | 5740.0 | 0.3665 |
| 1030 | 3.60 | 2.95 | 3.20 | 3.23 | 5800.0 | 0.3929 |
| 1045 | 3.60 | 2.95 | 3.24 | 3.24 | 5790.0 | 0.4193 |
| 1100 | 3.60 | 2.95 | 3.27 | 3.25 | 5780.0 | 0.4852 |
| 1200 | 3.60 | 2.95 | 3.28 | 3.25 | 5530.0 | 0.5734 |
| 1245 | 3.60 | 2.95 | 3.28 | 3.25 | 5400.0 | 0.6718 |
| 1400 | 3.60 | 2.95 | 3.28 | 3.25 | 5580.0 | 0.7481 |
| 1415 | 3.60 | 2.95 | 3.28 | 3.25 | 5630.0 | 0.7738 |
| 1430 | 3.60 | 2.95 | 3.28 | 3.25 | 5580.0 | 0.8119 |
| 1500 | 3.60 | 2.95 | 3.28 | 3.25 | 5300.0 | 0.8844 |
| 1600 | 3.60 | 2.95 | 3.28 | 3.25 | 3560.0 | 0.9493 |
| 1700 | 3.60 | 2.95 | 3.28 | 3.25 | 2020.0 | 0.9861 |
| 1800 | 3.60 | 2.95 | 3.28 | 3.25 | 1250.0 | 1.0203 |
| 2000 | 3.60 | 2.95 | 3.28 | 3.25 | 784.0 | 1.0489 |
| 2200 | 3.60 | 2.95 | 3.28 | 3.25 | 635.0 | 1.0720 |
| 2400 | 3.60 | 2.95 | 3.28 | 3.25 | 565.0 | 1.0978 |
| NOV. 1 | | | | | | |
| 0000 | 3.60 | 2.95 | 3.28 | 3.25 | 565.0 | 1.0978 |
| 0600 | 3.60 | 2.95 | 3.28 | 3.25 | 463.0 | 1.1639 |

| STA. NO. 08097000 | STORM RAINFALL AND RUNOFF RECORD | 1975 WATER YEAR |
|---|---|---|

COW BAYOU AT MOOREVILLE, TEXAS — STORM OF OCT. 31, 1974

| DATE & TIME | GAGE NUMBER 3-R | 6-R | 10-R | ACCUM. WEIGHTED PRECIP. IN. | DISCHARGE IN $FT^3/S$ | ACCUM. RUNOFF IN. |
|---|---|---|---|---|---|---|
| NOV. 1 | | | | | | |
| 1200 | 3.60 | 2.95 | 3.28 | 3.25 | 435.0 | 1.2115 |
| 1800 | 3.60 | 2.95 | 3.28 | 3.25 | 390.0 | 1.2541 |
| 2400 | 3.60 | 2.95 | 3.28 | 3.25 | 301.0 | 1.2706 |


HYDROGRAPH AND MASS CURVES
for
STORM OF OCT. 31, 1974
at
COW BAYOU AT MOOREVILLE, TEXAS
Drainage Area 85 mi²
UNITED STATES GEOLOGICAL SURVEY
TEXAS DISTRICT
Storm runoff for period = 5,760 ac-ft
Discharge
Accumulated rainfall
Accumulated runoff
DISCHARGE, IN CUBIC FEET PER SECOND
ACCUMULATED RAINFALL AND RUNOFF, IN INCHES
6,000
5,400
4,800
4,200
3,600
3,000
2,400
1,800
1,200
600
0
4.0
3.0
2.0
1.0
0
0000
0600
1200
1800
2400
0600
1200
1800
2400
October 31

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT

Sheet 1 of 1

## INFLOW AND OUTFLOW COMPUTATIONS

Storm period Nov. 23-24, 1974

08096800 Cow Bayou Creek subwatershed No. 4 near Bruceville, Tex. D.A. 5.25 sq mi

| Date and time | Gage height ft | Storage ac-ft | Time int. hrs | Change in storage ac-ft | Change in storage cfs | Mean G. Ht. ft | Outflow cfs | Total inflow cfs | Rainfall on Pool in | Rainfall on Pool area ac | Storage ac-ft | Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 23 | | | | | | | | | | | | | | | | |
| 0000 | 15.65 | 173.76 | — | — | — | — | — | — | — | | | | | | | |
| 1200 | 15.62 | 172.93 | 12 | -.83 | -.8 | 15.64 | 2.3 | 1.5 | — | 27.8 | — | — | 1.5 | .0004 | .0048 | .0048 |
| 1700 | 15.61 | 172.65 | 5 | -.28 | -.7 | 15.62 | 2.2 | 1.5 | — | 27.8 | — | — | 1.5 | .0004 | .0020 | .0068 |
| 1900 | 15.70 | 175.15 | 2 | +2.50 | +15.0 | 15.66 | 2.4 | 17.4 | .20 | 27.9 | .47 | 2.8 | 14.6 | .0043 | .0086 | .0154 |
| 2100 | 15.81 | 178.24 | 2 | +3.09 | 18.7 | 15.76 | 2.8 | 21.5 | .21 | 28.2 | .49 | 3.0 | 18.5 | .0055 | .0110 | .0264 |
| 2130 | 15.89 | 180.52 | .50 | +2.28 | 55.2 | 15.85 | 3.1 | 58.3 | .04 | 28.4 | .09 | 2.2 | 56.1 | .0166 | .0083 | .0347 |
| 2145 | 15.95 | 182.24 | .25 | +1.72 | 83.2 | 15.92 | 3.3 | 86.5 | .03 | 28.7 | .07 | 3.4 | 83.1 | .0245 | .0061 | .0408 |
| 2200 | 16.07 | 185.70 | .25 | +3.46 | 167 | 16.01 | 3.6 | 171 | .03 | 28.9 | .07 | 3.4 | 168 | .0496 | .0124 | .0532 |
| 05 | 16.13 | 187.45 | .083 | +1.75 | 254 | 16.10 | 3.8 | 258 | .01 | 29.2 | .02 | 2.9 | 255 | .0752 | .0062 | .0594 |
| 10 | 16.19 | 189.21 | | +1.76 | 256 | 16.16 | 4.0 | 260 | — | 29.4 | — | — | 260 | .0767 | .0064 | .0658 |
| 15 | 16.25 | 190.98 | | +1.97 | 257 | 16.22 | 4.1 | 261 | .01 | 29.6 | .02 | 2.9 | 258 | .0761 | .0063 | .0721 |
| 20 | 16.30 | 192.46 | | +1.48 | 215 | 16.28 | 4.2 | 219 | .01 | 29.7 | .02 | 2.9 | 216 | .0637 | .0053 | .0774 |
| 25 | 16.34 | 193.66 | | +1.20 | 174 | 16.32 | 4.3 | 178 | — | 29.9 | — | — | 178 | .0525 | .0044 | .0818 |
| 30 | 16.39 | 195.15 | | +1.49 | 216 | 16.36 | 4.4 | 220 | .01 | 30.0 | .02 | 2.9 | 217 | .0640 | .0053 | .0871 |
| 35 | 16.44 | 196.66 | | +1.51 | 219 | 16.42 | 4.6 | 224 | .01 | 30.2 | .03 | 4.4 | 220 | .0649 | .0054 | .0925 |
| 40 | 16.48 | 197.87 | | +1.21 | 176 | 16.46 | 4.6 | 181 | .01 | 30.3 | .03 | 4.4 | 177 | .0522 | .0043 | .0968 |
| 45 | 16.52 | 199.08 | | +1.21 | 176 | 16.50 | 4.7 | 181 | .01 | 30.4 | .03 | 4.4 | 177 | .0522 | .0043 | .1011 |
| 50 | 16.55 | 200.00 | | +.92 | 134 | 16.52 | 4.8 | 139 | .01 | 30.5 | .03 | 4.4 | 135 | .0398 | .0033 | .1044 |
| 55 | 16.58 | 200.91 | | +.91 | 132 | 16.56 | 4.8 | 137 | .01 | 30.6 | .03 | 4.4 | 133 | .0392 | .0033 | .1077 |
| 2300 | 16.62 | 202.14 | .083 | +.92 | 134 | 16.60 | 4.9 | 139 | .01 | 30.7 | .03 | 4.4 | 135 | .0398 | .0033 | .1110 |
| 10 | 16.68 | 203.98 | .167 | +1.84 | 134 | 16.65 | 5.0 | 139 | .02 | 30.8 | .05 | 3.6 | 135 | .0398 | .0065 | .1175 |
| 20 | 16.73 | 205.53 | | +1.34 | 97 | 16.70 | 5.1 | 102 | .02 | 31.0 | .05 | 3.6 | 98.4 | .0290 | .0048 | .1223 |
| 30 | 16.77 | 206.78 | | +1.46 | 106 | 16.75 | 5.2 | 111 | .02 | 31.2 | .05 | 3.6 | 107 | .0316 | .0053 | .1276 |
| 40 | 16.81 | 208.02 | | +1.24 | 90 | 16.79 | 5.2 | 95.2 | .01 | 31.3 | .03 | 2.2 | 93.0 | .0274 | .0046 | .1322 |
| 50 | 16.85 | 209.28 | | +1.26 | 91.5 | 16.83 | 5.3 | 96.8 | .01 | 31.4 | .03 | 2.2 | 94.6 | .0279 | .0047 | .1369 |
| 2400 | 16.89 | 210.54 | .167 | +1.26 | 91.5 | 16.87 | 5.4 | 96.9 | .01 | 31.5 | .03 | 2.2 | 94.7 | .0279 | .0047 | .1416 |
| Nov. 24 | | | | | | | | | | | | | | | | |
| 0030 | 16.95 | 212.44 | .5 | +1.90 | 46.0 | 16.92 | 5.5 | 51.5 | .01 | 31.7 | .03 | .7 | 50.8 | .0150 | .0075 | .1491 |
| 0100 | 17.01 | 214.34 | .5 | +1.90 | 46.0 | 16.98 | 5.6 | 51.6 | .03 | 31.8 | .08 | 1.9 | 49.7 | .0147 | .0074 | .1565 |
| 0200 | 17.08 | 216.59 | 1.0 | +2.25 | 27.2 | 17.04 | 5.7 | 32.9 | .05 | 32.0 | .13 | 1.6 | 31.3 | .0092 | .0092 | .1657 |
| 1200 | 17.43 | 228.05 | 10 | +11.46 | 13.9 | 17.26 | 6.0 | 19.9 | .19 | 32.8 | .52 | .6 | 19.3 | .0057 | .0570 | .2227 |
| 2400 | 17.61 | 234.11 | 12 | +6.06 | 6.1 | 17.52 | 6.5 | 12.6 | — | 33.7 | — | — | 12.6 | .0037 | .0444 | .2671 |

