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1968

# Compilation of Hydrologic Data Honey Creek, Trinity River Basin, Texas 1968

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY-WATER RESOURCES DIVISION
Texas District
Trigg Twichell, District Chief

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

# COMPILATION OF HYDROLOGIC DATA, HONEY CREEK TRINITY RIVER BASIN, TEXAS 1968

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

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# COMPILATION OF HYDROLOGIC DATA, HONEY CREEK TRINITY RIVER BASIN, TEXAS 1968

## INTRODUCTION

### History of Small Watershed Projects in Texas

The U.S. Soil Conservation Service is actively engaged in the installation of flood and soil erosion reducing 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. In June 1968, the Soil Conservation Service estimated approximately 3,500 structures to be physically and economically feasible for installation in Texas. As of September 30, 1968, 1,271 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 are needed to appraise the effects of the structures on water 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 11 areas (fig. 1). These studies are being made in cooperation with the Texas Water Development Board, the Soil Conservation Service, the San Antonio River Authority, the city of Dallas, and the Tarrant County Water Control and Improvement District No. 1. The 11 study areas were chosen to sample watersheds having different rainfall, topography, geology, and soils. In four of the study areas (Mukewater, North, Little 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 three of these study areas. A summary of the development of the floodwater-retarding structures on each study area as of September 30, 1968, is shown in table 1.

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

This report, which is the ninth in a series of basic-data reports published annually for the Honey Creek study area, contains the rainfall, runoff, and storage data collected during the 1968 water year for the 39.0-square-mile area above the stream-gaging station Honey Creek near McKinney, Texas. The location of floodwater-

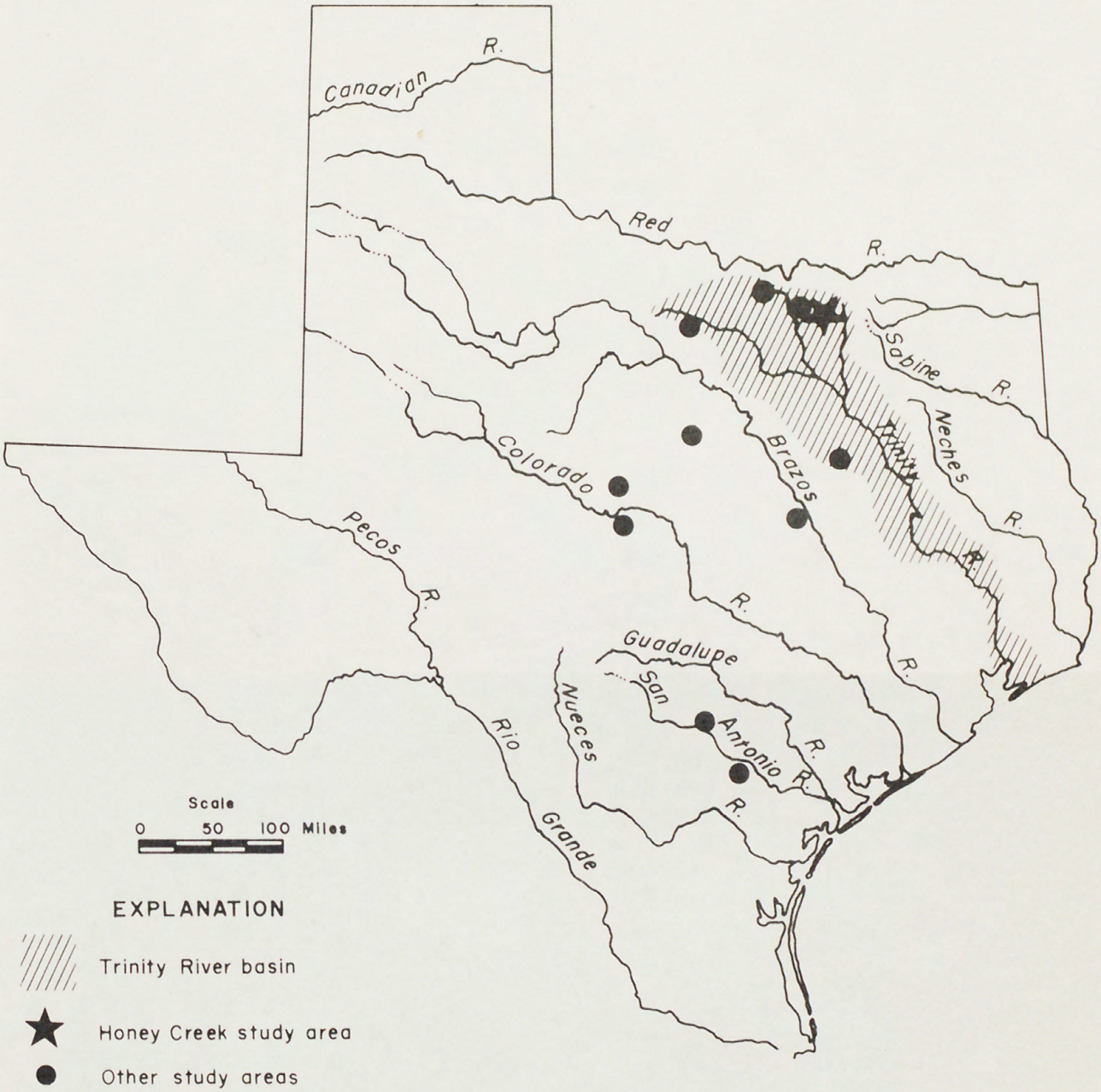



FIGURE 1. — Location of the Honey Creek study area

Table 1.--Small watershed study areas in Texas as of Sept. 30, 1968

| Watershed | Drainage area above stream-gaging station (sq mi) | Hydrologic data collection began | Floodwater-retarding structures above stream-gaging station | Period the structures were built |
|---|---|---|---|---|
| Trinity River basin: | | | | |
| North Creek near Jacksboro | 21.6 | Aug. 1956 | None | |
| Elm Fork Trinity River near Muenster | 46.0 | July 1956 | 14 | 1954-57, 63 |
| Little Elm Creek near Aubrey | 75.5 | June 1956 | 8 | 1966 |
| Honey Creek near McKinney | 39.0 | July 1951 | 12 | 1951-57 |
| Pin Oak Creek near Hubbard | 17.6 | Sept. 1956 | 6 | 1962-63, 65 |
| Brazos River basin: | | | | |
| Green Creek near Alexander | 46.1 | Oct. 1954 | 8 | 1954-56 |
| Cow Bayou near Mooreville | 79.6 | Sept. 1954 | 26 | 1955-58, 64-65 |
| Colorado River basin: | | | | |
| Deep Creek near Mercury | *43.9 | June 1951 | 5 | 1951-53 |
| Mukewater Creek at Trickham | 70.0 | Aug. 1951 | 6 | 1961-62, 65 |
| San Antonio River basin: | | | | |
| Calaveras Creek near Elmendorf | 77.2 | Aug. 1954 | 7 1/ | 1954-58 |
| Escondido Creek at Kenedy | **72.4 | July 1954 | 10 | 1954-58 |

* 8.31 sq mi above Dry Prong Deep Creek near Mercury not included in this total.
** 8.43 sq mi above Escondido Creek subwatershed No. 11 (Dry Escondido Creek) near Kenedy not included in this total.
1/ Two additional structures, sites 1 and 4, were destroyed during the 1968 water year due to construction of Calaveras Dam.

retarding structures and hydrologic instruments in the area are shown on figure 2.

The investigation is scheduled to continue through a period of both above- and below-normal precipitation to define the various factors used in the analyses of rainfall-runoff relationships before and after floodwater-retarding structures are built.

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

Honey Creek originates near Gunter in Grayson County. The creek flows southeasterly for about 15 miles to the East Fork Trinity River, 3 miles north of McKinney in Collin County. Its two principal tributaries are Long Branch and Haw Branch. Honey Creek drains a roughly rectangular shaped basin with a drainage area of 50.7 square miles at the mouth and 39.0 square miles above the Geological Survey stream-gaging station near McKinney, Texas.

The rural economy of the watershed is agricultural with cotton, grain sorghums, corn, and Johnson Grass hay being the predominant crops. About two-thirds of the total area of the watershed is used for crop production; the remainder is used for pasture.

The Austin Chalk underlies all of the basin except for the narrow fringe of Eagle Ford Shale along the northwestern divide. Soils in the area have formed from chalks and marls and the alluvial soils in the creek bottoms are very productive. The soils are fine to medium textured and are low to moderately permeable.

The topography of the watershed ranges from moderately steep slopes along the divides to flat plains in the central section. Altitudes range from about 810 feet above mean sea level at the headwaters to about 525 feet at the mouth. The altitude of the streambed at the stream-gaging station is about 564 feet above mean sea level. The total length of Honey Creek is about 15 miles with an average width of about 4 miles; the average gradient is about 19 feet per mile.

The climate of the area is temperate and subhumid with a prevailing south wind. Thunderstorms occur frequently in the spring and summer. Long-duration, low-intensity storms triggered by southward-moving continental polar fronts are common during the fall and winter.

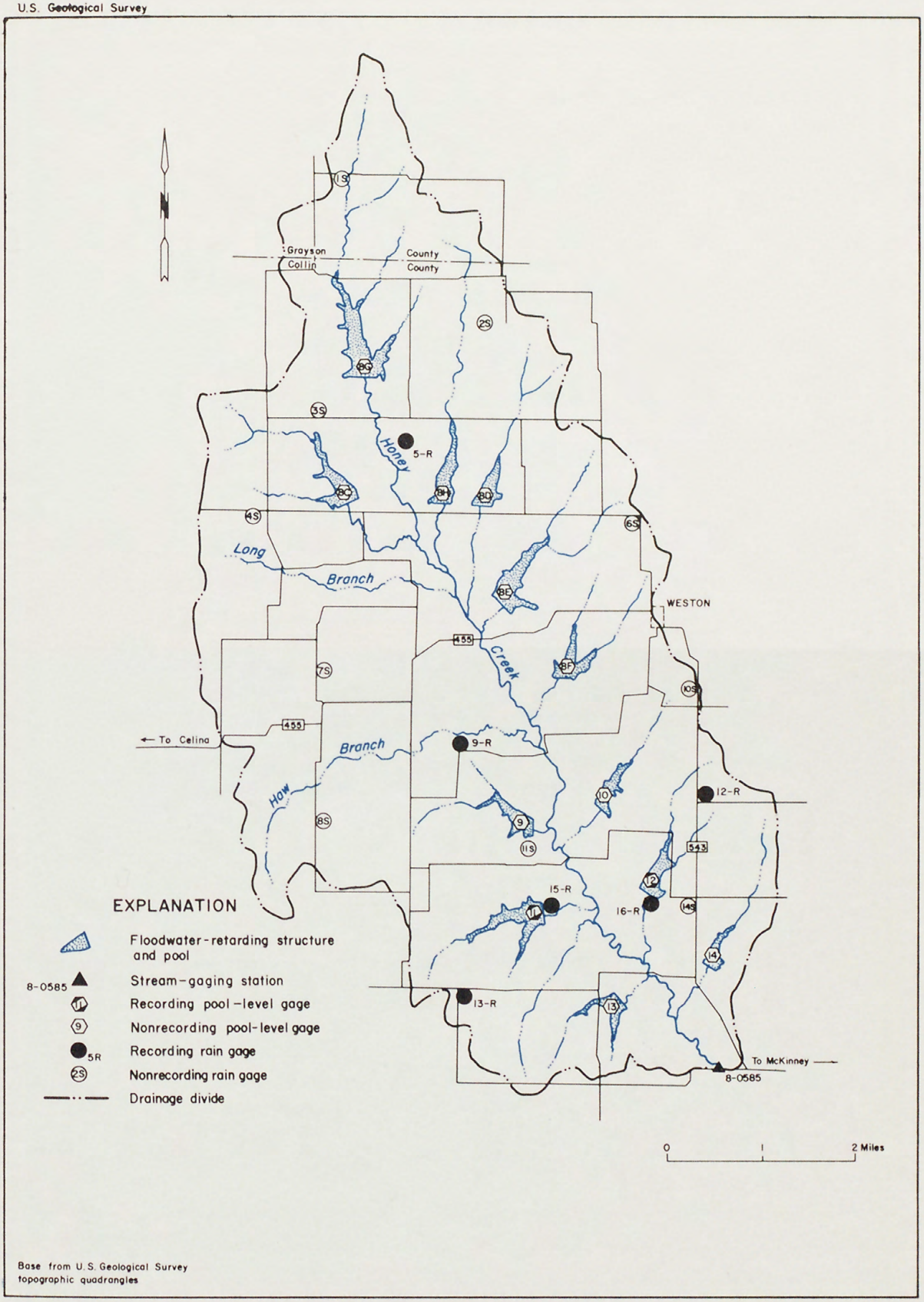



FIGURE 2.– Locations of floodwater-retarding structures and hydrologic-instrument installations in Honey Creek study area

A-78 (Revised Feb. 1960)

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Sheet 1 of 2
Comp. by: HHW
Date: JULY 30, 1969
Check by: BBH
Date: Sept. 10, 1969

WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK SUBWATERSHED No. 11, NEAR McKINNEY, TEX. Date of storm MARCH 19-20, 1968

| Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | 1.000 | | | | | | | | | | | | | | |
| Date & Time | Gage 13-R Recorded | x Factor | Gage 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 |
| MARCH 19, 1968 | | | | | | | | | | | | | | | |
| 0900 | 0. | | | | | | | | | | | | | 0. | 0. |
| 15 | .04 | | | | | | | | | | | | | .04 | .04 |
| 30 | .24 | | | | | | | | | | | | | .24 | .25 |
| 45 | .36 | | | | | | | | | | | | | .36 | .37 |
| 1000 | .50 | | | | | | | | | | | | | .50 | .52 |
| 15 | .60 | | | | | | | | | | | | | .60 | .62 |
| 30 | .68 | | | | | | | | | | | | | .68 | .70 |
| 1100 | .71 | | | | | | | | | | | | | .71 | .73 |
| 1200 | .73 | | | | | | | | | | | | | .73 | .75 |
| 1300 | .85 | | | | | | | | | | | | | .85 | .88 |
| 30 | .96 | | | | | | | | | | | | | .96 | .99 |
| 1400 | 1.12 | | | | | | | | | | | | | 1.12 | 1.16 |
| 30 | 1.18 | | | | | | | | | | | | | 1.18 | 1.22 |
| 1500 | 1.27 | | | | | | | | | | | | | 1.27 | 1.31 |
| 1600 | 1.31 | | | | | | | | | | | | | 1.31 | 1.35 |
| 30 | 1.41 | | | | | | | | | | | | | 1.41 | 1.46 |
| 1700 | 1.52 | | | | | | | | | | | | | 1.52 | 1.57 |
| 1800 | 1.58 | | | | | | | | | | | | | 1.58 | 1.63 |
| 1900 | 1.64 | | | | | | | | | | | | | 1.64 | 1.69 |
| 2000 | 1.65 | | | | | | | | | | | | | 1.65 | 1.70 |
| 2200 | 1.69 | | | | | | | | | | | | | 1.69 | 1.74 |
| 2400 | 1.73 | | | | | | | | | | | | | 1.73 | 1.78 |
| | | | | | | | | | | | | | | | |
| MARCH 20, 1968 | | | | | | | | | | | | | | | |
| 0400 | 1.73 | | | | | | | | | | | | | 1.73 | 1.78 |
| 30 | 1.81 | | | | | | | | | | | | | 1.81 | 1.87 |
| 45 | 1.85 | | | | | | | | | | | | | 1.85 | 1.91 |
| 0500 | 1.92 | | | | | | | | | | | | | 1.92 | 1.98 |
| 30 | 2.08 | | | | | | | | | | | | | 2.08 | 2.15 |
| 0600 | 2.21 | | | | | | | | | | | | | 2.21 | 2.28 |

| 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 =

A 7R (Revised Feb. 1960)

Sheet 2 of 2

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 30, 1969
Check by: BBH
Date: Sept. 10, 1969

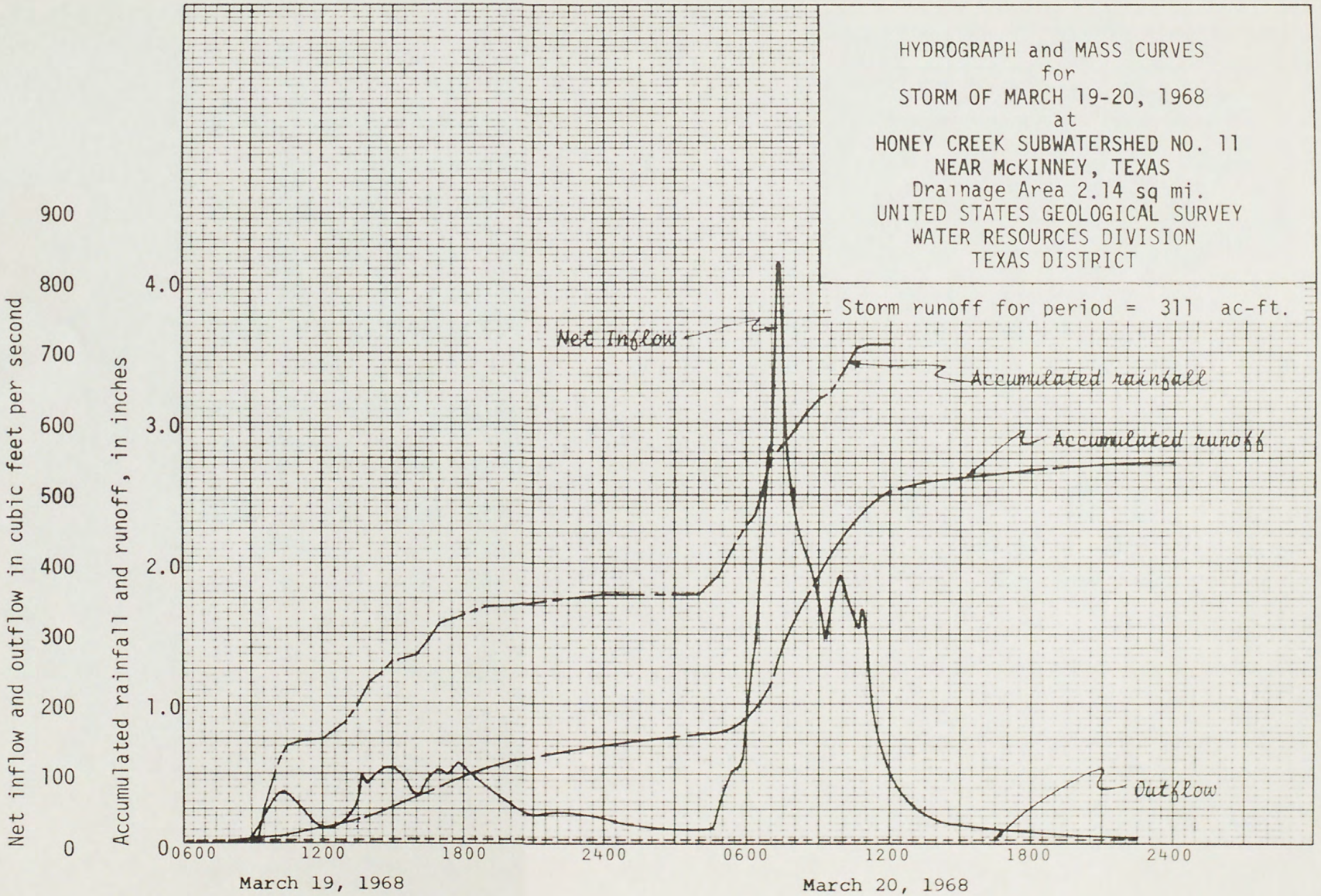
WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK SUBWATERSHED NO. 11 NEAR McKINNEY, TEX. Date of storm: MARCH 19-20, 1968

| Weight Factor | 1.000 | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage 13-R | | Gage | | Gage | | Gage | | Gage | | Gage | | | |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| MARCH | 20 (con't) | | | | | | | | | | | | | |
| 0615 | 2.28 | | | | | | | | | | | | 2.28 | 2.35 |
| 30 | 2.38 | | | | | | | | | | | | 2.38 | 2.46 |
| 45 | 2.54 | | | | | | | | | | | | 2.54 | 2.62 |
| 0700 | 2.66 | | | | | | | | | | | | 2.66 | 2.75 |
| 30 | 2.77 | | | | | | | | | | | | 2.77 | 2.86 |
| 0800 | 2.86 | | | | | | | | | | | | 2.86 | 2.95 |
| 30 | 2.99 | | | | | | | | | | | | 2.99 | 3.09 |
| 0900 | 3.07 | | | | | | | | | | | | 3.07 | 3.17 |
| 30 | 3.13 | | | | | | | | | | | | 3.13 | 3.23 |
| 1000 | 3.27 | | | | | | | | | | | | 3.27 | 3.37 |
| 30 | 3.42 | | | | | | | | | | | | 3.42 | 3.53 |
| 1100 | 3.45 | | | | | | | | | | | | 3.45 | 3.56 |
| 1200 | 3.45 | | | | | | | | | | | | 3.45 | 3.56 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15-R | .217 | 3.96 | .86 | | | | | | | | |
| 13-R | .688 | 3.45 | 2.37 | | | | | | | | |
| 11-S | .095 | 3.48 | .33 | | | | | | | | |
| | | TOTAL | 3.56 | | | | | | | | |
| | | | | | | | | | | WMR: | 3.56 |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 3.56 / 3.45 = 1.032


HYDROGRAPH and MASS CURVES
for
STORM OF MARCH 19-20, 1968
at
HONEY CREEK SUBWATERSHED NO. 11
NEAR McKINNEY, TEXAS
Drainage Area 2.14 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 311 ac-ft.
Net Inflow
Accumulated rainfall
Accumulated runoff
Outflow
Net inflow and outflow in cubic feet per second
Accumulated rainfall and runoff, in inches
0
100
200
300
400
500
600
700
800
900
0
1.0
2.0
3.0
4.0
0600
1200
1800
2400
0600
1200
1800
2400
March 19, 1968
March 20, 1968

Form A-64
(Rev. 5-65)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period March 19-20, 1968

8-0580 Honey Creek subwatershed No. 12 near Mt Kinney, Tex. D.A. 1.26 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | March | 19 | | | | | | | | | | | | | | |
| 0000 | 15.10 | 123.78 | | | | | | | | | | | | | | |
| 0900 | 15.10 | 123.78 | 9.00 | 0 | 0 | 15.10 | 0.7 | 0.7 | 0 | | | | .7 | 0.0009 | .0081 | 0.0081 |
| 0930 | 15.11 | 123.98 | .50 | + .20 | + 4.8 | 15.10 | .7 | 5.5 | .05 | 19.4 | .08 | 1.9 | 3.6 | .0044 | .0022 | .0103 |
| 0945 | 15.14 | 124.56 | .25 | + .58 | + 28.1 | 15.12 | 1.0 | 29.1 | .25 | 19.5 | .41 | 19.8 | 9.3 | .0114 | .0028 | .0131 |
| 1000 | 15.15 | 124.76 | .25 | + .20 | + 9.7 | 15.14 | 1.2 | 10.9 | .12 | 19.5 | .20 | 9.7 | 1.2 | .0015 | .0004 | .0135 |
| 1015 | 15.17 | 125.14 | .25 | + .38 | + 18.4 | 15.16 | 1.6 | 20.0 | .04 | 19.5 | .06 | 2.9 | 17.1 | .0210 | .0052 | .0187 |
| 1030 | 15.19 | 125.54 | .25 | + .40 | + 19.4 | 15.18 | 1.9 | 21.3 | .09 | 19.6 | .15 | 7.3 | 14.0 | .0172 | .0043 | .0230 |
| 1045 | 15.22 | 126.12 | .25 | + .58 | + 28.1 | 15.20 | 2.2 | 30.3 | .02 | 19.6 | .03 | 1.5 | 28.8 | .0354 | .0088 | .0318 |
| 1100 | 15.25 | 126.72 | .25 | + .60 | + 29.0 | 15.22 | 2.6 | 31.6 | .01 | 19.6 | .02 | 1.0 | 30.6 | .0376 | .0094 | .0412 |
| 1115 | 15.29 | 127.50 | .25 | + .78 | + 37.8 | 15.26 | 3.4 | 41.2 | .01 | 19.7 | .02 | 1.0 | 40.2 | .0495 | .0124 | .0536 |
| 1130 | 15.32 | 128.10 | .25 | + .60 | + 29.0 | 15.30 | 4.2 | 33.2 | 0 | | | | 33.2 | .0408 | .0102 | .0638 |
| 1200 | 15.37 | 129.09 | .50 | + .99 | + 24.0 | 15.34 | 5.1 | 29.1 | 0 | | | | 29.1 | .0358 | .0179 | .0817 |
| 1300 | 15.42 | 130.08 | 1.00 | + .99 | + 12.0 | 15.40 | 6.3 | 18.3 | .03 | 19.9 | .05 | .6 | 17.7 | .0218 | .0218 | .1035 |
| 1315 | 15.43 | 130.28 | .25 | + .20 | + 9.7 | 15.42 | 6.5 | 16.2 | .08 | 19.9 | .13 | 6.3 | 9.9 | .0122 | .0030 | .1065 |
| 1330 | 15.44 | 130.48 | .25 | + .20 | + 9.7 | 15.44 | 6.7 | 16.4 | .04 | 20.0 | .07 | 3.4 | 13.0 | .0160 | .0040 | .1105 |
| 1345 | 15.47 | 131.08 | .25 | + .60 | + 29.0 | 15.46 | 6.8 | 35.8 | .07 | 20.0 | .12 | 5.8 | 30.0 | .0369 | .0092 | .1197 |
| 1400 | 15.51 | 131.88 | .25 | + .80 | + 38.7 | 15.49 | 6.8 | 45.5 | .08 | 20.0 | .13 | 6.3 | 39.2 | .0482 | .0120 | .1317 |
| 1415 | 15.56 | 132.89 | .25 | + 1.01 | + 48.9 | 15.54 | 7.0 | 55.9 | 0 | | | | 55.9 | .0689 | .0172 | .1489 |
| 1430 | 15.63 | 134.30 | .25 | + 1.41 | + 68.2 | 15.60 | 7.1 | 75.3 | .07 | 20.2 | .12 | 5.8 | 69.5 | .0855 | .0214 | .1703 |
| 1445 | 15.74 | 136.54 | .25 | + 2.24 | + 108 | 15.68 | 7.2 | 115 | .04 | 20.4 | .07 | 3.4 | 112 | .1378 | .0344 | .2047 |
| 1500 | 15.85 | 138.79 | .25 | + 2.25 | + 109 | 15.80 | 7.2 | 116 | .01 | 20.5 | .02 | 1.0 | 115 | .1415 | .0354 | .2401 |
| 1515 | 15.93 | 140.44 | .25 | + 1.65 | + 79.9 | 15.89 | 7.2 | 87.1 | 0 | | | | 87.1 | .1071 | .0268 | .2669 |
| 1530 | 16.02 | 142.32 | .25 | + 1.88 | + 91.0 | 15.98 | 7.2 | 98.2 | 0 | | | | 98.2 | .1208 | .0302 | .2971 |
| 1545 | 16.11 | 144.20 | .25 | + 1.88 | + 91.0 | 16.06 | 7.3 | 98.3 | .02 | 21.0 | .04 | 1.9 | 96.4 | .1186 | .0297 | .3268 |
| 1600 | 16.16 | 145.26 | .25 | + 1.06 | + 51.3 | 16.14 | 7.3 | 58.6 | 0 | | | | 58.6 | .0721 | .0180 | .3448 |
| 1630 | 16.24 | 146.95 | .50 | + 1.69 | + 40.9 | 16.20 | 7.3 | 48.2 | .03 | 21.2 | .05 | 1.2 | 47.0 | .0578 | .0289 | .3737 |
| 1700 | 16.32 | 148.66 | .50 | + 1.71 | + 41.4 | 16.28 | 7.3 | 48.7 | .06 | 21.3 | .11 | 2.7 | 46.0 | .0566 | .0283 | .4020 |
| 1730 | 16.37 | 149.73 | .50 | + 1.07 | + 25.9 | 16.34 | 7.3 | 33.2 | .01 | 21.4 | .02 | .5 | 32.7 | .0402 | .0201 | .4221 |
| 1800 | 16.45 | 151.45 | .50 | + 1.72 | + 41.6 | 16.41 | 7.3 | 48.9 | .02 | 21.5 | .04 | 1.0 | 47.9 | .0589 | .0294 | .4515 |
| 1830 | 16.52 | 152.97 | .50 | + 1.52 | + 36.8 | 16.48 | 7.3 | 44.1 | .02 | 21.7 | .04 | 1.0 | 43.1 | .0530 | .0265 | .4780 |
| 1900 | 16.57 | 154.06 | .50 | + 1.09 | + 26.4 | 16.54 | 7.3 | 33.7 | 0 | | | | 33.7 | .0415 | .0208 | .4988 |