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

Sheet 1 of 2
Comp. by: RNM
Date 3-4-76
Check by EEW
Date 3-8-76

Study Area 08096800 Cow Bayou Subwater Shed No. 4 nr. Bruceville, tx. Date of storm Nov. 23-24, 1974

| Accumulated Precipitation in Inches for Recording Rain Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | .8543 | | .1457 | | | | | | | | | | | |
| Date & Time | Gage 3-R Recorded | x Factor | Gage 10-R Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Recording Gages All Gages | (Rec. Gages x K) All Gages |
| Nov. 23 | | | | | | | | | | | | | | |
| 0000 | 00 | 00 | 00 | 00 | | | | | | | | | 00 | 00 |
| 1045 | .01 | .01 | | | | | | | | | | | .01 | .01 |
| 1100 | .03 | .03 | | | | | | | | | | | .03 | .03 |
| 15 | .04 | .03 | | | | | | | | | | | .03 | .03 |
| 1530 | .04 | .03 | | | | | | | | | | | .03 | .03 |
| 45 | .05 | .04 | | | | | | | | | | | .04 | .04 |
| 1600 | .08 | .07 | | | | | | | | | | | .07 | .07 |
| 30 | .09 | .08 | | | | | | | | | | | .08 | .08 |
| 1700 | .11 | .09 | | | | | | | | | | | .09 | .09 |
| 15 | .12 | .10 | | | | | | | | | | | .10 | .10 |
| 30 | .21 | .18 | | | | | | | | | | | .18 | .18 |
| 35 | .23 | .20 | | | | | | | | | | | .20 | .20 |
| 40 | .36 | .31 | 00 | 00 | | | | | | | | | .31 | .31 |
| 45 | .57 | .49 | .02 | 00 | | | | | | | | | .49 | .48 |
| 50 | .62 | .53 | .03 | 00 | | | | | | | | | .53 | .52 |
| 55 | .71 | .61 | .05 | .01 | | | | | | | | | .62 | .61 |
| 1800 | .72 | .62 | .06 | .01 | | | | | | | | | .63 | .62 |
| 1900 | .72 | .62 | .20 | .03 | | | | | | | | | .65 | .64 |
| 2000 | .72 | .62 | .32 | .05 | | | | | | | | | .67 | .66 |
| 30 | .72 | .62 | .37 | .05 | | | | | | | | | .67 | .66 |
| 35 | .78 | .67 | .38 | .06 | | | | | | | | | .73 | .72 |
| 40 | .79 | .67 | .39 | .06 | | | | | | | | | .73 | .72 |
| 45 | .81 | .69 | .40 | .06 | | | | | | | | | .75 | .74 |
| 50 | .85 | .73 | .40 | .06 | | | | | | | | | .79 | .78 |
| 55 | 1.00 | .85 | .41 | .06 | | | | | | | | | .91 | .90 |
| 2100 | 1.22 | 1.04 | .41 | .06 | | | | | | | | | 1.10 | 1.08 |
| 05 | 1.35 | 1.15 | .41 | .06 | | | | | | | | | 1.21 | 1.19 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | WMR: | |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation =

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

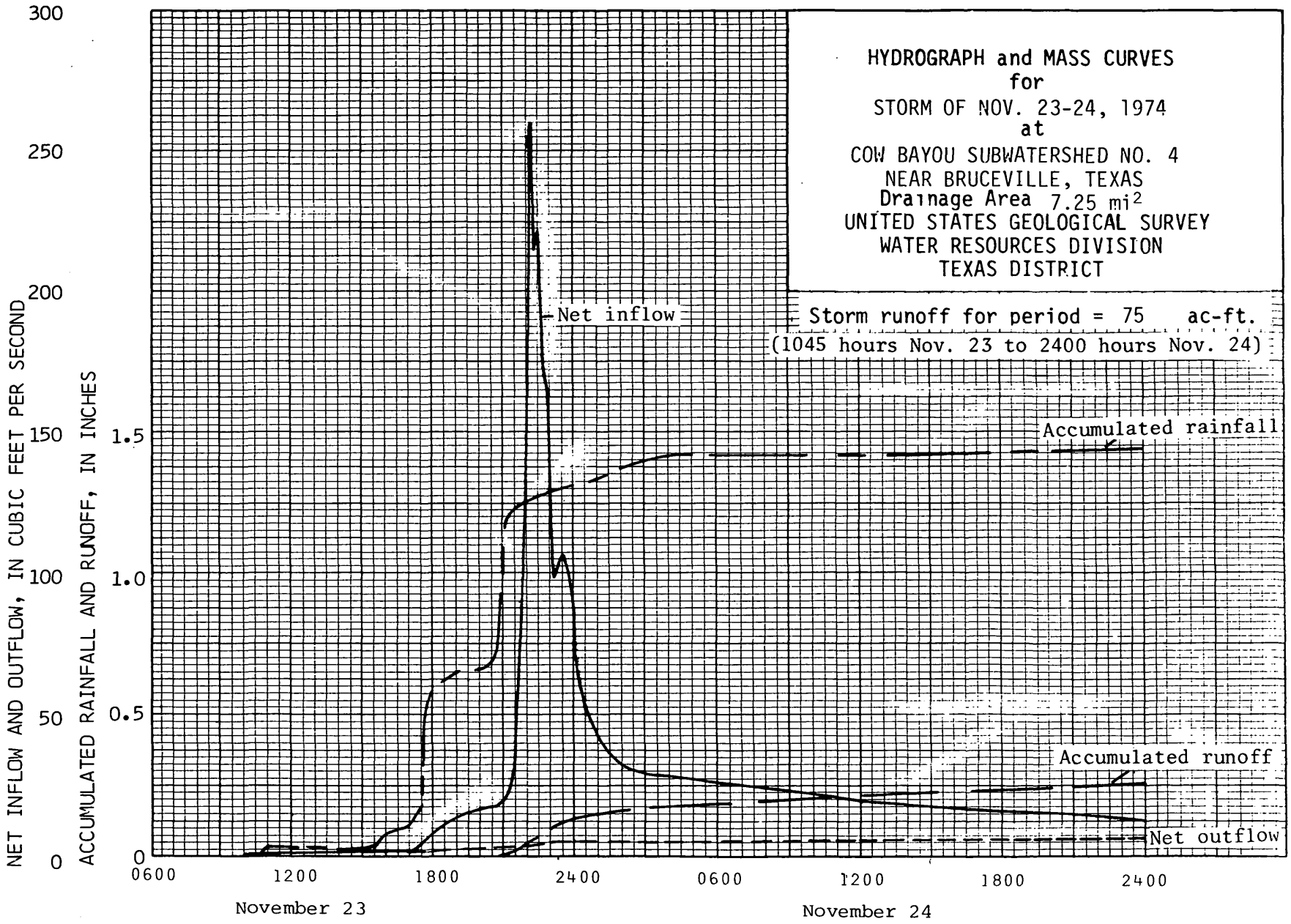
Sheet 2 of 2
Comp. by: RNM
Date 3-4-76
Check by EEW
Date 3-8-76

Study Area 08096800 Cow Bayou Subwater shed No.4 nr. Bruceville, tx. Date of storm: Nov. 23-24, 1974

| Accumulated Precipitation in Inches for Recording Rain Gages | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | | .8543 | | .1457 | | | | | | | | | |
| Date & Time | Gage 3-R Recorded | x Factor | Gage 10-R Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| Nov. 23 | Con't. | | | | | | | | | | | | | |
| 2110 | 1.36 | 1.16 | .42 | .06 | | | | | | | | | 1.22 | 1.20 |
| 2115 | 1.38 | 1.18 | .42 | .06 | | | | | | | | | 1.24 | 1.22 |
| 30 | 1.39 | 1.19 | .45 | .07 | | | | | | | | | 1.26 | 1.24 |
| 45 | 1.42 | 1.21 | .48 | .07 | | | | | | | | | 1.28 | 1.26 |
| 2200 | 1.42 | 1.21 | .51 | .07 | | | | | | | | | 1.28 | 1.26 |
| 30 | 1.42 | 1.21 | .55 | .08 | | | | | | | | | 1.29 | 1.27 |
| 2300 | 1.44 | 1.23 | .61 | .09 | | | | | | | | | 1.32 | 1.30 |
| 2400 | 1.45 | 1.24 | .70 | .10 | | | | | | | | | 1.34 | 1.32 |
| Nov. 24 | | | | | | | | | | | | | | |
| 0030 | 1.45 | 1.24 | .71 | .10 | | | | | | | | | 1.34 | 1.32 |
| 0100 | 1.45 | 1.24 | .74 | .11 | | | | | | | | | 1.35 | 1.33 |
| 0200 | 1.50 | 1.28 | .79 | .12 | | | | | | | | | 1.40 | 1.38 |
| 0400 | 1.55 | 1.32 | .82 | .12 | | | | | | | | | 1.44 | 1.42 |
| 0600 | 1.55 | 1.32 | .91 | .13 | | | | | | | | | 1.45 | 1.43 |
| 1200 | 1.55 | 1.32 | .98 | .14 | | | | | | | | | 1.46 | 1.44 |
| 2400 | 1.55 | 1.32 | .98 | .14 | | | | | | | | | 1.46 | 1.44 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-S | .1735 | 1.37 | .24 | | | | | | | | |
| 3-R | .6808 | 1.55 | 1.06 | | | | | | | | |
| 10-R | .1457 | .98 | .14 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | WMR: | 1.44 |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 1.44/1.46 = .986


HYDROGRAPH and MASS CURVES
for
STORM OF NOV. 23-24, 1974
at
COW BAYOU SUBWATERSHED NO. 4
NEAR BRUCEVILLE, TEXAS
Drainage Area 7.25 mi²
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 75 ac-ft.
(1045 hours Nov. 23 to 2400 hours Nov. 24)
Net inflow
Accumulated rainfall
Accumulated runoff
Net outflow
NET INFLOW AND OUTFLOW, IN CUBIC FEET PER SECOND
ACCUMULATED RAINFALL AND RUNOFF, IN INCHES
300
250
200
150
100
50
0
1.5
1.0
0.5
0
0600
1200
1800
2400
0600
1200
1800
2400
November 23
November 24

STA. NO. 08097000 — STORM RAINFALL AND RUNOFF RECORD — 1975 WATER YEAR

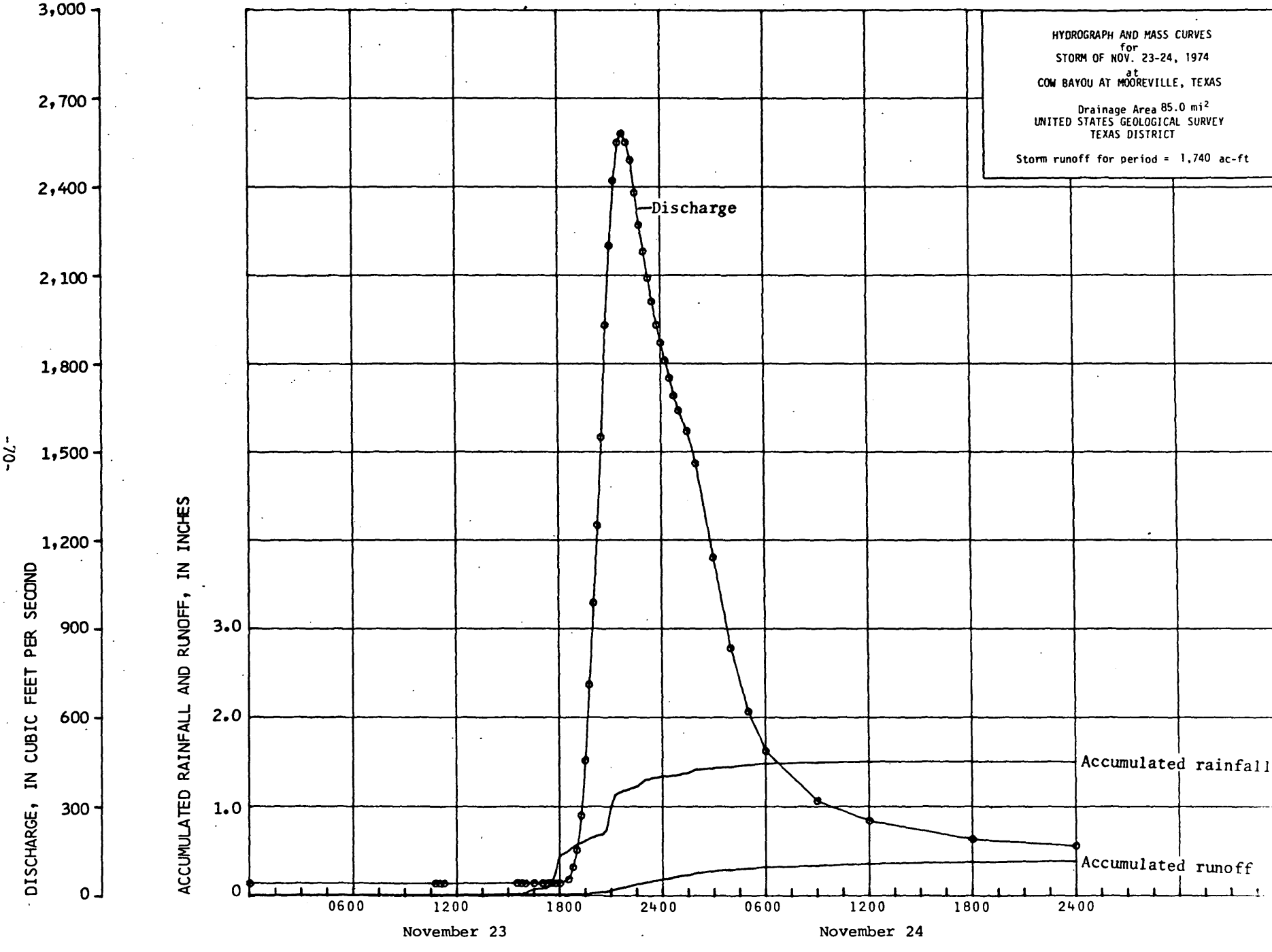
COW BAYOU AT MOOREVILLE, TEXAS — STORM OF NOV. 23-24, 1974

| DATE & TIME | GAGE NUMBER 3-R | 6-R | 10-R | ACCUM. WEIGHTED PRECIP. IN. | DISCHARGE IN $FT^3/S$ | ACCUM. RUNOFF IN. |
|---|---|---|---|---|---|---|
| NOV. 23 | | | | | | |
| 0000 | 0.0 | 0.0 | 0.0 | 0.0 | 41.0 | 0.0040 |
| 1045 | 0.01 | 0.0 | 0.0 | 0.00 | 41.0 | 0.0081 |
| 1100 | 0.03 | 0.0 | 0.0 | 0.01 | 41.0 | 0.0083 |
| 1115 | 0.04 | 0.0 | 0.0 | 0.01 | 41.0 | 0.0100 |
| 1530 | 0.04 | 0.02 | 0.0 | 0.02 | 42.0 | 0.0117 |
| 1545 | 0.05 | 0.02 | 0.0 | 0.02 | 42.0 | 0.0119 |
| 1600 | 0.08 | 0.02 | 0.0 | 0.03 | 42.0 | 0.0122 |
| 1630 | 0.09 | 0.12 | 0.0 | 0.07 | 42.0 | 0.0126 |
| 1700 | 0.11 | 0.12 | 0.0 | 0.08 | 42.0 | 0.0129 |
| 1715 | 0.12 | 0.13 | 0.0 | 0.09 | 42.0 | 0.0131 |
| 1730 | 0.21 | 0.13 | 0.0 | 0.12 | 42.0 | 0.0133 |
| 1745 | 0.57 | 0.20 | 0.02 | 0.26 | 42.0 | 0.0134 |
| 1800 | 0.72 | 0.53 | 0.06 | 0.45 | 42.0 | 0.0137 |
| 1830 | 0.72 | 0.64 | 0.10 | 0.50 | 55.0 | 0.0141 |
| 1845 | 0.72 | 0.70 | 0.15 | 0.54 | 95.0 | 0.0145 |
| 1900 | 0.72 | 0.74 | 0.20 | 0.57 | 153.0 | 0.0152 |
| 1915 | 0.72 | 0.78 | 0.23 | 0.59 | 270.0 | 0.0165 |
| 1930 | 0.72 | 0.82 | 0.26 | 0.62 | 455.0 | 0.0185 |
| 1945 | 0.72 | 0.85 | 0.29 | 0.64 | 710.0 | 0.0218 |
| 2000 | 0.72 | 0.88 | 0.32 | 0.66 | 987.0 | 0.0263 |
| 2015 | 0.72 | 0.90 | 0.35 | 0.68 | 1250.0 | 0.0320 |
| 2030 | 0.72 | 0.91 | 0.37 | 0.69 | 1550.0 | 0.0390 |
| 2045 | 0.81 | 0.97 | 0.40 | 0.75 | 1930.0 | 0.0478 |
| 2100 | 1.22 | 1.23 | 0.41 | 0.98 | 2200.0 | 0.0579 |
| 2115 | 1.38 | 1.49 | 0.42 | 1.13 | 2420.0 | 0.0689 |
| 2130 | 1.39 | 1.52 | 0.45 | 1.16 | 2550.0 | 0.0805 |
| 2145 | 1.42 | 1.53 | 0.48 | 1.18 | 2580.0 | 0.0923 |
| 2200 | 1.42 | 1.55 | 0.51 | 1.19 | 2550.0 | 0.1039 |
| 2215 | 1.42 | 1.57 | 0.53 | 1.21 | 2490.0 | 0.1152 |
| 2230 | 1.42 | 1.59 | 0.55 | 1.22 | 2380.0 | 0.1261 |
| 2245 | 1.43 | 1.66 | 0.58 | 1.26 | 2270.0 | 0.1364 |
| 2300 | 1.44 | 1.73 | 0.61 | 1.30 | 2180.0 | 0.1464 |
| 2315 | 1.44 | 1.74 | 0.64 | 1.31 | 2090.0 | 0.1559 |
| 2330 | 1.44 | 1.75 | 0.66 | 1.32 | 2010.0 | 0.1651 |
| 2345 | 1.44 | 1.75 | 0.68 | 1.33 | 1930.0 | 0.1738 |
| 2400 | 1.45 | 1.76 | 0.70 | 1.34 | 1870.0 | 0.1802 |
| NOV. 24 | | | | | | |
| 0000 | 1.45 | 1.76 | 0.70 | 1.34 | 1870.0 | 0.1802 |
| 0015 | 1.45 | 1.76 | 0.70 | 1.34 | 1810.0 | 0.1906 |
| 0030 | 1.45 | 1.76 | 0.71 | 1.35 | 1750.0 | 0.1986 |