Comp. by BBH
Checked by FLS

Form A-64
(Rev. 5-65)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period March 19-20, 1968

8-0580 Honey Creek subwatershed No. 12 near McKinney, Tex. D.A. 1.26 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | March 19 continued | | | | | | | | | | | | | | | |
| 2000 | 16.63 | 155.37 | 1.00 | +1.31 | +15.9 | 16.60 | 7.3 | 23.2 | 0.02 | 21.9 | .04 | .5 | 22.7 | .0279 | .0279 | .5267 |
| 2100 | 16.68 | 156.47 | 1.00 | +1.10 | +13.3 | 16.66 | 7.3 | 20.6 | .02 | 22.0 | .04 | .5 | 20.1 | .0247 | .0247 | .5514 |
| 2200 | 16.72 | 157.35 | 1.00 | +.88 | +10.6 | 16.70 | 7.4 | 18.0 | .05 | 22.1 | .09 | 1.1 | 16.9 | .0208 | .0208 | .5722 |
| 2230 | 16.76 | 158.24 | .50 | +.89 | +21.5 | 16.74 | 7.4 | 28.9 | .08 | 22.1 | .15 | 3.6 | 25.3 | .0311 | .0156 | .5878 |
| 2245 | 16.78 | 158.69 | .25 | +.45 | +21.8 | 16.77 | 7.4 | 29.2 | .08 | 22.2 | .15 | 7.3 | 21.9 | .0269 | .0067 | .5945 |
| 2300 | 16.82 | 159.58 | .25 | +.89 | +43.1 | 16.80 | 7.4 | 50.5 | 0 | | | | 50.5 | .0621 | .0155 | .6100 |
| 2315 | 16.87 | 160.69 | .25 | +1.11 | +53.7 | 16.84 | 7.4 | 61.1 | 0 | | .15 | | 61.1 | .0752 | .0188 | .6288 |
| 2330 | 16.93 | 162.04 | .25 | +1.35 | +65.3 | 16.90 | 7.4 | 72.7 | 0 | | | | 72.7 | .0894 | .0224 | .6512 |
| 2345 | 17.00 | 163.61 | .25 | +1.57 | +76.0 | 16.96 | 7.4 | 83.4 | 0 | | | | 83.4 | .1026 | .0256 | .6768 |
| 2400 | 17.04 | 164.52 | .25 | +.91 | +44.0 | 17.02 | 7.4 | 51.4 | 0 | | | | 51.4 | .0632 | .0158 | .6926 |
| | | | | | | | 24) 99.80 | | | | | | | | | |
| | | | | | | | 4.16 | | | | | | | | | |
| | March 20 | | | | | | | | | | | | | | | |
| 0000 | 17.04 | 164.52 | – | – | – | – | – | – | | | | | – | – | – | .6926 |
| 0015 | 17.07 | 165.20 | .25 | +.68 | +32.9 | 17.06 | 7.4 | 40.3 | | | | | 40.3 | .0496 | .0124 | .7050 |
| 0030 | 17.10 | 165.88 | .25 | +.68 | +32.9 | 17.08 | 7.4 | 40.3 | | | | | 40.3 | .0496 | .0124 | .7174 |
| 0045 | 17.12 | 166.34 | .25 | +.46 | +22.3 | 17.11 | 7.4 | 29.7 | | | | | 29.7 | .0365 | .0091 | .7265 |
| 0100 | 17.13 | 166.57 | .25 | +.23 | +11.1 | 17.12 | 7.4 | 18.5 | | | | | 18.5 | .0228 | .0057 | .7322 |
| 0130 | 17.15 | 167.02 | .50 | +.45 | +10.9 | 17.14 | 7.4 | 18.3 | | | | | 18.3 | .0225 | .0112 | .7434 |
| 0200 | 17.16 | 167.25 | .50 | +.23 | +5.6 | 17.16 | 7.4 | 13.0 | | | | | 13.0 | .0160 | .0080 | .7514 |
| 0300 | 17.17 | 167.48 | 1.00 | +.23 | +2.8 | 17.16 | 7.4 | 10.2 | | | | | 10.2 | .0125 | .0125 | .7639 |
| 0400 | 17.18 | 167.71 | 1.00 | +.23 | +2.8 | 17.18 | 7.4 | 10.2 | | | | | 10.2 | .0125 | .0125 | .7764 |
| 0445 | 17.19 | 167.94 | .75 | +.23 | +3.7 | 17.18 | 7.4 | 11.1 | .02 | 23.0 | .04 | .6 | 10.5 | .0129 | .0077 | .7841 |
| 0500 | 17.20 | 168.17 | .25 | +.23 | +11.1 | 17.20 | 7.4 | 18.5 | .03 | 23.0 | .06 | 2.9 | 15.6 | .0192 | .0048 | .7889 |
| 0515 | 17.21 | 168.40 | .25 | +.23 | +11.1 | 17.20 | 7.4 | 18.5 | .03 | 23.0 | .06 | 29 | 15.6 | .0192 | .0048 | .7937 |
| 0530 | 17.23 | 168.86 | .25 | +.46 | +22.3 | 17.22 | 7.4 | 29.7 | .10 | 23.1 | .19 | 9.2 | 20.5 | .0252 | .0063 | .8000 |
| 0545 | 17.28 | 170.02 | .25 | +1.16 | +56.1 | 17.26 | 7.4 | 63.5 | .07 | 23.1 | .13 | 6.3 | 57.2 | .0704 | .0176 | .8176 |
| 0600 | 17.37 | 172.11 | .25 | +2.09 | +101 | 17.32 | 7.4 | 108 | .07 | 23.2 | .14 | 6.8 | 101 | .1242 | .0310 | .8486 |
| 0615 | 17.53 | 175.87 | .25 | +3.76 | +182 | 17.45 | 7.5 | 190 | .04 | 23.5 | .08 | 3.9 | 186 | .2288 | .0572 | .9058 |
| 0630 | 17.72 | 180.40 | .25 | +4.53 | +219 | 17.62 | 7.5 | 226 | .07 | 23.9 | .14 | 6.8 | 219 | .2694 | .0674 | .9732 |

Comp. by BBH
Checked by FLS

Form A-64
(Rev. 5-65)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period March 19-20, 1968

8-0580 Honey Creek subwatershed No. 12 near McKinney, Tex. D.A. 1.26 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | March 20 continued | | | | | | | | | | | | | | | |
| 0645 | 18.00 | 187.26 | .25 | +6.86 | +332 | 17.86 | 7.5 | 339.5 | .18 | 24.4 | .366 | 17.7 | 322 | .3961 | .0990 | 1.0722 |
| 0650 | 18.10 | 189.75 | .083 | +2.49 | +362 | 18.05 | 7.6 | 369.6 | .07 | 24.9 | .145 | 21.1 | 348 | .4280 | .0357 | 1.1079 |
| 0655 | 18.20 | 192.26 | | +2.51 | +364 | 18.15 | 7.6 | 371.6 | .07 | 25.1 | .146 | 21.2 | 350 | .4305 | .0359 | 1.1438 |
| 0700 | 18.31 | 195.04 | | +2.78 | +404 | 18.26 | 7.6 | 411.6 | .06 | 25.3 | .126 | 18.3 | 393 | .4834 | .0403 | 1.1841 |
| 0705 | 18.44 | 198.37 | | +3.33 | +484 | 18.38 | 7.6 | 491.6 | .02 | 25.6 | .043 | 6.2 | 485 | .5966 | .0497 | 1.2338 |
| 0710 | 18.59 | 202.26 | | +3.89 | +565 | 18.52 | 7.6 | 572.6 | .02 | 26.9 | .043 | 6.2 | 566 | .6962 | .0580 | 1.2918 |
| 0715 | 18.75 | 206.46 | | +4.20 | +610 | 18.67 | 7.7 | 617.7 | .01 | 26.2 | .022 | 3.2 | 614 | .7552 | .0629 | 1.3547 |
| 0720 | 18.91 | 210.72 | | +4.26 | +619 | 18.83 | 7.7 | 626.7 | .01 | 26.6 | .022 | 3.2 | 624 | .7675 | .0639 | 1.4186 |
| 0725 | 19.06 | 214.77 | | +4.05 | +588 | 18.98 | 7.7 | 595.7 | .02 | 26.9 | .045 | 6.5 | 589 | .7245 | .0604 | 1.4790 |
| 0730 | 19.20 | 218.58 | .083 | +3.81 | +553 | 19.13 | 7.7 | 560.7 | .02 | 27.2 | .045 | 6.5 | 554 | .6814 | .0568 | 1.5358 |
| 0745 | 19.55 | 228.32 | .25 | +9.74 | +471 | 19.38 | 7.8 | 478.8 | .06 | 27.8 | .14 | 6.8 | 472 | .5806 | .1452 | 1.6810 |
| 0800 | 19.81 | 235.72 | | +7.40 | +358 | 19.68 | 7.8 | 365.8 | .05 | 28.5 | .12 | 5.8 | 360 | .4429 | .1107 | 1.7917 |
| 0815 | 19.97 | 240.34 | | +4.62 | +224 | 19.89 | 7.8 | 231.8 | .06 | 28.9 | .14 | 6.8 | 225 | .2768 | .0692 | 1.8609 |
| 0830 | 20.13 | 245.02 | | +4.68 | +227 | 20.05 | 7.9 | 234.9 | .06 | 29.3 | .15 | 7.3 | 228 | .2805 | .0701 | 1.9310 |
| 0845 | 20.28 | 249.47 | | +4.45 | +215 | 20.20 | 7.9 | 222.9 | .03 | 29.6 | .08 | 3.9 | 219 | .2694 | .0674 | 1.9984 |
| 0900 | 20.43 | 253.95 | | +4.48 | +217 | 20.36 | 7.9 | 224.9 | .03 | 29.9 | .07 | 3.4 | 222 | .2631 | .0658 | 2.0642 |
| 0915 | 20.58 | 258.48 | | +4.53 | +219 | 20.50 | 7.9 | 226.9 | .01 | 30.2 | .03 | 1.5 | 226 | .2780 | .0695 | 2.1337 |
| 0930 | 20.73 | 263.06 | | +4.58 | +222 | 20.66 | 7.9 | 229.9 | .03 | 30.5 | .08 | 3.9 | 226 | .2780 | .0695 | 2.2032 |
| 0945 | 20.88 | 267.68 | | +4.62 | +224 | 20.80 | 8.0 | 232.0 | .04 | 30.8 | .10 | 4.8 | 227 | .2792 | .0698 | 2.2730 |
| 1000 | 21.03 | 272.35 | | +4.67 | +226 | 20.96 | 8.0 | 234.0 | .10 | 31.1 | .26 | 12.6 | 221 | .2719 | .0680 | 2.3410 |
| 1015 | 21.16 | 276.43 | | +4.08 | +197 | 21.10 | 8.0 | 205.0 | .07 | 31.4 | .18 | 8.7 | 196 | .2411 | .0603 | 2.4013 |
| 1030 | 21.27 | 279.97 | | +3.54 | +171 | 21.22 | 8.0 | 179.0 | .06 | 31.7 | .16 | 7.7 | 171 | .2104 | .0526 | 2.4539 |
| 1045 | 21.38 | 283.43 | | +3.46 | +167 | 21.32 | 8.0 | 175.0 | .03 | 31.9 | .08 | 3.9 | 171 | .2104 | .0526 | 2.5065 |
| 1100 | 21.48 | 286.65 | .25 | +3.22 | +156 | 21.43 | 8.1 | 164.1 | .02 | 32.2 | .05 | 2.4 | 162 | .1993 | .0498 | 2.5563 |
| 1130 | 21.58 | 289.89 | .50 | +3.24 | +78.4 | 21.53 | 8.1 | 86.5 | .05 | 32.5 | .14 | 3.1 | 83.1 | .1022 | .0511 | 2.6074 |
| 1200 | 21.65 | 292.18 | .50 | +2.29 | +55.4 | 21.62 | 8.1 | 63.5 | .04 | 32.6 | .11 | 2.7 | 60.8 | .0747 | .0374 | 2.6448 |
| 1300 | 21.73 | 294.80 | 1.00 | +2.62 | +31.7 | 21.69 | 8.1 | 39.8 | | | | | 39.8 | .0490 | .0490 | 2.6938 |
| 1400 | 21.75 | 295.46 | 1.00 | +.66 | +8.0 | 21.74 | 8.1 | 16.1 | | | | | 16.1 | .0198 | .0198 | 2.7136 |
| 1600 | 21.76 | 295.79 | 2.00 | +.33 | +2.0 | 21.76 | 8.1 | 10.1 | | | | | 10.1 | .0124 | .0248 | 2.7384 |
| 1800 | 21.74 | 295.13 | 2.00 | -.66 | -4.0 | 21.75 | 8.1 | 4.1 | | | | | 4.1 | .0050 | .0100 | 2.7484 |
| 2400 | 21.65 | 292.18 | 6.00 | -2.95 | -6.0 | 21.70 | 8.1 | 2.1 | | | | | 2.1 | .0026 | .0156 | 2.7640 |
| | | | | | | | (24) 188.78 | | | | | | | | | |
| | | | | | | | 7.87 | | | | | | | | | |

comp. by BBH
checked by FLJ

-47-

A-78 (Revised Feb. 1960)

Sheet 1 of 2

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 30, 1969
Check by: BBH
Date: SEPT 11, 1969

# WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK SUBWATERSHED No. 12, NEAR McKINNEY, Tx Date of storm MARCH 19-20, 1968

| Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | 1.000 | | | | | | | | | | | | | |
| | Gage 16-R | | Gage | | Gage | | Gage | | Gage | | Gage | | | |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| MARCH | 19, 1968 | | | | | | | | | | | | | |
| 0900 | 0 | | | | | | | | | | | | 0 | 0 |
| 15 | 0 | | | | | | | | | | | | 0 | 0 |
| 30 | .05 | | | | | | | | | | | | .05 | .06 |
| 45 | .30 | | | | | | | | | | | | .30 | .36 |
| 1000 | .42 | | | | | | | | | | | | .42 | .51 |
| 15 | .46 | | | | | | | | | | | | .46 | .55 |
| 30 | .55 | | | | | | | | | | | | .55 | .66 |
| 1100 | .58 | | | | | | | | | | | | .58 | .70 |
| 1200 | .59 | | | | | | | | | | | | .59 | .71 |
| 1300 | .62 | | | | | | | | | | | | .62 | .75 |
| 30 | .74 | | | | | | | | | | | | .74 | .89 |
| 1400 | .89 | | | | | | | | | | | | .89 | 1.07 |
| 30 | .96 | | | | | | | | | | | | .96 | 1.16 |
| 1500 | 1.01 | | | | | | | | | | | | 1.01 | 1.22 |
| 1600 | 1.03 | | | | | | | | | | | | 1.03 | 1.24 |
| 1700 | 1.12 | | | | | | | | | | | | 1.12 | 1.35 |
| 1800 | 1.15 | | | | | | | | | | | | 1.15 | 1.39 |
| 2000 | 1.19 | | | | | | | | | | | | 1.19 | 1.43 |
| 2200 | 1.26 | | | | | | | | | | | | 1.26 | 1.52 |
| 15 | 1.28 | | | | | | | | | | | | 1.28 | 1.54 |
| 30 | 1.34 | | | | | | | | | | | | 1.34 | 1.61 |
| 45 | 1.42 | | | | | | | | | | | | 1.42 | 1.71 |
| 2300 | 1.42 | | | | | | | | | | | | 1.42 | 1.71 |
| 2400 | 1.42 | | | | | | | | | | | | 1.42 | 1.71 |
| MARCH | 20, 1968 | | | | | | | | | | | | | |
| 0400 | 1.42 | | | | | | | | | | | | 1.42 | 1.71 |
| 0500 | 1.47 | | | | | | | | | | | | 1.47 | 1.77 |
| 30 | 1.60 | | | | | | | | | | | | 1.60 | 1.93 |
| 0600 | 1.74 | | | | | | | | | | | | 1.74 | 2.10 |

| 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 DEPTMENT OF INTERIOR
GEOLOGICAL SURVEY - WATER RESOURCES DIVISION
TEXAS DISTRICT

WEIGHTED PRECIPITATION RECORD

Sheet 2 of 2
Comp. by: HHW
Date: JULY 30, 1969
Check by: BBH
Date: 9/11/69

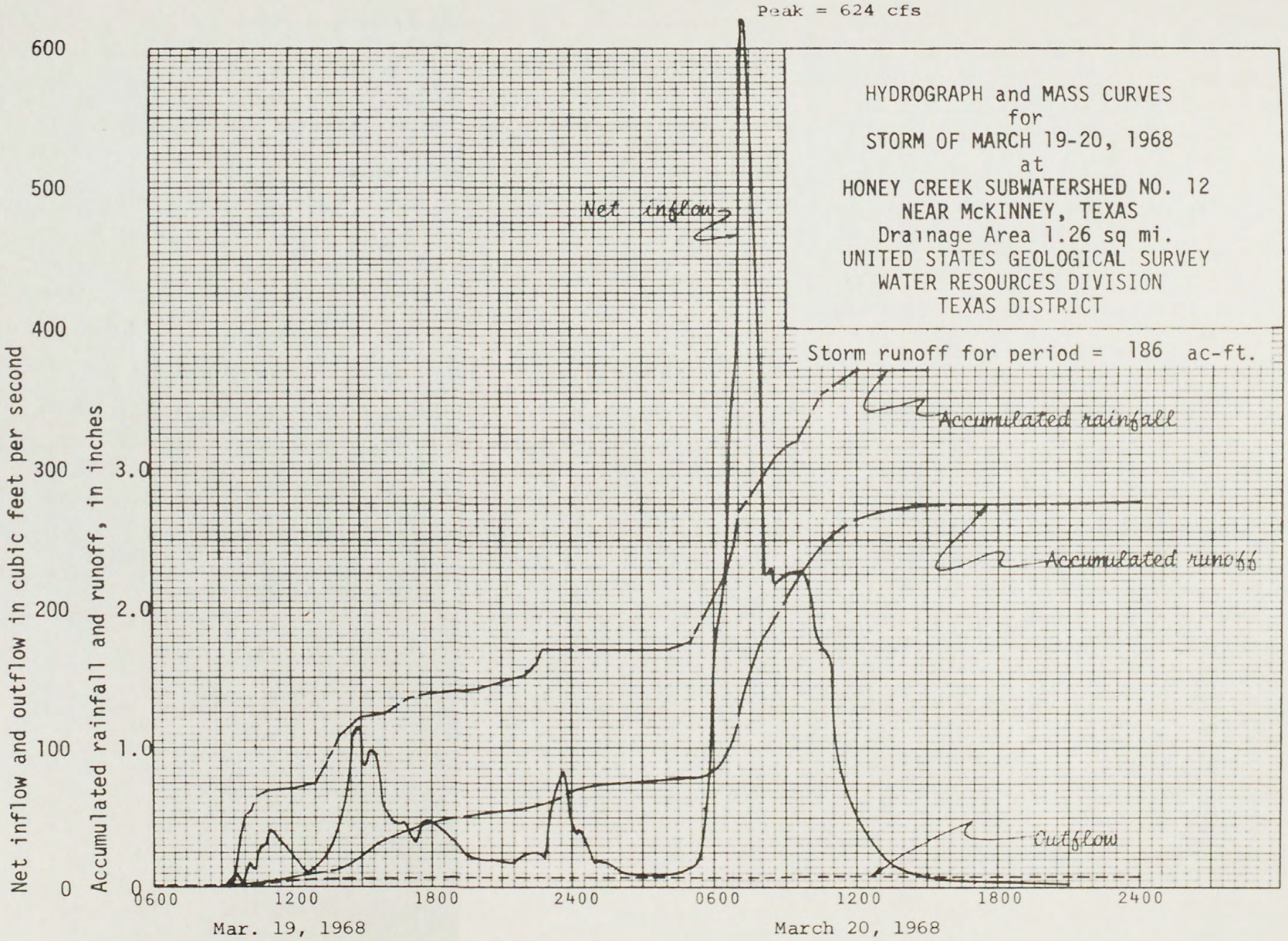
Study Area: HONEY CREEK SUBWATERSHED No. 12 NEAR McKINNEY, TX Date of storm: MARCH 19-20, 1968

| Weight Factor | 1.000 | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage 16-R | | Gage | | Gage | | Gage | | Gage | | Gage | | Recording Gages | Rec. Gages x K1 |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | All Gages | All Gages |
| MARCH 20, 1968 | (con't) | | | | | | | | | | | | 1.88 | 2.27 |
| 30 | 1.85 | | | | | | | | | | | | 2.03 | 2.45 |
| 45 | 2.03 | | | | | | | | | | | | 2.23 | 2.69 |
| 0700 | 2.23 | | | | | | | | | | | | 2.33 | 2.81 |
| 30 | 2.33 | | | | | | | | | | | | 2.44 | 2.94 |
| 0800 | 2.44 | | | | | | | | | | | | 2.56 | 3.08 |
| 30 | 2.56 | | | | | | | | | | | | 2.62 | 3.16 |
| 0900 | 2.62 | | | | | | | | | | | | 2.66 | 3.21 |
| 30 | 2.66 | | | | | | | | | | | | 2.80 | 3.37 |
| 1000 | 2.80 | | | | | | | | | | | | 2.93 | 3.53 |
| 30 | 2.93 | | | | | | | | | | | | 2.98 | 3.59 |
| 1100 | 2.98 | | | | | | | | | | | | 3.07 | 3.70 |
| 1200 | 3.07 | | | | | | | | | | | | | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10-S | .058 | 3.61 | .21 | | | | | | | | |
| 12-R | .663 | 3.97 | 2.63 | | | | | | | | |
| 16-R | .279 | 3.07 | .86 | | | | | | | | |
| | | | 3.70 | | | | | | | | |
| | | | | | | | | | | WMR | 3.70 |

WMR = Sum of Precipitation x Weight Factor

K = WMR / Total Recording Gages Weighted Precipitation = 3.70 / 3.07 = 1.205


Peak = 624 cfs
HYDROGRAPH and MASS CURVES
for
STORM OF MARCH 19-20, 1968
at
HONEY CREEK SUBWATERSHED NO. 12
NEAR McKINNEY, TEXAS
Drainage Area 1.26 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 186 ac-ft.
Net inflow
Accumulated rainfall
Accumulated runoff
Outflow
Net inflow and outflow in cubic feet per second
Accumulated rainfall and runoff, in inches
600
500
400
300
200
100
0
3.0
2.0
1.0
0
0600
1200
1800
2400
0600
1200
1800
2400
Mar. 19, 1968
March 20, 1968

A-65
(Rev. 6-63)

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY-AUSTIN DISTRICT

RUNOFF COMPUTATIONS

Station Honey Creek near McKinney, Tex.

Period of Record March 19-21, 1968 Drainage Area 39.0

| Time | G. Ht. Feet | Sh. Adj. | Discharge c.f.s. | Discharge Inc. | Discharge In/hr. | Runoff Inches | Runoff Acc. In. |
|---|---|---|---|---|---|---|---|
| | | | March 19 | | | | |
| 0000 | 1.57 | -.03 | 22 | 5 | 0.0009 | 0.0045 | 0.0045 |
| 1000 | 1.57 | | 22 | 5.5 | .0009 | .0050 | .0095 |
| 1100 | 1.63 | | 26 | 1 | .0010 | .0010 | .0105 |
| 1200 | 1.78 | -.03 | 35 | .75 | .0014 | .0010 | .0115 |
| 1230 | 2.25 | -.01 | 68 | .5 | .0027 | .0014 | .0129 |
| 1300 | 2.97 | 0 | 124 | .5 | .0049 | .0024 | .0153 |
| 1330 | 4.20 | | 233 | .5 | .0093 | .0046 | .0199 |
| 1400 | 5.72 | | 382 | .75 | .0152 | .0114 | .0313 |
| 1500 | 7.62 | | 578 | 1.5 | .0230 | .0345 | .0658 |
| 1700 | 9.52 | | 809 | 1.5 | .0321 | .0482 | .1140 |
| 1800 | 10.93 | | 1,050 | 1 | .0417 | .0417 | .1557 |
| 1900 | 12.00 | | 1,250 | 1 | .0497 | .0497 | .2054 |
| 2000 | 12.32 | | 1,320 | .75 | .0524 | .0393 | .2447 |
| 2030 | 12.48 | | 1,350 | .5 | .0536 | .0268 | .2715 |
| 2100 | 12.60 | | 1,380 | .75 | .0548 | .0411 | .3126 |
| 2200 | 12.50 | | 1,350 | 1 | .0536 | .0536 | .3662 |
| 2300 | 11.85 | | 1,220 | 1 | .0485 | .0485 | .4147 |
| 2400 | 10.75 | 0 | 1,010 | .5 | .0401 | .0200 | .4347 |
| | | | 10,9377.50 | 24 | | | |
| | | | 456 | | | | |
| | | | March 20 | | | | |
| 0000 | 10.75 | 0 | 1,010 | .5 | .0401 | .0200 | .4547 |
| 0100 | 8.89 | | 723 | 1 | .0287 | .0287 | .4834 |
| 0200 | 7.73 | | 590 | 1.5 | .0234 | .0351 | .5185 |
| 0400 | 6.42 | | 452 | 1.75 | .0180 | .0315 | .5500 |
| 0530 | 5.94 | | 404 | 1 | .0161 | .0161 | .5661 |
| 0600 | 6.02 | | 412 | .75 | .0164 | .0123 | .5784 |
| 0700 | 7.80 | | 598 | .75 | .0238 | .0178 | .5962 |
| 0730 | 10.00 | 0 | 886 | .5 | .0352 | .0176 | .6138 |

| Time | G. Ht. Feet | Sh. Adj. | Discharge c.f.s. | Discharge Inc. | Discharge In/hr. | Runoff Inches | Runoff Acc. In. |
|---|---|---|---|---|---|---|---|
| | | | March 20 cont | | | | |
| 0800 | 12.55 | 0 | 1,360 | .75 | .0540 | .0405 | .6543 |
| 0900 | 15.00 | | 2,030 | 1 | .0807 | .0807 | .7350 |
| 1000 | 16.57 | | 2,660 | 1 | .1057 | .1057 | .8407 |
| 1100 | 17.52 | | 3,260 | 1 | .1295 | .1295 | .9702 |
| 1200 PK | 17.97 | | 3,670 | .75 | .1458 | .1094 | 1.0796 |
| 1230 | 18.04 | | 3,750 | .5 | .1490 | .0745 | 1.1541 |
| 1300 | 18.00 | | 3,700 | .75 | .1470 | .1102 | 1.2643 |
| 1400 | 17.77 | | 3,470 | 1 | .1379 | .1379 | 1.4022 |
| 1500 | 17.02 | | 2,900 | 1 | .1152 | .1152 | 1.5174 |
| 1600 | 14.56 | | 1,900 | .75 | .0755 | .0566 | 1.5740 |
| 1630 | 13.15 | | 1,500 | .5 | .0596 | .0298 | 1.6038 |
| 1700 | 11.68 | | 1,190 | .5 | .0473 | .0236 | 1.6274 |
| 1730 | 10.15 | | 910 | .5 | .0362 | .0181 | 1.6455 |
| 1800 | 8.87 | | 720 | 1.25 | .0286 | .0358 | 1.6813 |
| 2000 | 6.13 | | 423 | 3 | .0168 | .0504 | 1.7317 |
| 2400 | 5.10 | 0 | 320 | 2 | .0127 | .0254 | 1.7571 |
| | | | 33,285.00 | 24 | | | |
| | | | 1,380 | | | | |
| | | | March 21 | | | | |
| 0000 | 5.10 | 0 | 320 | 5 | .0127 | .0635 | 1.8206 |
| 1000 | 4.65 | | 275 | 5.5 | .0109 | .0600 | 1.8806 |
| 1100 | 5.20 | | 330 | 1 | .0131 | .0131 | 1.8937 |
| 1200 | 5.12 | | 322 | 6.5 | .0128 | .0832 | 1.9769 |
| 2400 | 4.78 | 0 | 288 | 6 | .0114 | .0684 | 2.0453 |
| | | | 7263.50 | 24 | | | |
| | | | 303 | | | | |
| | | | Runoff, acre-feet = 4,: | | | | |
| BBH DBU | BBH DBU | BBH DBU | BBH DBU | BBH DBU | BBH HHW | BBH HHW | BBH HHW |