| STA. NO. 08097000 | STORM RAINFALL AND RUNOFF RECORD | 1975 WATER YEAR |
|---|---|---|

COW BAYOU AT MOORFVILLE, TEXAS — STORM OF NOV. 23-24, 1974

| DATE & TIME | GAGE NUMBER | | | ACCUM. WEIGHTED PRECIP. IN. | DISCHARGE IN $FT^3/S$ | ACCUM. RUNOFF IN. |
|---|---|---|---|---|---|---|
| | 3-R | 6-R | 10-R | | | |
| NOV. 24 | | | | | | |
| 0045 | 1.45 | 1.76 | 0.72 | 1.35 | 1690.0 | 0.2063 |
| 0100 | 1.45 | 1.77 | 0.74 | 1.36 | 1640.0 | 0.2175 |
| 0130 | 1.47 | 1.80 | 0.76 | 1.38 | 1570.0 | 0.2318 |
| 0200 | 1.50 | 1.84 | 0.79 | 1.42 | 1460.0 | 0.2518 |
| 0300 | 1.53 | 1.85 | 0.80 | 1.43 | 1140.0 | 0.2726 |
| 0400 | 1.55 | 1.86 | 0.82 | 1.45 | 834.0 | 0.2878 |
| 0500 | 1.55 | 1.87 | 0.87 | 1.47 | 619.0 | 0.2991 |
| 0600 | 1.55 | 1.88 | 0.91 | 1.48 | 486.0 | 0.3168 |
| 0900 | 1.55 | 1.88 | 0.95 | 1.50 | 319.0 | 0.3342 |
| 1200 | 1.55 | 1.88 | 0.98 | 1.50 | 252.0 | 0.3549 |
| 1800 | 1.55 | 1.88 | 0.98 | 1.50 | 190.0 | 0.3757 |
| 2400 | 1.55 | 1.88 | 0.98 | 1.50 | 168.0 | 0.3849 |


HYDROGRAPH AND MASS CURVES
for
STORM OF NOV. 23-24, 1974
at
COW BAYOU AT MOOREVILLE, TEXAS
Drainage Area 85.0 mi²
UNITED STATES GEOLOGICAL SURVEY
TEXAS DISTRICT
Storm runoff for period = 1,740 ac-ft
Discharge
Accumulated rainfall
Accumulated runoff
DISCHARGE, IN CUBIC FEET PER SECOND
ACCUMULATED RAINFALL AND RUNOFF, IN INCHES
3,000
2,700
2,400
2,100
1,800
1,500
1,200
900
600
300
0
3.0
2.0
1.0
0
0600
1200
1800
2400
0600
1200
1800
2400
November 23
November 24

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period Feb. 1-2, 1975

080968.00 Cow Bayou Creek subwatershed No. 4 near Bruceville, Tex. D.A. 5.25 sq mi

| Date and time | Gage height | Storage | Time int. | Change in storage | | Mean G. Ht. | Outflow | Total inflow | Rainfall on Pool | | | | Net Inflow | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | area | Storage | | Rate | | | Acc |
| | ft | ac-ft | hrs | ac-ft | cfs | ft | cfs | cfs | in | ac | ac-ft | cfs | cfs | in/hr | in | in |
| Feb. 1 | | | | | | | | | | | | | | | | |
| 0000 | 15.58 | 171.82 | - | - | - | - | - | - | | | | | | | | |
| 0600 | 15.59 | 172.10 | 6.0 | +.28 | .6 | 15.58 | 2.0 | 2.6 | .02 | 27.6 | .05 | .1 | 2.5 | .0007 | .0042 | .0042 |
| 1200 | 15.64 | 173.48 | 6.0 | +1.38 | 2.8 | 15.62 | 2.2 | 5.0 | .27 | 27.8 | .63 | 1.3 | 3.7 | .0011 | .0066 | .0108 |
| 1800 | 15.70 | 175.15 | 6.0 | +1.67 | 3.4 | 15.67 | 2.4 | 5.8 | .01 | 27.9 | .02 | 0 | 5.8 | .0017 | .0102 | .0210 |
| 2100 | 15.74 | 176.27 | 3.0 | +1.12 | 4.5 | 15.72 | 2.6 | 7.1 | .01 | 28.1 | .02 | .1 | 7.0 | .0021 | .0063 | .0273 |
| 2400 | 15.85 | 179.38 | 3.0 | +3.11 | 12.5 | 15.80 | 2.9 | 15.4 | .27 | 28.3 | .64 | 2.6 | 12.8 | .0038 | .0114 | .0387 |
| Feb. 2 | | | | | | | | | | | | | | | | |
| 0100 | 15.97 | 182.81 | 1.0 | +3.43 | 41.5 | 15.91 | 3.3 | 44.8 | .02 | 28.6 | .05 | .6 | 44.2 | .0130 | .0130 | .0517 |
| 0200 | 16.12 | 187.16 | 1.0 | +4.35 | 52.6 | 16.04 | 3.7 | 56.3 | .11 | 29.0 | .27 | 3.3 | 53.0 | .0156 | .0156 | .0673 |
| 15 | 16.19 | 189.21 | .25 | +2.05 | 99.2 | 16.16 | 4.0 | 103 | .02 | 29.4 | .05 | 2.4 | 101 | .0298 | .0074 | .0747 |
| 30 | 16.32 | 193.06 | | +3.85 | 186 | 16.26 | 4.2 | 190 | .03 | 29.7 | .07 | 3.4 | 187 | .0552 | .0138 | .0885 |
| 45 | 16.45 | 196.96 | | +3.90 | 189 | 16.38 | 4.5 | 194 | .03 | 30.0 | .08 | 3.9 | 190 | .0560 | .0140 | .1025 |
| 0300 | 16.58 | 200.91 | | +3.95 | 191 | 16.52 | 4.8 | 196 | .03 | 30.5 | .08 | 3.9 | 192 | .0566 | .0142 | .1167 |
| 15 | 16.72 | 205.22 | | +4.31 | 209 | 16.65 | 5.0 | 214 | .03 | 30.8 | .08 | 3.9 | 210 | .0620 | .0155 | .1322 |
| 30 | 16.83 | 208.65 | | +3.43 | 166 | 16.78 | 5.2 | 171 | .04 | 31.2 | .10 | 4.8 | 166 | .0490 | .0122 | .1444 |
| 45 | 16.93 | 211.80 | | +3.15 | 152 | 16.88 | 5.4 | 157 | .03 | 31.5 | .08 | 3.9 | 153 | .0451 | .0113 | .1557 |
| 0400 | 17.02 | 214.66 | .25 | +2.86 | 138 | 16.98 | 5.6 | 144 | .03 | 31.8 | .08 | 3.9 | 140 | .0413 | .0103 | .1660 |
| 30 | 17.19 | 220.15 | .50 | +5.49 | 133 | 17.10 | 5.8 | 139 | .01 | 32.2 | .03 | .7 | 138 | .0407 | .0204 | .1864 |
| 0500 | 17.32 | 224.40 | .50 | +4.25 | 103 | 17.25 | 6.0 | 109 | - | 32.8 | - | - | 109 | .0322 | .0161 | .2025 |
| 0600 | 17.44 | 228.39 | 1.0 | +3.99 | 48.3 | 17.38 | 6.3 | 54.6 | .04 | 33.2 | .11 | 1.3 | 53.3 | .0157 | .0157 | .2182 |
| 0700 | 17.53 | 231.40 | 1.0 | +3.01 | 36.4 | 17.48 | 6.4 | 42.8 | .04 | 33.5 | .11 | 1.3 | 41.5 | .0122 | .0122 | .2304 |
| 0900 | 17.72 | 237.87 | 2.0 | +6.47 | 39.1 | 17.62 | 6.7 | 45.8 | .08 | 34.0 | .23 | 1.4 | 44.4 | .0131 | .0262 | .2566 |
| 1000 | 17.90 | 244.11 | 1.0 | +6.24 | 75.5 | 17.81 | 7.1 | 82.6 | .08 | 34.7 | .23 | 2.8 | 79.8 | .0235 | .0235 | .2801 |
| 1100 | 18.30 | 258.38 | 1.0 | +14.27 | 173 | 18.10 | 8.3 | 181 | .15 | 35.7 | .45 | 5.4 | 176 | .0519 | .0519 | .3320 |
| 15 | 18.43 | 263.15 | .25 | +4.77 | 231 | 18.36 | 12.4 | 243 | .07 | 36.7 | .21 | 10.2 | 233 | .0687 | .0172 | .3492 |
| 30 | 18.56 | 267.98 | | +4.83 | 234 | 18.50 | 15.2 | 249 | .04 | 37.2 | .12 | 5.8 | 243 | .0717 | .0179 | .3671 |
| 45 | 18.70 | 273.26 | | +5.28 | 256 | 18.63 | 18.1 | 274 | .07 | 37.7 | .22 | 10.6 | 263 | .0776 | .0194 | .3865 |
| 1200 | 18.85 | 279.00 | .25 | +5.74 | 278 | 18.78 | 22.3 | 300 | .08 | 38.3 | .26 | 12.6 | 287 | .0847 | .0212 | .4077 |
| 10 | 18.97 | 283.65 | .167 | +4.65 | 338 | 18.91 | 26.0 | 364 | .06 | 38.8 | .19 | 13.8 | 350 | .1032 | .0172 | .4249 |
| 20 | 19.11 | 289.15 | | +5.50 | 399 | 19.04 | 26.7 | 426 | .06 | 39.3 | .20 | 14.5 | 412 | .1215 | .0203 | .4452 |
| 30 | 19.25 | 294.72 | | +5.57 | 404 | 19.18 | 26.9 | 431 | .05 | 39.9 | .17 | 12.3 | 419 | .1236 | .0206 | .4658 |
| 40 | 19.39 | 300.38 | .167 | +5.66 | 411 | 19.32 | 27.0 | 438 | .06 | 40.4 | .20 | 14.5 | 424 | .1251 | .0209 | .4867 |

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period Feb. 1-2, 1975

080968.00 Cow Bayou Creek subwatershed No. 4 near Bruceville, Tex. D.A. 5.25 sq mi

| Date and time | Gage height | Storage | Time int. | Change in storage | | Mean G. Ht. | Outflow | Total inflow | Rainfall on Pool | | | | Net Inflow | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | area | Storage | | Rate | | | Acc |
| | ft | ac-ft | hrs | ac-ft | cfs | ft | cfs | cfs | in | ac | ac-ft | cfs | cfs | in/hr | in | in |
| Feb. 2 | (continued) | | | | | | | | | | | | | | | |
| 1250 | 19.53 | 306.13 | .167 | +5.75 | 417 | 19.46 | 27.2 | 444 | .05 | 41.0 | .17 | 12.3 | 432 | .1274 | .0213 | .5080 |
| 55 | 19.60 | 309.03 | .083 | +2.90 | 421 | 19.56 | 27.3 | 448 | .04 | 41.5 | .14 | 20.3 | 428 | .1263 | .0105 | .5185 |
| 1300 | 19.67 | 311.96 | " | +2.93 | 425 | 19.64 | 27.3 | 452 | .04 | 41.8 | .14 | 20.3 | 432 | .1274 | .0106 | .5291 |
| 05 | 19.74 | 314.90 | " | +2.94 | 427 | 19.70 | 27.4 | 454 | .03 | 42.0 | .10 | 14.5 | 440 | .1298 | .0108 | .5399 |
| 10 | 19.81 | 317.86 | " | +2.96 | 430 | 19.78 | 27.5 | 458 | .02 | 42.4 | .07 | 10.2 | 448 | .1322 | .0110 | .5509 |
| 15 | 19.87 | 320.42 | " | +2.56 | 372 | 19.84 | 27.5 | 400 | .01 | 42.6 | .04 | 5.8 | 394 | .1162 | .0096 | .5605 |
| 20 | 19.92 | 322.56 | " | +2.14 | 311 | 19.90 | 27.6 | 339 | .01 | 42.9 | .04 | 5.8 | 333 | .0982 | .0082 | .5687 |
| 25 | 19.97 | 324.72 | " | +2.16 | 314 | 19.94 | 27.6 | 342 | .01 | 43.0 | .04 | 5.8 | 336 | .0991 | .0082 | .5769 |
| 30 | 20.02 | 326.88 | " | +2.16 | 314 | 20.00 | 27.7 | 342 | .01 | 43.3 | .04 | 5.8 | 336 | .0991 | .0082 | .5851 |
| 35 | 20.07 | 329.06 | " | +2.18 | 317 | 20.04 | 27.7 | 345 | .01 | 43.5 | .04 | 5.8 | 339 | .1000 | .0083 | .5934 |
| 40 | 20.12 | 331.24 | .083 | +2.18 | 317 | 20.10 | 27.7 | 345 | — | 43.7 | — | — | 345 | .1018 | .0084 | .6018 |
| 50 | 20.21 | 335.19 | .167 | +3.95 | 287 | 20.16 | 27.8 | 315 | — | 44.0 | — | — | 315 | .0929 | .0155 | .6173 |
| 1400 | 20.27 | 337.86 | .167 | +2.67 | 194 | 20.24 | 27.9 | 222 | — | 44.3 | — | — | 222 | .0655 | .0109 | .6282 |
| 30 | 20.41 | 344.12 | .50 | +6.26 | 151 | 20.34 | 27.9 | 179 | — | 44.8 | — | — | 179 | .0528 | .0264 | .6546 |
| 1500 | 20.51 | 348.65 | .50 | +4.53 | 110 | 20.46 | 28.0 | 138 | — | 45.3 | — | — | 138 | .0407 | .0204 | .6750 |
| 1700 | 20.74 | 359.23 | 2.0 | +10.58 | 64.0 | 20.62 | 28.2 | 92.2 | .01 | 46.0 | .04 | .2 | 92.0 | .0271 | .0542 | .7292 |
| 1900 | 20.87 | 365.31 | 2.0 | +6.08 | 36.8 | 20.80 | 28.3 | 65.1 | .01 | 46.7 | .04 | .2 | 64.9 | .0191 | .0382 | .7674 |
| 2100 | 20.96 | 369.56 | 2.0 | +4.25 | 25.7 | 20.92 | 28.4 | 54.1 | .02 | 47.3 | .08 | .5 | 53.6 | .0158 | .0316 | .7990 |
| 2400 | 21.04 | 373.37 | 3.0 | +3.81 | 15.4 | 21.00 | 28.5 | 43.9 | — | 47.6 | — | — | 43.9 | .0130 | .0390 | .8380 |

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

Sheet 1 of 4
Comp. by: RNM
Date 3-8-76
Check by EEW
Date 3-9-76

Study Area 08096800 Cow Bayou Subwater shed No. 4 nr. Bruceville, Tx Date of storm Feb. 1-2, 1975

| Accumulated Precipitation in Inches for Recording Rain Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | .8543 | | .1457 | | | | | | | | | | | |
| Date & Time | Gage 3-R Recorded | x Factor | Gage 10-R Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| Feb. 1 | | | | | | | | | | | | | | |
| 0000 | 00 | 00 | 00 | 00 | | | | | | | | | 00 | 00 |
| 0300 | 00 | 00 | 00 | 00 | | | | | | | | | 00 | 00 |
| 0400 | .02 | .02 | 00 | 00 | | | | | | | | | .02 | .02 |
| 0500 | .09 | .08 | 00 | 00 | | | | | | | | | .08 | .08 |
| 30 | .11 | .09 | .02 | 00 | | | | | | | | | .09 | .09 |
| 0600 | .11 | .09 | .02 | 00 | | | | | | | | | .09 | .09 |
| 0700 | .11 | .09 | .02 | 00 | | | | | | | | | .09 | .09 |
| 0800 | .18 | .15 | .07 | .01 | | | | | | | | | .16 | .16 |
| 30 | .23 | .20 | .09 | .01 | | | | | | | | | .21 | .21 |
| 0900 | .34 | .29 | .12 | .01 | | | | | | | | | .30 | .30 |
| 30 | .37 | .32 | .24 | .03 | | | | | | | | | .35 | .36 |
| 1000 | .39 | .33 | .26 | .04 | | | | | | | | | .37 | .38 |
| 30 | .40 | .34 | .28 | .04 | | | | | | | | | .38 | .39 |
| 1100 | .41 | .35 | .29 | .04 | | | | | | | | | .39 | .40 |
| 1200 | .41 | .35 | .29 | .04 | | | | | | | | | .39 | .40 |
| 1430 | .41 | .35 | .29 | .04 | | | | | | | | | .39 | .40 |
| 1500 | .44 | .38 | .29 | .04 | | | | | | | | | .42 | .43 |
| 1600 | .45 | .38 | .30 | .04 | | | | | | | | | .42 | .43 |
| 2015 | .45 | .38 | .31 | .05 | | | | | | | | | .43 | .44 |
| 30 | .49 | .42 | .31 | .05 | | | | | | | | | .47 | .48 |
| 45 | .58 | .50 | .31 | .05 | | | | | | | | | .55 | .56 |
| 2100 | .59 | .50 | .31 | .05 | | | | | | | | | .55 | .56 |
| 30 | .62 | .53 | .39 | .06 | | | | | | | | | .59 | .60 |
| 2200 | .67 | .57 | .46 | .07 | | | | | | | | | .64 | .65 |
| 15 | .73 | .62 | .48 | .07 | | | | | | | | | .69 | .70 |
| 30 | .79 | .67 | .49 | .07 | | | | | | | | | .74 | .75 |
| 45 | .80 | .68 | .50 | .07 | | | | | | | | | .75 | .76 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
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| | | | | | | | | | | WMR: | |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation =

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

Sheet 2 of 4
Comp. by: RNM
Date 3-8-76
Check by EEW
Date 3-9-76

Study Area 08096800 Cow Bayou Subwater shed No.4 nr. Bruceville, tx Date of storm Feb. 1-2, 1975

| Accumulated Precipitation in Inches for Recording Rain Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | .8543 | | .1457 | | | | | | | | | | | |
| | Gage 3-R | | Gage 10-R | | Gage | | Gage | | Gage | | Gage | | Recording Gages | (Rec. Gages x K) |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | All Gages | All Gages |
| Feb. 1 | con't. | | | | | | | | | | | | | |
| 2300 | .80 | .68 | .52 | .08 | | | | | | | | | .76 | .77 |
| 30 | .80 | .68 | .57 | .08 | | | | | | | | | .76 | .77 |
| 2400 | .81 | .69 | .58 | .08 | | | | | | | | | .77 | .78 |
| Feb. 2 | | | | | | | | | | | | | | |
| 0030 | .82 | .70 | .59 | .09 | | | | | | | | | .79 | .80 |
| 45 | .84 | .72 | .60 | .09 | | | | | | | | | .81 | .82 |
| 50 | .88 | .75 | .60 | .09 | | | | | | | | | .84 | .84 |
| 55 | .96 | .82 | .60 | .09 | | | | | | | | | .91 | .92 |
| 0100 | 1.06 | .91 | .60 | .09 | | | | | | | | | 1.00 | 1.02 |
| 05 | 1.10 | .94 | .61 | .09 | | | | | | | | | 1.03 | 1.05 |
| 10 | 1.18 | 1.01 | .61 | .09 | | | | | | | | | 1.10 | 1.12 |
| 15 | 1.20 | 1.03 | .62 | .09 | | | | | | | | | 1.12 | 1.14 |
| 30 | 1.21 | 1.03 | .63 | .09 | | | | | | | | | 1.12 | 1.14 |
| 45 | 1.26 | 1.08 | .66 | .10 | | | | | | | | | 1.18 | 1.20 |
| 0200 | 1.27 | 1.08 | .71 | .10 | | | | | | | | | 1.18 | 1.20 |
| 15 | 1.27 | 1.08 | .73 | .11 | | | | | | | | | 1.19 | 1.21 |
| 30 | 1.37 | 1.17 | .76 | .11 | | | | | | | | | 1.28 | 1.30 |
| 45 | 1.41 | 1.20 | .79 | .12 | | | | | | | | | 1.32 | 1.34 |
| 0300 | 1.42 | 1.21 | .82 | .12 | | | | | | | | | 1.33 | 1.35 |
| 30 | 1.42 | 1.21 | .89 | .13 | | | | | | | | | 1.34 | 1.36 |
| 0400 | 1.42 | 1.21 | .95 | .14 | | | | | | | | | 1.35 | 1.37 |
| 0500 | 1.43 | 1.22 | .96 | .14 | | | | | | | | | 1.36 | 1.38 |
| 30 | 1.46 | 1.25 | .96 | .14 | | | | | | | | | 1.39 | 1.41 |
| 0600 | 1.48 | 1.26 | 1.00 | .15 | | | | | | | | | 1.41 | 1.43 |
| 0700 | 1.57 | 1.34 | 1.04 | .15 | | | | | | | | | 1.49 | 1.51 |
| 0800 | 1.59 | 1.36 | 1.08 | .16 | | | | | | | | | 1.52 | 1.54 |
| 30 | 1.62 | 1.38 | 1.09 | .16 | | | | | | | | | 1.54 | 1.56 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
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| | | | | | | | | | | WMR: | |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation =

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

Sheet 3 of 4
Comp. by: RNM
Date 3-8-76
Check by EEW
Date 3-9-76

Study Area 08096800 Cow Bayou Subwater Shed No.4 nr. Bruceville, tx Date of storm Feb. 1-2, 1975

| Accumulated Precipitation in Inches for Recording Rain Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | .8543 | | .1457 | | | | | | | | | | | |
| | Gage 3-R | | Gage 10-R | | Gage | | Gage | | Gage | | Gage | | Recording Gages | (Rec. Gages x K) |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | All Gages | All Gages |
| Feb. 2 | Con't. | | | | | | | | | | | | | |
| 0845 | 1.68 | 1.43 | 1.10 | .16 | | | | | | | | | 1.59 | 1.61 |
| 0900 | 1.76 | 1.50 | 1.12 | .16 | | | | | | | | | 1.66 | 1.68 |
| 15 | 1.83 | 1.56 | 1.13 | .16 | | | | | | | | | 1.72 | 1.75 |
| 30 | 1.88 | 1.61 | 1.13 | .16 | | | | | | | | | 1.77 | 1.80 |
| 45 | 1.89 | 1.61 | 1.15 | .17 | | | | | | | | | 1.78 | 1.81 |
| 1000 | 1.92 | 1.64 | 1.20 | .17 | | | | | | | | | 1.81 | 1.84 |
| 15 | 1.99 | 1.70 | 1.23 | .18 | | | | | | | | | 1.88 | 1.91 |
| 30 | 2.04 | 1.74 | 1.27 | .19 | | | | | | | | | 1.93 | 1.96 |
| 45 | 2.12 | 1.81 | 1.31 | .19 | | | | | | | | | 2.00 | 2.03 |
| 1100 | 2.19 | 1.87 | 1.35 | .20 | | | | | | | | | 2.07 | 2.10 |
| 05 | 2.22 | 1.90 | 1.37 | .20 | | | | | | | | | 2.10 | 2.13 |
| 10 | 2.25 | 1.92 | 1.39 | .20 | | | | | | | | | 2.12 | 2.15 |
| 15 | 2.28 | 1.94 | 1.42 | .21 | | | | | | | | | 2.15 | 2.18 |
| 20 | 2.31 | 1.97 | 1.44 | .21 | | | | | | | | | 2.18 | 2.21 |
| 25 | 2.35 | 2.01 | 1.45 | .21 | | | | | | | | | 2.22 | 2.25 |
| 30 | 2.39 | 2.04 | 1.46 | .21 | | | | | | | | | 2.25 | 2.28 |
| 35 | 2.42 | 2.07 | 1.47 | .21 | | | | | | | | | 2.28 | 2.31 |
| 40 | 2.46 | 2.10 | 1.50 | .22 | | | | | | | | | 2.32 | 2.35 |
| 45 | 2.49 | 2.13 | 1.53 | .22 | | | | | | | | | 2.35 | 2.39 |
| 50 | 2.51 | 2.14 | 1.57 | .23 | | | | | | | | | 2.37 | 2.41 |
| 55 | 2.53 | 2.16 | 1.59 | .23 | | | | | | | | | 2.39 | 2.43 |
| 1200 | 2.55 | 2.18 | 1.61 | .23 | | | | | | | | | 2.41 | 2.45 |
| 30 | 2.59 | 2.21 | 1.78 | .26 | | | | | | | | | 2.47 | 2.51 |
| 1300 | 2.60 | 2.22 | 1.97 | .29 | | | | | | | | | 2.51 | 2.55 |
| 30 | 2.61 | 2.23 | 2.06 | .30 | | | | | | | | | 2.53 | 2.57 |
| 1400 | 2.62 | 2.24 | 2.07 | .30 | | | | | | | | | 2.54 | 2.58 |
| 30 | 2.62 | 2.24 | 2.07 | .30 | | | | | | | | | 2.54 | 2.58 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | | WMR: | |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation

TX-78 (Revised July 1969)

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

WEIGHTED-PRECIPITATION RECORD

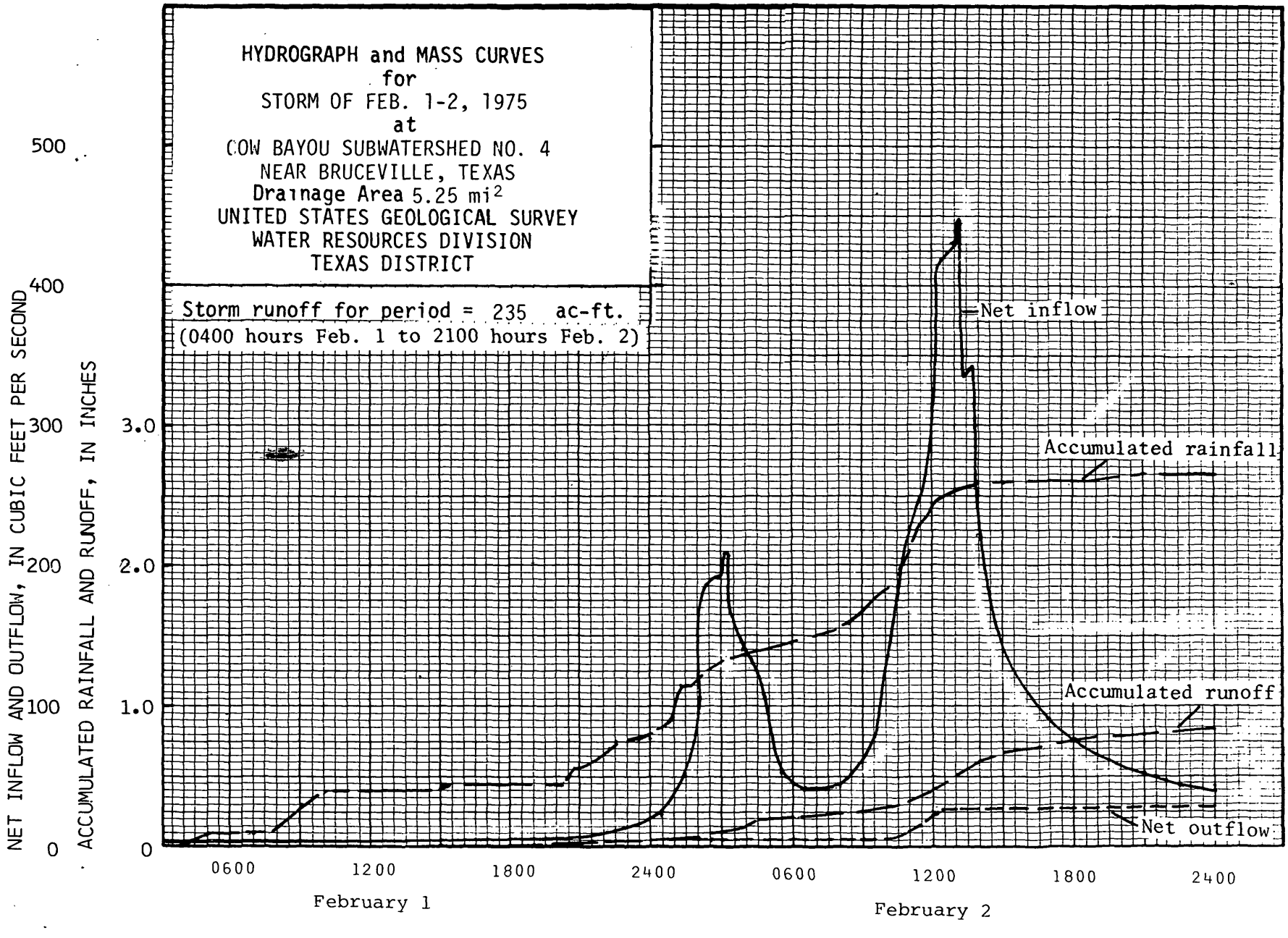
Sheet 4 of 4
Comp. by: RNM
Date 3-8-76
Check by EEW
Date 3-9-76