Computed by _____ Date _____ Computed _____ Date _____

A-78 (Revised Feb. 1960)

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Sheet 1 of 2
Comp. by: HHW
Date: JULY 30, 1969
Check by: BBH
Date: 9/12/69

# WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK NEAR McKINNEY, TEX. Date of storm MARCH 19-20, 1968

| Weight Factor | .462 | | .225 | | .087 | | .104 | | .122 | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | |
| | Gage 5-R | | Gage 9-R | | Gage 12-R | | Gage 13-R | | Gage 16-R | | Gage | | | (Rec. Gages x K) |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | All Gages |
| MARCH | 19,1969 | | | | | | | | | | | | | |
| 0900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| 15 | .16 | .074 | 0 | 0 | .10 | .009 | .04 | .004 | 0 | 0 | | | .087 | .09 |
| 30 | .22 | .102 | .16 | .036 | .49 | .043 | .24 | .025 | .03 | .004 | | | .210 | .21 |
| 45 | .32 | .148 | .40 | .090 | .54 | .047 | .36 | .037 | .30 | .037 | | | .359 | .36 |
| 1000 | .76 | .351 | .47 | .106 | .63 | .055 | .50 | .052 | .42 | .051 | | | .615 | .61 |
| 15 | .81 | .374 | .69 | .155 | .72 | .063 | .60 | .062 | .45 | .055 | | | .709 | .71 |
| 30 | .84 | .388 | .72 | .162 | .72 | .063 | .68 | .071 | .55 | .067 | | | .751 | .75 |
| 1100 | .87 | .402 | .74 | .166 | .73 | .064 | .71 | .074 | .57 | .070 | | | .776 | .77 |
| 1200 | .89 | .411 | .75 | .169 | .74 | .064 | .73 | .076 | .58 | .071 | | | .791 | .79 |
| 45 | .97 | .448 | .76 | .171 | .80 | .070 | .75 | .078 | .60 | .073 | | | .840 | .84 |
| 1300 | 1.10 | .508 | .78 | .176 | .85 | .074 | .85 | .088 | .61 | .074 | | | .920 | .92 |
| 30 | 1.31 | .605 | .96 | .216 | 1.04 | .090 | .96 | .100 | .73 | .089 | | | 1.100 | 1.10 |
| 1400 | 1.40 | .647 | 1.13 | .254 | 1.14 | .099 | 1.12 | .116 | .90 | .110 | | | 1.226 | 1.22 |
| 30 | 1.50 | .693 | 1.18 | .266 | 1.25 | .109 | 1.18 | .123 | .96 | .117 | | | 1.308 | 1.30 |
| 1500 | 1.52 | .702 | 1.25 | .281 | 1.26 | .110 | 1.27 | .132 | 1.02 | .124 | | | 1.349 | 1.34 |
| 1600 | 1.59 | .735 | 1.27 | .286 | 1.34 | .117 | 1.31 | .136 | 1.05 | .128 | | | 1.402 | 1.40 |
| 30 | 1.73 | .799 | 1.38 | .310 | 1.41 | .123 | 1.41 | .147 | 1.06 | .129 | | | 1.508 | 1.50 |
| 45 | 1.79 | .827 | 1.53 | .344 | 1.43 | .124 | 1.45 | .151 | 1.10 | .134 | | | 1.580 | 1.57 |
| 1700 | 1.80 | .832 | 1.59 | .358 | 1.45 | .126 | 1.52 | .158 | 1.14 | .139 | | | 1.613 | 1.61 |
| 30 | 1.88 | .869 | 1.65 | .371 | 1.46 | .127 | 1.55 | .161 | 1.15 | .140 | | | 1.668 | 1.66 |
| 1800 | 1.98 | .915 | 1.71 | .385 | 1.46 | .127 | 1.58 | .164 | 1.16 | .142 | | | 1.733 | 1.73 |
| 1900 | 1.99 | .919 | 1.76 | .396 | 1.49 | .130 | 1.64 | .171 | 1.20 | .146 | | | 1.762 | 1.75 |
| 2100 | 1.99 | .919 | 1.76 | .396 | 1.56 | .136 | 1.65 | .172 | 1.22 | .149 | | | 1.772 | 1.76 |
| 15 | 1.99 | .919 | 1.76 | .396 | 1.61 | .140 | 1.66 | .173 | 1.22 | .149 | | | 1.777 | 1.77 |
| 2200 | 1.99 | .919 | 1.76 | .396 | 1.63 | .142 | 1.69 | .176 | 1.28 | .156 | | | 1.789 | 1.78 |
| 15 | 1.99 | .919 | 1.76 | .396 | 1.78 | .155 | 1.69 | .176 | 1.29 | .157 | | | 1.803 | 1.80 |
| 30 | 1.99 | .919 | 1.76 | .396 | 1.78 | .155 | 1.70 | .177 | 1.35 | .165 | | | 1.812 | 1.80 |
| 45 | 2.01 | .929 | 1.77 | .398 | 1.78 | .155 | 1.71 | .178 | 1.41 | .172 | | | 1.832 | 1.82 |
| 2400 | 2.02 | .933 | 1.78 | .400 | 1.79 | .156 | 1.72 | .179 | 1.42 | .173 | | | 1.841 | 1.83 |

| 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 =

A-78 (Revised Feb. 1960)

Sheet 2 of 2

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 30, 1969
Check by: BBH
Date: 9/12/69

# WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK NEAR McKINNEY, TEX. Date of storm: MARCH 19-20, 1968

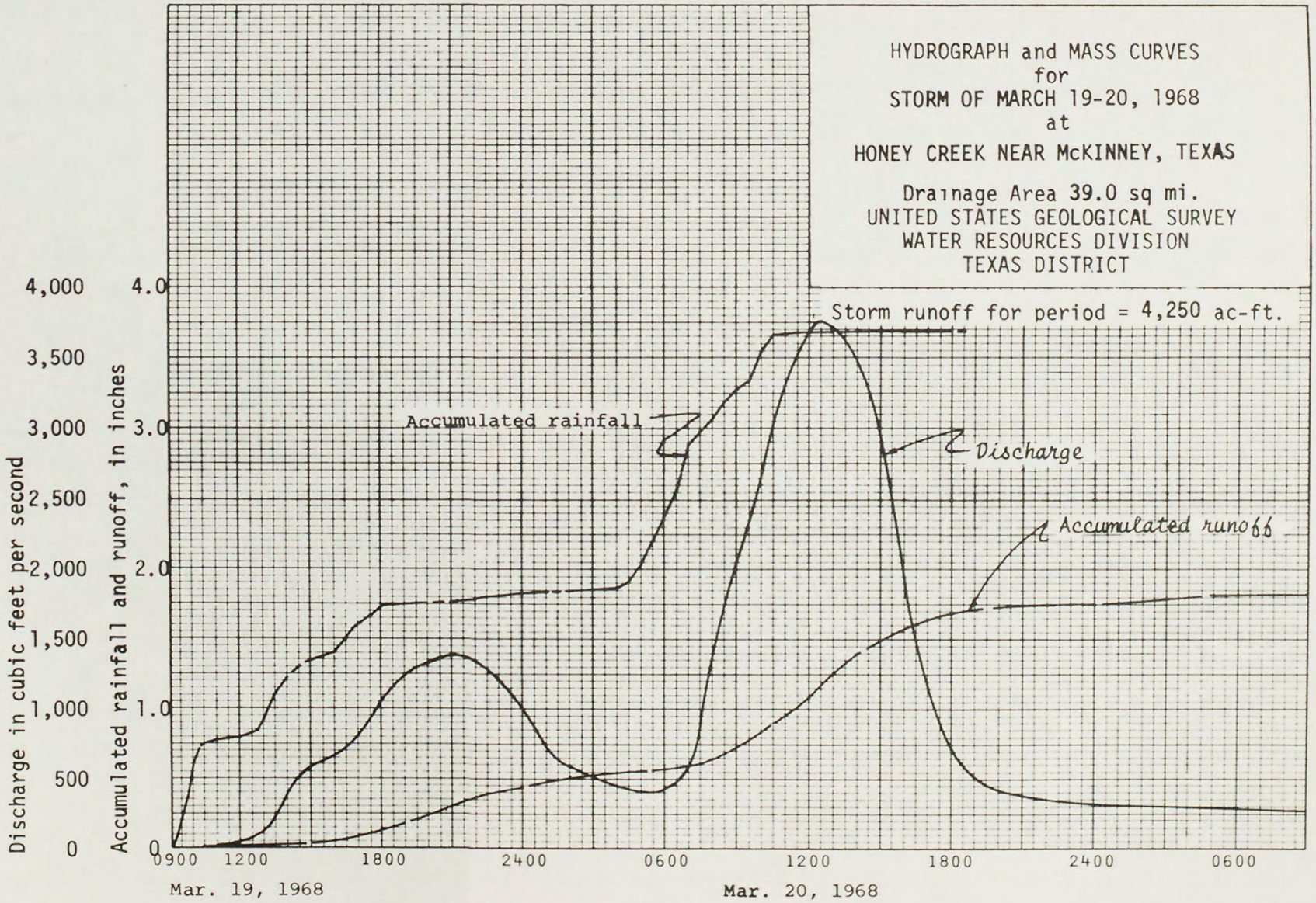
Accumulated Precipitation in Inches for Recording Gages

| Weight Factor | .462 | | .225 | | .087 | | .104 | | .122 | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage 5-R | | Gage 9-R | | Gage 12-R | | Gage 13-R | | Gage 16-R | | Gage | | | |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| MARCH | 20, 1969 | | | | | | | | | | | | | |
| 0400 | 2.08 | .961 | 1.80 | .405 | 1.82 | .158 | 1.72 | .179 | 1.42 | .173 | | | 1.876 | 1.87 |
| 30 | 2.13 | .984 | 1.81 | .407 | 1.92 | .167 | 1.80 | .187 | 1.42 | .173 | | | 1.918 | 1.91 |
| 0500 | 2.27 | 1.049 | 1.92 | .432 | 2.09 | .182 | 1.91 | .199 | 1.45 | .177 | | | 2.039 | 2.03 |
| 30 | 2.48 | 1.146 | 2.03 | .457 | 2.30 | .200 | 2.07 | .215 | 1.60 | .195 | | | 2.213 | 2.20 |
| 0600 | 2.68 | 1.238 | 2.18 | .490 | 2.42 | .211 | 2.20 | .229 | 1.75 | .214 | | | 2.382 | 2.37 |
| 15 | 2.72 | 1.257 | 2.23 | .502 | 2.70 | .235 | 2.27 | .236 | 1.79 | .218 | | | 2.448 | 2.44 |
| 30 | 2.88 | 1.331 | 2.34 | .526 | 2.91 | .253 | 2.37 | .246 | 1.87 | .228 | | | 2.584 | 2.57 |
| 45 | 3.05 | 1.409 | 2.52 | .567 | 3.05 | .265 | 2.53 | .263 | 2.05 | .250 | | | 2.754 | 2.74 |
| 0700 | 3.17 | 1.465 | 2.69 | .605 | 3.13 | .272 | 2.65 | .276 | 2.26 | .276 | | | 2.894 | 2.88 |
| 30 | 3.25 | 1.502 | 2.77 | .623 | 3.24 | .282 | 2.76 | .287 | 2.37 | .289 | | | 2.983 | 2.97 |
| 0800 | 3.31 | 1.529 | 2.91 | .655 | 3.31 | .288 | 2.85 | .296 | 2.47 | .301 | | | 3.069 | 3.06 |
| 30 | 3.45 | 1.594 | 3.02 | .680 | 3.44 | .299 | 2.98 | .310 | 2.60 | .317 | | | 3.200 | 3.19 |
| 0900 | 3.54 | 1.635 | 3.12 | .702 | 3.50 | .304 | 3.06 | .318 | 2.67 | .326 | | | 3.285 | 3.27 |
| 30 | 3.62 | 1.672 | 3.17 | .713 | 3.66 | .318 | 3.12 | .324 | 2.70 | .329 | | | 3.356 | 3.34 |
| 1000 | 3.87 | 1.788 | 3.32 | .747 | 3.87 | .337 | 3.26 | .339 | 2.82 | .344 | | | 3.555 | 3.54 |
| 30 | 3.97 | 1.834 | 3.48 | .783 | 3.94 | .343 | 3.41 | .355 | 2.95 | .360 | | | 3.675 | 3.66 |
| 1100 | 3.97 | 1.834 | 3.48 | .783 | 3.97 | .345 | 3.43 | .357 | 3.01 | .367 | | | 3.686 | 3.67 |
| 1200 | 3.97 | 1.834 | 3.48 | .783 | 3.97 | .345 | 3.43 | .357 | 3.07 | .375 | | | 3.694 | 3.68 |
| 1800 | 3.97 | 1.834 | 3.48 | .783 | 3.97 | .345 | 3.43 | .357 | 3.07 | .375 | | | 3.694 | 3.68 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-S | .0666 | 3.48 | .232 | 7-S | .0888 | 3.46 | .307 | 13-R | .0591 | 3.45 | .204 |
| 2-S | .0715 | 3.69 | .264 | 8-S | .0689 | 4.00 | .276 | 14-S | .0620 | 3.96 | .246 |
| 3-S | .0720 | 3.67 | .264 | 9-R | .0854 | 3.48 | .297 | 15-R | .0399 | 3.96 | .158 |
| 4-S | .0600 | 3.91 | .235 | 10-S | .0523 | 3.61 | .189 | 16-R | .0310 | 3.07 | .095 |
| 5-R | .0889 | 3.97 | .353 | 11-S | .0477 | 3.48 | .166 | | | | |
| 6-S | .0695 | 3.57 | .248 | 12-R | .0364 | 3.97 | .145 | | | WMR: | 3.679 |