Study Area 08096800 Cow Bayou Subwater Shed No.4 nr. Bruceville, Tx Date of storm Feb. 1-2, 1975

| Accumulated Precipitation in Inches for Recording Rain Gages | | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | .8543 | | .1457 | | | | | | | | | | | | |
| Date & Time | Gage 3-R Recorded | x Factor | Gage 10-R Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| Feb. 2 | Con't | | | | | | | | | | | | | | |
| 1500 | 2.63 | 2.25 | 2.07 | .30 | | | | | | | | | 2.55 | 2.59 |
| 1600 | 2.64 | 2.26 | 2.08 | .30 | | | | | | | | | 2.56 | 2.60 |
| 1700 | 2.65 | 2.26 | 2.08 | .30 | | | | | | | | | 2.56 | 2.60 |
| 1800 | 2.66 | 2.27 | 2.09 | .30 | | | | | | | | | 2.57 | 2.61 |
| 2000 | 2.67 | 2.28 | 2.10 | .31 | | | | | | | | | 2.59 | 2.63 |
| 2100 | 2.70 | 2.31 | 2.11 | .31 | | | | | | | | | 2.62 | 2.66 |
| 2400 | 2.70 | 2.31 | 2.11 | .31 | | | | | | | | | 2.62 | 2.66 |

| Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor | Rain Gage | Weight Factor | Precipitation | Precipitation x Weight Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-S | .1735 | 2.96 | .51 | | | | | | | | |
| 3-R | .6808 | 2.70 | 1.84 | | | | | | | | |
| 10-R | .1457 | 2.11 | .31 | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | WMR: | 2.66 |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 2.66 / 2.62 = 1.015


HYDROGRAPH and MASS CURVES
for
STORM OF FEB. 1-2, 1975
at
COW BAYOU SUBWATERSHED NO. 4
NEAR BRUCEVILLE, TEXAS
Drainage Area 5.25 mi²
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 235 ac-ft.
(0400 hours Feb. 1 to 2100 hours Feb. 2)
NET INFLOW AND OUTFLOW, IN CUBIC FEET PER SECOND
ACCUMULATED RAINFALL AND RUNOFF, IN INCHES
500
400
300
200
100
0
3.0
2.0
1.0
0
Net inflow
Accumulated rainfall
Accumulated runoff
Net outflow
0600
1200
1800
2400
0600
1200
1800
2400
February 1
February 2

STA. NO. 08097000 — STORM RAINFALL AND RUNOFF RECORD — 1975 WATER YEAR

COW BAYOU AT MOORFVILLE, TEXAS — STORM OF FEB. 1-2, 1975

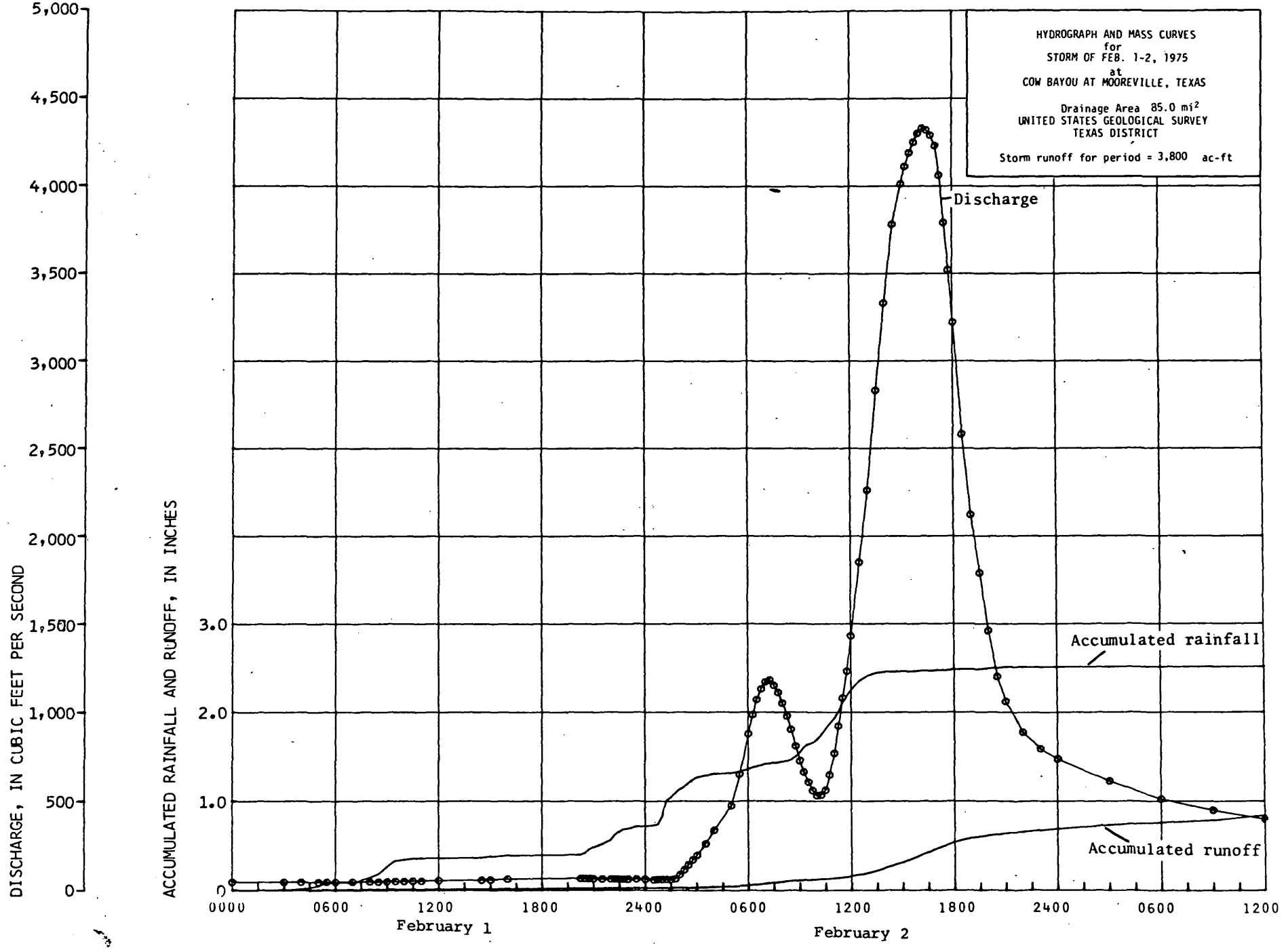
| DATE & TIME | GAGE NUMBER 3-R | 6-R | 10-R | ACCUM. WEIGHTED PRECIP. IN. | DISCHARGE IN $FT^3/S$ | ACCUM. RUNOFF IN. |
|---|---|---|---|---|---|---|
| FEB. 1 | | | | | | |
| 0000 | 0.0 | 0.0 | 0.0 | 0.0 | 47.0 | 0.0013 |
| 0300 | 0.0 | 0.01 | 0.0 | 0.00 | 47.0 | 0.0030 |
| 0400 | 0.02 | 0.02 | 0.0 | 0.01 | 47.0 | 0.0039 |
| 0500 | 0.09 | 0.06 | 0.0 | 0.05 | 47.0 | 0.0045 |
| 0530 | 0.11 | 0.11 | 0.02 | 0.08 | 47.0 | 0.0049 |
| 0600 | 0.11 | 0.12 | 0.02 | 0.09 | 47.0 | 0.0056 |
| 0700 | 0.11 | 0.12 | 0.02 | 0.09 | 48.0 | 0.0064 |
| 0800 | 0.18 | 0.17 | 0.07 | 0.14 | 48.0 | 0.0071 |
| 0830 | 0.23 | 0.22 | 0.09 | 0.18 | 48.0 | 0.0075 |
| 0900 | 0.34 | 0.32 | 0.12 | 0.27 | 49.0 | 0.0080 |
| 0930 | 0.37 | 0.37 | 0.24 | 0.33 | 50.0 | 0.0084 |
| 1000 | 0.39 | 0.37 | 0.26 | 0.34 | 51.0 | 0.0089 |
| 1030 | 0.40 | 0.38 | 0.28 | 0.36 | 52.0 | 0.0094 |
| 1100 | 0.41 | 0.38 | 0.29 | 0.36 | 53.0 | 0.0101 |
| 1200 | 0.41 | 0.38 | 0.29 | 0.36 | 55.0 | 0.0119 |
| 1430 | 0.41 | 0.39 | 0.29 | 0.37 | 57.0 | 0.0134 |
| 1500 | 0.44 | 0.40 | 0.29 | 0.38 | 58.0 | 0.0142 |
| 1600 | 0.45 | 0.41 | 0.30 | 0.39 | 62.0 | 0.0172 |
| 2015 | 0.45 | 0.43 | 0.31 | 0.40 | 67.0 | 0.0199 |
| 2030 | 0.49 | 0.44 | 0.31 | 0.42 | 66.0 | 0.0202 |
| 2045 | 0.53 | 0.48 | 0.31 | 0.46 | 66.0 | 0.0205 |
| 2100 | 0.59 | 0.53 | 0.31 | 0.48 | 66.0 | 0.0210 |
| 2130 | 0.62 | 0.54 | 0.39 | 0.52 | 65.0 | 0.0216 |
| 2200 | 0.67 | 0.55 | 0.46 | 0.56 | 64.0 | 0.0220 |
| 2215 | 0.73 | 0.65 | 0.48 | 0.62 | 64.0 | 0.0223 |
| 2230 | 0.79 | 0.68 | 0.49 | 0.66 | 63.0 | 0.0226 |
| 2245 | 0.80 | 0.74 | 0.50 | 0.69 | 63.0 | 0.0229 |
| 2300 | 0.80 | 0.74 | 0.52 | 0.69 | 63.0 | 0.0233 |
| 2330 | 0.80 | 0.76 | 0.57 | 0.71 | 63.0 | 0.0239 |
| 2400 | 0.81 | 0.76 | 0.58 | 0.72 | 63.0 | 0.0243 |
| FEB. 2 | | | | | | |
| 0000 | 0.81 | 0.76 | 0.58 | 0.72 | 63.0 | 0.0243 |
| 0030 | 0.82 | 0.77 | 0.59 | 0.73 | 59.0 | 0.0249 |
| 0045 | 0.84 | 0.77 | 0.60 | 0.74 | 60.0 | 0.0251 |
| 0100 | 1.06 | 0.83 | 0.60 | 0.83 | 60.0 | 0.0254 |
| 0115 | 1.20 | 1.16 | 0.62 | 1.01 | 61.0 | 0.0257 |
| 0130 | 1.21 | 1.23 | 0.63 | 1.04 | 61.0 | 0.0260 |
| 0145 | 1.26 | 1.28 | 0.66 | 1.09 | 64.0 | 0.0263 |
| 0200 | 1.27 | 1.35 | 0.71 | 1.13 | 87.0 | 0.0266 |
| 0215 | 1.27 | 1.39 | 0.73 | 1.15 | 115.0 | 0.0272 |

| STA. NO. 08097000 | STORM RAINFALL AND RUNOFF RECORD | | | | | | | 1975 WATER YEAR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| COW BAYOU AT MOORFVILLE, TEXAS | STORM OF FEB. 1-2, 1975 | | | | | | | ACCUM. WEIGHTED PRECIP. IN. | DISCHARGE IN $FT^3/S$ | ACCUM. RUNOFF IN. |
| DATE & TIME | GAGE NUMBER | | | | | | | | | |
| | 3-R | 6-R | 10-R | | | | | | | |
| FEB. 2 | | | | | | | | | | |
| 0230 | 1.37 | 1.41 | 0.76 | | | | | 1.20 | 143.0 | 0.0278 |
| 0245 | 1.41 | 1.45 | 0.79 | | | | | 1.24 | 171.0 | 0.0286 |
| 0300 | 1.42 | 1.49 | 0.82 | | | | | 1.27 | 197.0 | 0.0300 |
| 0330 | 1.42 | 1.49 | 0.89 | | | | | 1.29 | 260.0 | 0.0323 |
| 0400 | 1.42 | 1.49 | 0.95 | | | | | 1.30 | 336.0 | 0.0369 |
| 0500 | 1.43 | 1.50 | 0.96 | | | | | 1.31 | 474.0 | 0.0434 |
| 0530 | 1.46 | 1.52 | 0.96 | | | | | 1.33 | 650.0 | 0.0493 |
| 0600 | 1.48 | 1.53 | 1.00 | | | | | 1.35 | 876.0 | 0.0553 |
| 0615 | 1.50 | 1.55 | 1.01 | | | | | 1.37 | 983.0 | 0.0598 |
| 0630 | 1.52 | 1.57 | 1.02 | | | | | 1.39 | 1070.0 | 0.0647 |
| 0645 | 1.54 | 1.58 | 1.03 | | | | | 1.40 | 1130.0 | 0.0698 |
| 0700 | 1.57 | 1.59 | 1.04 | | | | | 1.42 | 1170.0 | 0.0751 |
| 0715 | 1.57 | 1.59 | 1.05 | | | | | 1.42 | 1180.0 | 0.0805 |
| 0730 | 1.58 | 1.60 | 1.06 | | | | | 1.43 | 1150.0 | 0.0858 |
| 0745 | 1.58 | 1.60 | 1.07 | | | | | 1.43 | 1110.0 | 0.0908 |
| 0800 | 1.59 | 1.61 | 1.08 | | | | | 1.44 | 1050.0 | 0.0956 |
| 0815 | 1.60 | 1.61 | 1.08 | | | | | 1.45 | 976.0 | 0.1001 |
| 0830 | 1.62 | 1.62 | 1.09 | | | | | 1.46 | 901.0 | 0.1042 |
| 0845 | 1.68 | 1.66 | 1.10 | | | | | 1.50 | 808.0 | 0.1078 |
| 0900 | 1.76 | 1.70 | 1.12 | | | | | 1.54 | 726.0 | 0.1112 |
| 0915 | 1.83 | 1.79 | 1.13 | | | | | 1.60 | 663.0 | 0.1142 |
| 0930 | 1.88 | 1.84 | 1.13 | | | | | 1.64 | 606.0 | 0.1169 |
| 0945 | 1.89 | 1.86 | 1.15 | | | | | 1.65 | 559.0 | 0.1195 |
| 1000 | 1.92 | 1.88 | 1.20 | | | | | 1.69 | 531.0 | 0.1219 |
| 1015 | 1.99 | 1.94 | 1.23 | | | | | 1.74 | 534.0 | 0.1243 |
| 1030 | 2.04 | 2.04 | 1.27 | | | | | 1.81 | 561.0 | 0.1269 |
| 1045 | 2.12 | 2.10 | 1.31 | | | | | 1.87 | 647.0 | 0.1298 |
| 1100 | 2.19 | 2.17 | 1.35 | | | | | 1.93 | 768.0 | 0.1333 |
| 1115 | 2.29 | 2.24 | 1.42 | | | | | 2.00 | 922.0 | 0.1376 |
| 1130 | 2.39 | 2.37 | 1.46 | | | | | 2.10 | 1080.0 | 0.1425 |
| 1145 | 2.49 | 2.45 | 1.53 | | | | | 2.18 | 1230.0 | 0.1481 |
| 1200 | 2.55 | 2.51 | 1.61 | | | | | 2.25 | 1430.0 | 0.1579 |
| 1230 | 2.59 | 2.61 | 1.78 | | | | | 2.35 | 1850.0 | 0.1747 |
| 1300 | 2.60 | 2.61 | 1.97 | | | | | 2.41 | 2260.0 | 0.1953 |
| 1330 | 2.61 | 2.61 | 2.06 | | | | | 2.44 | 2830.0 | 0.2211 |
| 1400 | 2.62 | 2.62 | 2.07 | | | | | 2.45 | 3330.0 | 0.2515 |
| 1430 | 2.62 | 2.63 | 2.07 | | | | | 2.46 | 3780.0 | 0.2859 |
| 1500 | 2.63 | 2.63 | 2.07 | | | | | 2.46 | 4010.0 | 0.3133 |
| 1515 | 2.63 | 2.63 | 2.07 | | | | | 2.46 | 4110.0 | 0.3321 |

STA. NO. 08097000 — STORM RAINFALL AND RUNOFF RECORD — 1975 WATER YEAR

COW BAYOU AT MOOREVILLE, TEXAS — STORM OF FEB. 1-2, 1975

| DATE & TIME | GAGE NUMBER 3-R | 6-R | 10-R | ACCUM. WEIGHTED PRECIP. IN. | DISCHARGE IN $FT^3/S$ | ACCUM. RUNOFF IN. |
|---|---|---|---|---|---|---|
| FEB. 2 | | | | | | |
| 1530 | 2.63 | 2.63 | 2.07 | 2.46 | 4190.0 | 0.3512 |
| 1545 | 2.63 | 2.63 | 2.07 | 2.46 | 4250.0 | 0.3705 |
| 1600 | 2.64 | 2.63 | 2.08 | 2.47 | 4300.0 | 0.3901 |
| 1615 | 2.64 | 2.63 | 2.08 | 2.47 | 4330.0 | 0.4099 |
| 1630 | 2.64 | 2.63 | 2.08 | 2.47 | 4320.0 | 0.4296 |
| 1645 | 2.64 | 2.63 | 2.08 | 2.47 | 4290.0 | 0.4491 |
| 1700 | 2.65 | 2.64 | 2.08 | 2.47 | 4230.0 | 0.4684 |
| 1715 | 2.65 | 2.64 | 2.08 | 2.47 | 4060.0 | 0.4869 |
| 1730 | 2.65 | 2.64 | 2.08 | 2.47 | 3790.0 | 0.5042 |
| 1745 | 2.65 | 2.64 | 2.08 | 2.47 | 3520.0 | 0.5202 |
| 1800 | 2.66 | 2.65 | 2.09 | 2.48 | 3220.0 | 0.5422 |
| 1830 | 2.66 | 2.65 | 2.09 | 2.48 | 2580.0 | 0.5657 |
| 1900 | 2.66 | 2.65 | 2.09 | 2.48 | 2120.0 | 0.5851 |
| 1930 | 2.66 | 2.65 | 2.09 | 2.48 | 1790.0 | 0.6014 |
| 2000 | 2.67 | 2.66 | 2.10 | 2.49 | 1460.0 | 0.6147 |
| 2030 | 2.68 | 2.67 | 2.10 | 2.50 | 1200.0 | 0.6256 |
| 2100 | 2.70 | 2.67 | 2.11 | 2.51 | 1060.0 | 0.6401 |
| 2200 | 2.70 | 2.67 | 2.11 | 2.51 | 888.0 | 0.6563 |
| 2300 | 2.70 | 2.67 | 2.11 | 2.51 | 795.0 | 0.6708 |
| 2400 | 2.70 | 2.67 | 2.11 | 2.51 | 738.0 | 0.6876 |
| FEB. 3 | | | | | | |
| 0000 | 2.70 | 2.67 | 2.11 | 2.51 | 738.0 | 0.6876 |
| 0300 | 2.70 | 2.67 | 2.11 | 2.51 | 614.0 | 0.7313 |
| 0600 | 2.70 | 2.67 | 2.11 | 2.51 | 513.0 | 0.7593 |
| 0900 | 2.70 | 2.67 | 2.11 | 2.51 | 450.0 | 0.7840 |
| 1200 | 2.70 | 2.67 | 2.11 | 2.51 | 398.0 | 0.8384 |


HYDROGRAPH AND MASS CURVES
for
STORM OF FEB. 1-2, 1975
at
COW BAYOU AT MOOREVILLE, TEXAS
Drainage Area 85.0 mi²
UNITED STATES GEOLOGICAL SURVEY
TEXAS DISTRICT
Storm runoff for period = 3,800 ac-ft
Discharge
Accumulated rainfall
Accumulated runoff
DISCHARGE, IN CUBIC FEET PER SECOND
ACCUMULATED RAINFALL AND RUNOFF, IN INCHES
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
3.0
2.0
1.0
0
0000
0600
1200
1800
2400
0600
1200
1800
2400
0600
1200
February 1
February 2