WMR = Sum of Precipitation x Weight Factor

K = WMR / Total Recording Gages Weighted Precipitation = 3.679 / 3.694 = .9959


HYDROGRAPH and MASS CURVES
for
STORM OF MARCH 19-20, 1968
at
HONEY CREEK NEAR McKINNEY, TEXAS
Drainage Area 39.0 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 4,250 ac-ft.
Accumulated rainfall
Discharge
Accumulated runoff
Discharge in cubic feet per second
Accumulated rainfall and runoff, in inches
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
4.0
3.0
2.0
1.0
0
0900
1200
1800
2400
0600
1200
1800
2400
0600
Mar. 19, 1968
Mar. 20, 1968

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period April 18-19, 1968

8-0575 Honey Creek subwatershed No. 11 near McKinney, Tex. D.A. 2.14 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | April | 18 1968 | | | | | | | | | | | | | | |
| 0000 | 16.95 | 522.35 | - | - | - | - | - | - | | | | | - | - | - | .0000 |
| 0600 | 16.88+ | 519.20 | 6.0 | - 3.15 | - 6.4 | 16.91 | 6.37 | 0 | | | | | 0 | .0000 | .0000 | .0000 |
| 1200 | 16.82+ | 516.48 | 6.0 | - 2.72 | - 5.5 | 16.86 | 6.36 | .9 | | | | | .9 | .0006 | .0036 | .0036 |
| 1800 | 16.77 | 513.87 | 6.0 | - 2.61 | - 5.3 | 16.80 | 6.34 | 1.0 | | | | | 1.0 | .0007 | .0042 | .0078 |
| 2200 | 16.73 | 511.99 | 4.0 | - 1.88 | - 5.7 | 16.76 | 6.33 | .6 | | | | | .6 | .0004 | .0016 | .0094 |
| 2230 | 16.72+ | 511.73 | .50 | - .26 | - 6.3 | 16.73 | 6.32 | 0 | | | | | 0 | .0000 | .0000 | .0094 |
| 2245 | 16.72+ | 511.60 | .25 | - .13 | - 6.3 | 16.73 | 6.32 | 0 | 0 | 46.8 | 0 | 0 | 0 | .0000 | .0000 | .0094 |
| 2300 | 16.74+ | 512.73 | | + 1.13 | + 54.7 | 16.74 | 6.32 | 61.0 | .40 | 46.8 | 1.56 | 75.5 | 0 | .0000 | .0000 | .0094 |
| 2315 | 16.76+ | 513.67 | | + .94 | + 45.5 | 16.76 | 6.33 | 51.8 | .38 | 46.8 | 1.48 | 71.6 | 0 | .0000 | .0000 | .0094 |
| 2330 | 16.77+ | 514.07 | | + .40 | + 19.4 | 16.78 | 6.33 | 25.7 | .10 | 46.9 | .39 | 18.9 | 6.8 | .0049 | .0012 | .0106 |
| 2345 | 16.80 | 515.27 | | + 1.20 | + 58.1 | 16.78 | 6.33 | 64.4 | .20 | 46.9 | .78 | 37.8 | 26.6 | .0193 | .0048 | .0154 |
| 2400 | 16.89 | 519.51 | .25 | + 4.24 | + 205 | 16.84 | 6.35 | 211.4 | .40 | 47.0 | 1.57 | 76.0 | 135 | .0977 | .0244 | .0398 |
| | | | | | | 96 | 609.58 | | | | | | | | | |
| | | | | | | | 6.35 | | | | | | | | | |
| | April | 19 | | | | | | | | | | | | | | |
| 0000 | 16.89 | 519.51 | - | - | - | - | - | - | - | - | - | - | - | - | - | .0398 |
| 0005 | 16.94 | 521.88 | .083 | + 2.37 | 344 | 16.90 | 6.37 | 350.4 | .10 | 47.2 | .39 | 56.6 | 293 | .2121 | .0177 | .0575 |
| 0010 | 17.01 | 525.20 | | + 3.32 | 482 | 16.96 | 6.39 | 488.4 | .06 | 47.4 | .24 | 34.8 | 454 | .3287 | .0274 | .0849 |
| 0015 | 17.09 | 529.01 | | + 3.81 | 553 | 17.04 | 6.41 | 559.4 | .05 | 47.6 | .10 | 29.0 | 530 | .3837 | .0320 | .1169 |
| 0020 | 17.16 | 532.37 | | + 3.36 | 488 | 17.13 | 6.43 | 494.4 | .04 | 47.9 | .16 | 23.2 | 471 | .3410 | .0284 | .1453 |
| 0025 | 17.22 | 535.26 | | + 2.89 | 420 | 17.20 | 6.45 | 426.4 | .02 | 48.1 | .08 | 11.6 | 415 | .3005 | .0250 | .1703 |
| 0030 | 17.28 | 538.15 | .083 | + 2.89 | 420 | 17.27 | 6.47 | 426.5 | .08 | 48.4 | .12 | 17.4 | 409 | .2961 | .0247 | .1950 |
| 0045 | 17.43 | 545.45 | .25 | + 7.30 | 353 | 17.38 | 6.50 | 359.5 | .09 | 48.7 | .37 | 17.9 | 342 | .2476 | .0619 | .2569 |
| 0100 | 17.57 | 552.33 | | + 6.88 | 333 | 17.52 | 6.53 | 339.5 | .10 | 49.2 | .41 | 19.8 | 320 | .2317 | .0579 | .3148 |
| 0115 | 17.70 | 558.78 | | + 6.45 | 312 | 17.64 | 6.56 | 318.6 | .02 | 49.6 | .08 | 3.9 | 315 | .2281 | .0570 | .3718 |
| 0130 | 17.80 | 563.78 | | + 5.00 | 242 | 17.75 | 6.59 | 248.6 | 0 | 0 | | | 249 | .1803 | .0451 | .4169 |
| 0145 | 17.87 | 567.31 | | + 3.53 | 171 | 17.84 | 6.61 | 177.6 | | | | | 178 | .1289 | .0322 | .4491 |
| 0200 | 17.91 | 569.33 | .25 | + 2.02 | 97.8 | 17.89 | 6.62 | 104.4 | | | | | 104 | .0753 | .0188 | .4679 |
| 0230 | 17.98 | 572.88 | .50 | + 3.55 | 85.9 | 17.94 | 6.64 | 92.5 | | | | | 92.5 | .0670 | .0335 | .5014 |
| 0300 | 18.02 | 574.91 | | + 2.03 | 49.1 | 18.00 | 6.65 | 55.8 | | | | | 55.8 | .0404 | .0202 | .5216 |
| 0330 | 18.04 | 575.93 | | + 1.02 | 24.7 | 18.03 | 6.66 | 31.4 | | | | | 31.4 | .0227 | .0114 | .5330 |
| 0400 | 18.06 | 576.96 | .50 | + 1.03 | 24.9 | 18.06 | 6.66 | 31.6 | | | | | 31.6 | .0229 | .0114 | .5444 |

comp. by B.B.H.
ch. by J.N.S.

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period April 18-19, 1968

8-0575. Honey Creek subwatershed No. 11 near McKinney, Tex. D.A. 2.14 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| continue Apr. 19 | | | | | | | | | | | | | | | | |
| 0500 | 18.09 | 578.49 | 1.00 | + 1.53 | 18.5 | 18.08 | 6.67 | 25.2 | 0 | | | | 25.2 | .0182 | .0182 | .5626 |
| 0600 | 18.10 | 579.00 | 1.00 | + .51 | 6.2 | 18.10 | 6.68 | 12.9 | 0 | | | | 12.9 | .0093 | .0093 | .5719 |
| 0800 | 18.12 | 580.03 | 2.00 | + .53 | 3.2 | 18.11 | 6.68 | 9.9 | 0 | | | | 9.9 | .0072 | .0144 | .5863 |
| 1000 | 18.13 | 580.54 | 2.00 | + .51 | 3.1 | 18.12 | 6.68 | 9.8 | .04 | 51.3 | .17 | 1.0 | 8.8 | .0064 | .0128 | .5991 |
| 1200 | 18.14 | 581.06 | 2.00 | + .52 | 3.1 | 18.14 | 6.68 | 9.8 | .03 | 51.4 | .13 | .8 | 9.0 | .0065 | .0130 | .6121 |
| 1230 | 18.14 | 581.06 | .50 | + 0 | 0 | 18.14 | 6.68 | 6.7 | .01 | 51.4 | .04 | 1.0 | 5.7 | .0041 | .0020 | .6141 |
| 1245 | 18.14+ | 581.16 | .25 | + .10 | 4.8 | 18.14 | 6.68 | 11.5 | .03 | 51.4 | .13 | 6.3 | 5.2 | .0038 | .0010 | .6151 |
| 1300 | 18.15 | 581.57 | | + .41 | 19.8 | 18.14 | 6.68 | 26.5 | .07 | 51.4 | .30 | 14.5 | 12.0 | .0087 | .0022 | .6173 |
| 1315 | 18.16 | 582.08 | | + .51 | 24.7 | 18.16 | 6.69 | 31.4 | .04 | 51.5 | .17 | 8.2 | 23.2 | .0168 | .0042 | .6215 |
| 1330 | 18.17 | 582.60 | | + .52 | 25.2 | 18.16 | 6.69 | 31.9 | .07 | 51.5 | .30 | 14.5 | 17.4 | .0126 | .0032 | .6247 |
| 1345 | 18.19 | 583.63 | | + 1.03 | 49.9 | 18.18 | 6.70 | 56.6 | .13 | 51.5 | .56 | 27.1 | 29.5 | .0214 | .0054 | .6301 |
| 1400 | 18.24+ | 586.47 | | + 2.84 | 137 | 18.22 | 6.70 | 143.7 | .10 | 51.7 | .43 | 20.8 | 123 | .0891 | .0223 | .6524 |
| 1415 | 18.30 | 589.32 | | + 2.85 | 138 | 18.28 | 6.72 | 144.7 | .05 | 51.9 | .22 | 10.6 | 134 | .0970 | .0242 | .6766 |
| 1430 | 18.35+ | 592.19 | | + 2.87 | 139 | 18.34 | 6.73 | 145.7 | .02 | 52.1 | .09 | 4.3 | 141 | .1021 | .0255 | .7021 |
| 1445 | 18.41 | 595.06 | | + 2.87 | 139 | 18.38 | 6.74 | 145.7 | .01 | 52.2 | .04 | 1.9 | 144 | .1043 | .0261 | .7282 |
| 1500 | 18.46 | 597.68 | | + 2.62 | 127 | 18.44 | 6.75 | 133.8 | 0 | | | | 134 | .0970 | .0242 | .7524 |
| 1515 | 18.50+ | 600.11 | | + 2.43 | 118 | 18.48 | 6.76 | 124.8 | 0 | | | | 125 | .0905 | .0226 | .7750 |
| 1530 | 18.55 | 602.42 | | + 2.31 | 112 | 18.53 | 6.77 | 118.8 | 0 | | | | 119 | .0862 | .0216 | .7966 |
| 1545 | 18.58 | 604.00 | | + 1.58 | 76.5 | 18.56 | 6.77 | 83.3 | 0 | | | | 83.3 | .0603 | .0151 | .8117 |
| 1600 | 18.60 | 605.06 | .25 | + 1.06 | 51.3 | 18.59 | 6.78 | 58.1 | 0 | | | | 58.1 | .0421 | .0105 | .8222 |
| 1630 | 18.63 | 606.66 | .50 | + 1.60 | 38.7 | 18.62 | 6.78 | 45.5 | 0 | | | | 45.5 | .0329 | .0164 | .8386 |
| 1700 | 18.66 | 608.25 | .50 | + 1.59 | 38.5 | 18.64 | 6.79 | 45.3 | 0 | | | | 45.3 | .0328 | .0164 | .8550 |
| 1715 | 18.67 | 608.78 | .25 | + .53 | 25.7 | 18.66 | 6.79 | 32.5 | .02 | 53.2 | .09 | 4.4 | 28.1 | .0203 | .0051 | .8601 |
| 1730 | 18.68 | 609.32 | | + .54 | 26.1 | 18.68 | 6.80 | 32.9 | .02 | 53.3 | .09 | 4.4 | 28.5 | .0206 | .0052 | .8653 |
| 1745 | 18.70 | 610.38 | | + 1.06 | 51.3 | 18.69 | 6.80 | 58.1 | .04 | 53.3 | .18 | 8.7 | 49.4 | .0358 | .0090 | .8743 |
| 1800 | 18.72 | 611.45 | | + 1.07 | 51.8 | 18.71 | 6.80 | 58.6 | .04 | 53.4 | .18 | 8.7 | 49.9 | .0361 | .0090 | .8833 |
| 1815 | 18.73+ | 612.25 | | + .80 | 38.7 | 18.72 | 6.80 | 45.5 | 0 | | | | 45.5 | .0329 | .0082 | .8915 |
| 1830 | 18.75 | 613.06 | | + .81 | 39.2 | 18.74 | 6.81 | 46.0 | 0 | | | | 46.0 | .0333 | .0083 | .8998 |
| 1845 | 18.76 | 613.59 | | + .53 | 25.7 | 18.74 | 6.81 | 32.5 | 0 | | | | 32.5 | .0235 | .0059 | .9057 |
| 1900 | 18.77 | 614.12 | .25 | + .53 | 25.7 | 18.76 | 6.81 | 32.5 | 0 | | | | 32.5 | .0235 | .0059 | .9116 |
| 1930 | 18.80 | 615.73 | .50 | + 1.61 | 39.0 | 18.78 | 6.82 | 45.8 | 0 | | | | 45.8 | .0332 | .0166 | .9282 |
| 2000 | 18.82 | 616.81 | .50 | + 1.08 | 26.1 | 18.81 | 6.82 | 32.9 | 0 | | | | 32.9 | .0238 | .0119 | .9401 |

Comp. by B.B.N.
Ck. by J.N.S.

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period April 18-19, 1968

8-0575 Honey Creek subwatershed No. 11 near McKinney, Tex. D.A. 2.14 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| continue April 19 | | | | | | | | | | | | | | | | |
| 2030 | 18.83 | 617.35 | .50 | + .54 | 13.1 | 18.82 | 6.82 | 19.9 | | | | | 19.9 | .0144 | .0072 | .9473 |
| 2100 | 18.84 | 617.87 | .50 | + .52 | 12.6 | 18.84 | 6.83 | 19.4 | | | | | 19.4 | .0140 | .0070 | .9543 |
| 2200 | 18.86 | 618.96 | 1.00 | + 1.09 | 13.2 | 18.85 | 6.83 | 20.0 | | | | | 20.0 | .0145 | .0145 | .9688 |
| 2300 | 18.87 | 619.50 | 1.00 | + .54 | 6.5 | 18.86 | 6.83 | 13.3 | | | | | 13.3 | .0096 | .0096 | .9784 |
| 2400 | 18.88 | 620.04 | 1.00 | + .54 | 6.5 | 18.87 | 6.83 | 13.3 | | | | | 13.3 | .0096 | .0096 | .9880 |
| | | | | | | 288 | 1934.43 | | | | | | | | | |
| | | | | | | | 6.72 | | | | | | | | | |

Comp. by BAH
Ch. by JNS

A-78 (Revised Feb. 1960)

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Sheet 1 of 1
Comp. by: HHW
Date: JULY 31, 1969
Check by: DBK
Date: 9/11/69

WEIGHTED PRECIPITATION RECORD

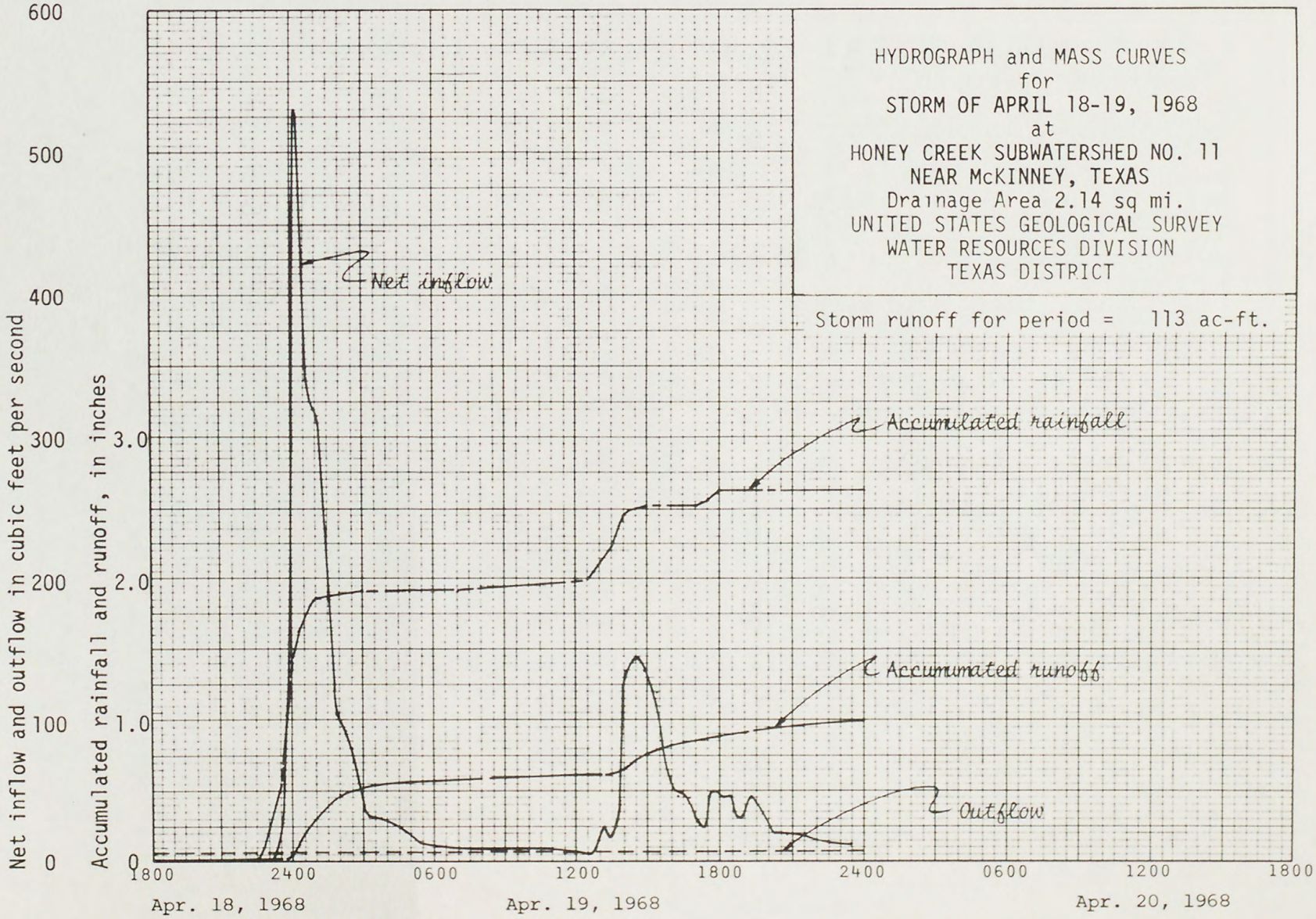
Area: HONEY CREEK SUBWATERSHED No. 11 NEAR McKINNEY, TEX. Date of storm APRIL 18-19, 1968

| Date & Time | Accumulated Precipitation in Inches for Recording Gages: Gage 13-R Recorded (Weight Factor 1.000) | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Gage Recorded | x Factor | Accumulated Weighted Precipitation: Recording Gages | (Rec. Gages x K) All Gages |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APRIL 18, 1968 | | | | | | | | | | | | | | |
| 2200 | 0. | | | | | | | | | | | | 0. | 0 |
| 30 | 0. | | | | | | | | | | | | 0. | 0 |
| 45 | .10 | | | | | | | | | | | | .10 | .10 |
| 2300 | .24 | | | | | | | | | | | | .24 | .23 |
| 15 | .40 | | | | | | | | | | | | .40 | .38 |
| 30 | .57 | | | | | | | | | | | | .57 | .54 |
| 45 | 1.08 | | | | | | | | | | | | 1.08 | 1.03 |
| 2400 | 1.48 | | | | | | | | | | | | 1.48 | 1.41 |
| APRIL 19, 1968 | | | | | | | | | | | | | | |
| 0015 | 1.70 | | | | | | | | | | | | 1.70 | 1.62 |
| 30 | 1.80 | | | | | | | | | | | | 1.80 | 1.72 |
| 45 | 1.90 | | | | | | | | | | | | 1.90 | 1.81 |
| 0100 | 1.95 | | | | | | | | | | | | 1.95 | 1.86 |
| 0300 | 2.00 | | | | | | | | | | | | 2.00 | 1.91 |
| 0700 | 2.00 | | | | | | | | | | | | 2.00 | 1.91 |
| 1200 | 2.08 | | | | | | | | | | | | 2.08 | 1.98 |
| 30 | 2.09 | | | | | | | | | | | | 2.09 | 1.99 |
| 45 | 2.15 | | | | | | | | | | | | 2.15 | 2.05 |
| 1300 | 2.21 | | | | | | | | | | | | 2.21 | 2.11 |
| 15 | 2.28 | | | | | | | | | | | | 2.28 | 2.17 |
| 30 | 2.34 | | | | | | | | | | | | 2.34 | 2.23 |
| 45 | 2.49 | | | | | | | | | | | | 2.49 | 2.37 |
| 1400 | 2.58 | | | | | | | | | | | | 2.58 | 2.46 |
| 15 | 2.61 | | | | | | | | | | | | 2.61 | 2.49 |
| 1500 | 2.64 | | | | | | | | | | | | 2.64 | 2.52 |
| 1700 | 2.64 | | | | | | | | | | | | 2.64 | 2.52 |
| 30 | 2.69 | | | | | | | | | | | | 2.69 | 2.56 |
| 1800 | 2.76 | | | | | | | | | | | | 2.76 | 2.63 |
| 2400 | 2.76 | | | | | | | | | | | | 2.76 | 2.63 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15-R | .217 | 2.06 | .447 | | | | | | | | |
| 13-R | .688 | 2.76 | 1.899 | | | | | | | | |
| 11-S | .095 | 3.00 | .285 | | | | | | | | |
| | | | 2.631 | | | | | | | | |

WMR: 2.631

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 2.631/2.760 = .953


HYDROGRAPH and MASS CURVES
for
STORM OF APRIL 18-19, 1968
at
HONEY CREEK SUBWATERSHED NO. 11
NEAR McKINNEY, TEXAS
Drainage Area 2.14 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 113 ac-ft.
Net inflow
Accumulated rainfall
Accumulated runoff
Outflow
Net inflow and outflow in cubic feet per second
Accumulated rainfall and runoff, in inches
600
500
400
300
200
100
0
3.0
2.0
1.0
0
1800
2400
0600
1200
1800
2400
0600
1200
1800
Apr. 18, 1968
Apr. 19, 1968
Apr. 20, 1968

Form A-64
(Rev. 5-65)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period April 18-19, 1968

8-0580 Honey Creek subwatershed No. 12 near McKinney, Tex. D.A. 1.26 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | April | 18, 1968 | | | | | | | | | | | | | | |
| 0000 | 15.07 | 123.20 | | | | | | | | | | | | | | |
| 1200 | 15.07 | 123.20 | 12 | 0 | 0 | 15.07 | 0.4 | .4 | | – | | | 0.4 | 0.0005 | 0.0060 | 0.0060 |
| 2200 | 15.07 | 123.20 | 10 | 0 | 0 | 15.07 | .4 | .4 | | | | | .4 | .0005 | .0050 | .0110 |
| 2220 | 15.07 | 123.20 | .5 | 0 | 0 | 15.07 | .4 | .4 | 0 | | | | .4 | .0005 | .0002 | .0112 |
| 2245 | 15.09 | 123.59 | .25 | + .39 | + 18.9 | 15.08 | .5 | 19.4 | .24 | 19.4 | .39 | 18.9 | .5 | .0006 | .0002 | .0114 |
| 2300 | 15.10 | 123.78 | | + .19 | + 9.2 | 15.10 | .7 | 9.9 | .02 | 19.4 | .03 | 6.3 | 3.6 | .0044 | .0011 | .0125 |
| 2315 | 15.11 | 123.98 | | + .20 | + 9.7 | 15.10 | .7 | 10.4 | .17 | 19.4 | .27 | 13.1 | 0 | 0 | 0 | .0125 |
| 2330 | 15.15 | 124.76 | | + .78 | + 37.8 | 15.13 | 1.1 | 38.9 | .12 | 19.5 | .20 | 9.7 | 29.2 | .0359 | .0090 | .0215 |
| 2345 | 15.23 | 126.32 | | + 1.56 | + 75.5 | 15.19 | 2.0 | 77.5 | .49 | 19.6 | .80 | 38.7 | 38.8 | .0477 | .0119 | .0334 |
| 2400 | 15.42 | 130.08 | .25 | + 3.76 | +182 | 15.32 | 4.6 | 187 | .38 | 19.8 | .63 | 30.5 | 156 | .1919 | .0480 | .0814 |
| | | | | | | | 24) 11.40 | | | | | | | | | |
| | | | | | | | .48 | | | | | | | | | |
| | April | 19, 1968 | | | | | | | | | | | | | | |
| 0000 | 15.42 | 130.08 | | | | | | | | | | | | | | |
| 0005 | 15.53 | 132.28 | .083 | + 2.20 | +319 | 15.48 | 6.8 | 326 | .06 | 20.0 | .10 | 14.5 | 312 | .3838 | .0319 | .1133 |
| 0010 | 15.67 | 135.11 | | + 2.83 | +411 | 15.60 | 7.1 | 418 | .12 | 20.2 | .20 | 29.0 | 389 | .4785 | .0397 | .1530 |
| 0015 | 15.83 | 138.38 | | + 3.27 | +475 | 15.75 | 7.2 | 482 | .03 | 20.4 | .05 | 7.3 | 475 | .5843 | .0485 | .2015 |
| 0020 | 16.01 | 142.11 | | + 3.73 | +542 | 15.92 | 7.2 | 549 | .03 | 20.7 | .05 | 7.3 | 541 | .6654 | .0554 | .2569 |
| 0025 | 16.18 | 145.68 | | + 3.57 | +518 | 16.10 | 7.3 | 526 | 0 | | | | 526 | .6470 | .0536 | .3104 |
| 0030 | 16.33 | 148.87 | .083 | + 3.19 | +463 | 16.26 | 7.3 | 470 | .02 | 21.3 | .04 | 5.8 | 464 | .5708 | .0474 | .3578 |
| 0045 | 16.67 | 156.25 | .25 | + 7.38 | +357 | 16.50 | 7.3 | 364 | .12 | 21.7 | .22 | 31.9 | 332 | .4084 | .1021 | .4599 |
| 0100 | 16.91 | 161.58 | | + 5.33 | +258 | 16.79 | 7.4 | 265 | 0 | | | | 265 | .3260 | .0815 | .5414 |
| 0115 | 17.08 | 165.43 | | + 3.85 | +186 | 17.00 | 7.4 | 193 | 0 | | | | 193 | .2374 | .0594 | .6008 |
| 0130 | 17.18 | 167.71 | | + 2.28 | +110 | 17.13 | 7.4 | 117 | 0 | | | | 117 | .1439 | .0360 | .6368 |
| 0145 | 17.26 | 169.56 | | + 1.85 | + 89.5 | 17.22 | 7.4 | 96.9 | 0 | | | | 96.9 | .1192 | .0298 | .6666 |
| 0200 | 17.30 | 170.48 | .25 | + .92 | + 44.5 | 17.28 | 7.4 | 51.9 | 0 | | | | 51.9 | .0638 | .0160 | .6826 |
| 0230 | 17.34 | 171.41 | .50 | + .93 | + 22.5 | 17.32 | 7.4 | 29.9 | 0 | | | | 29.9 | .0368 | .0184 | .7010 |
| 0300 | 17.36 | 171.88 | .50 | + .47 | + 11.4 | 17.35 | 7.4 | 18.8 | 0 | | | | 18.8 | .0231 | .0116 | .7126 |
| 0400 | 17.37 | 172.11 | 1.00 | + .23 | + 2.8 | 17.36 | 7.4 | 10.2 | 0 | | | | 10.2 | .0125 | .0125 | .7251 |
| 0500 | 17.37 | 172.11 | 1.00 | 0 | 0 | 17.37 | 7.4 | 7.4 | 0 | | | | 7.4 | .0091 | .0091 | .7342 |

Comp by BBH
Checked by FLS

Form A-64
(Rev. 5-65)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period April 18-19, 1968

8-0580 Honey Creek subwatershed No. 12 near McKinney, Tex. D.A. 1.26 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | April 19 cont. | | | | | | | | | | | | | | | |
| 0600 | 17.36 | 171.88 | 1 | - .23 | - 2.8 | 17.36 | 7.4 | 4.6 | 0 | | | | 4.6 | 0.0057 | .0057 | .7399 |
| 0900 | 17.33 | 171.18 | 3 | - .70 | - 2.8 | 17.34 | 7.4 | 4.6 | 0 | | | | 4.6 | .0057 | .0171 | .7570 |
| 1200 | 17.27 | 169.79 | 3 | - 1.39 | - 5.6 | 17.30 | 7.4 | 1.8 | 0 | | | | 1.8 | .0022 | .0066 | .7636 |
| 1215 | 17.27 | 169.79 | .25 | 0 | 0 | 17.27 | 7.4 | 7.4 | 0 | | | | 7.4 | .0091 | .0023 | .7659 |
| 1230 | 17.27 | 169.79 | | 0 | 0 | 17.27 | 7.4 | 7.4 | .07 | 23.2 | .14 | 6.8 | .6 | .0007 | .0002 | .7661 |
| 1245 | 17.27 | 169.79 | | 0 | 0 | 17.27 | 7.4 | 7.4 | .04 | 23.2 | .08 | 3.9 | 3.5 | .0043 | .0011 | .7672 |
| 1300 | 17.27 | 169.79 | | 0 | 0 | 17.27 | 7.4 | 7.4 | .06 | 23.2 | .12 | 5.8 | 1.6 | .0020 | .0005 | .7677 |
| 1315 | 17.27 | 169.79 | | 0 | 0 | 17.27 | 7.4 | 7.4 | .04 | 23.2 | .08 | 3.9 | 3.5 | .0043 | .0011 | .7688 |
| 1330 | 17.33 | 171.18 | | + 1.39 | + 67.3 | 17.30 | 7.4 | 74.7 | .23 | 23.2 | .44 | 21.3 | 53.4 | .0657 | .0164 | .7852 |
| 1345 | 17.44 | 173.75 | | + 2.57 | + 124 | 17.38 | 7.5 | 132 | .14 | 23.4 | .27 | 13.1 | 119 | .1464 | .0366 | .8218 |
| 1400 | 17.66 | 178.98 | | + 5.23 | + 253 | 17.55 | 7.5 | 260 | .09 | 23.8 | .18 | 8.7 | 251 | .3088 | .0772 | .8990 |
| 1415 | 18.00 | 187.26 | | + 8.28 | + 401 | 17.83 | 7.5 | 408 | 0 | | | | 408 | .5019 | .1255 | 1.0245 |
| 1430 | 18.20 | 192.26 | | + 5.00 | + 242 | 18.10 | 7.6 | 250 | 0 | | | | 250 | .3075 | .0769 | 1.1014 |
| 1445 | 18.35 | 196.06 | | + 3.80 | + 184 | 18.28 | 7.6 | 192 | 0 | | | | 192 | .2362 | .0590 | 1.1604 |
| 1500 | 18.42 | 197.86 | .25 | + 1.80 | + 87.1 | 18.38 | 7.6 | 94.7 | 0 | | | | 94.7 | .1165 | .0291 | 1.1895 |
| 1530 | 18.49 | 199.66 | .5 | + 1.80 | + 43.6 | 18.46 | 7.6 | 51.2 | 0 | | | | 51.2 | .0630 | .0315 | 1.2210 |
| 1600 | 18.53 | 200.70 | .5 | + 1.04 | + 25.2 | 18.51 | 7.6 | 32.8 | 0 | | | | 32.8 | .0403 | .0202 | 1.2412 |
| 1700 | 18.56 | 201.48 | 1.0 | + .78 | + 9.4 | 18.54 | 7.6 | 17.0 | 0 | | | | 17.0 | .0209 | .0209 | 1.2621 |
| 1730 | 18.57 | 201.74 | .5 | + .26 | + 6.3 | 18.56 | 7.6 | 13.9 | .07 | 26.0 | .15 | 3.6 | 10.3 | .0127 | .0074 | 1.2695 |
| 1800 | 18.58 | 202.00 | | + .28 | + 6.3 | 18.58 | 7.6 | 13.9 | 0 | | | | 13.9 | .0171 | .0086 | 1.2781 |
| 1830 | 18.62 | 203.04 | | + 1.04 | + 25.2 | 18.60 | 7.6 | 32.8 | 0 | | | | 32.8 | .0403 | .0202 | 1.2983 |
| 1900 | 18.64 | 203.57 | .5 | + .53 | + 12.8 | 18.63 | 7.6 | 20.4 | 0 | | | | 20.4 | .0251 | .0126 | 1.3109 |
| 2000 | 18.65 | 203.83 | 1.0 | + .26 | + 3.1 | 18.64 | 7.6 | 10.7 | 0 | | | | 10.7 | .0132 | .0132 | 1.3241 |
| 2100 | 18.65 | 203.83 | | 0 | 0 | 18.65 | 7.6 | 7.6 | 0 | | | | 7.6 | .0093 | .0093 | 1.3334 |
| 2200 | 18.65 | 203.83 | | 0 | 0 | 18.65 | 7.6 | 7.6 | 0 | | | | 7.6 | .0093 | .0093 | 1.3427 |
| 2300 | 18.64 | 203.57 | | - .26 | - 3.1 | 18.64 | 7.6 | 4.5 | 0 | | | | 4.5 | .0055 | .0055 | 1.3482 |
| 2400 | 18.63 | 203.31 | 1.0 | - .26 | - 3.1 | 18.64 | 7.6 | 4.5 | 0 | | | | 4.5 | .0055 | .0055 | 1.3537 |
| | | | | | | | 24) | 179.46 | | | | | | | | |
| | | | | | | | | 7.48 | | | | | | | | |

Comp by BBH
Checked by FLS

A-78 (Revised Feb. 1960)

Sheet 1 of 1

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 31, 1969
Check by: BBH
Date: Sept. 11, 1969

# WEIGHTED PRECIPITATION RECORD

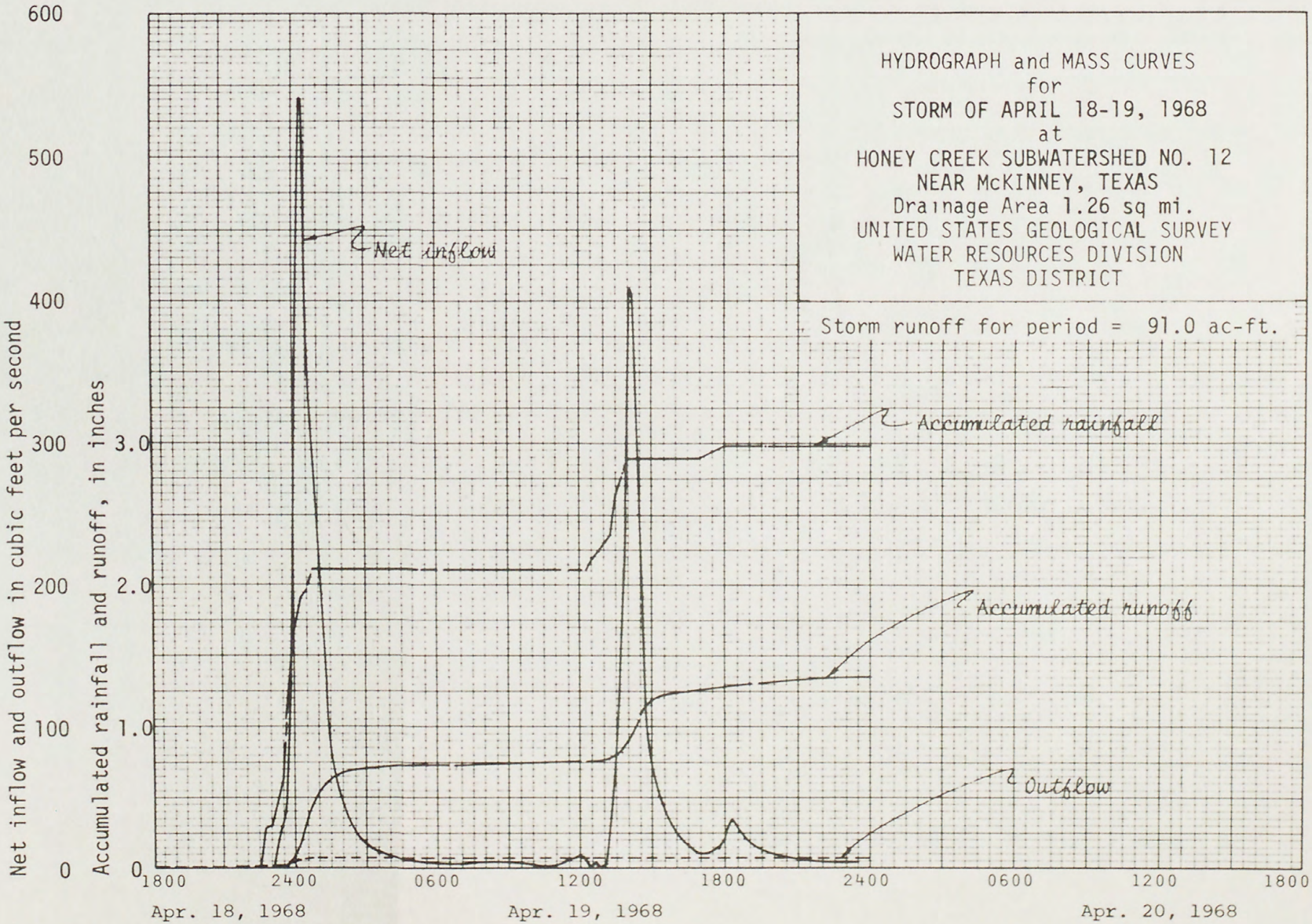
Area: HONEY CREEK SUBWATERSHED No. 12 NEAR McKINNEY, TEX. Date of storm APRIL 18-19, 1968

| Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | 1.000 | | | | | | | | | | | | | |
| | Gage 16-R | | Gage | | Gage | | Gage | | Gage | | Gage | | | (Rec. Gages x K) |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | All Gages |
| APRIL 18, | 1968 | | | | | | | | | | | | | |
| 2200 | 0 | | | | | | | | | | | | 0 | 0 |
| 30 | 0 | | | | | | | | | | | | 0 | 0 |
| 45 | .24 | | | | | | | | | | | | .24 | .28 |
| 2300 | .26 | | | | | | | | | | | | .26 | .30 |
| 15 | .43 | | | | | | | | | | | | .43 | .50 |
| 30 | .55 | | | | | | | | | | | | .55 | .64 |
| 45 | 1.04 | | | | | | | | | | | | 1.04 | 1.22 |
| 2400 | 1.42 | | | | | | | | | | | | 1.42 | 1.66 |
| APRIL 19, | 1968 | | | | | | | | | | | | | |
| 0015 | 1.63 | | | | | | | | | | | | 1.63 | 1.91 |
| 30 | 1.68 | | | | | | | | | | | | 1.68 | 1.97 |
| 45 | 1.80 | | | | | | | | | | | | 1.80 | 2.11 |
| 0100 | 1.80 | | | | | | | | | | | | 1.80 | 2.11 |
| 1200 | 1.80 | | | | | | | | | | | | 1.80 | 2.11 |
| 15 | 1.80 | | | | | | | | | | | | 1.80 | 2.11 |
| 30 | 1.87 | | | | | | | | | | | | 1.87 | 2.19 |
| 45 | 1.91 | | | | | | | | | | | | 1.91 | 2.24 |
| 1300 | 1.97 | | | | | | | | | | | | 1.97 | 2.31 |
| 15 | 2.01 | | | | | | | | | | | | 2.01 | 2.36 |
| 30 | 2.24 | | | | | | | | | | | | 2.24 | 2.63 |
| 45 | 2.38 | | | | | | | | | | | | 2.38 | 2.79 |
| 1400 | 2.47 | | | | | | | | | | | | 2.47 | 2.89 |
| 1700 | 2.47 | | | | | | | | | | | | 2.47 | 2.89 |
| 1800 | 2.54 | | | | | | | | | | | | 2.54 | 2.98 |
| 2400 | 2.54 | | | | | | | | | | | | 2.54 | 2.98 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10-S | .058 | 2.97 | .172 | | | | | | | | |
| 12-R | .663 | 3.16 | 2.095 | | | | | | | | |
| 16-R | .279 | 2.54 | .709 | | | | | | | | |
| | | | 2.976 | | | | | | | | |

WMR: 2.976

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 2.976 / 2.540 = 1.172


HYDROGRAPH and MASS CURVES
for
STORM OF APRIL 18-19, 1968
at
HONEY CREEK SUBWATERSHED NO. 12
NEAR McKINNEY, TEXAS
Drainage Area 1.26 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 91.0 ac-ft.
Net inflow
Accumulated rainfall
Accumulated runoff
Outflow
Net inflow and outflow in cubic feet per second
Accumulated rainfall and runoff, in inches
600
500
400
300
200
100
0
3.0
2.0
1.0
0
1800
2400
0600
1200
1800
2400
0600
1200
1800
Apr. 18, 1968
Apr. 19, 1968
Apr. 20, 1968

A-65
(Rev. 6-63)

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY-AUSTIN DISTRICT

RUNOFF COMPUTATIONS

Station Honey Creek near McKinney, Tex.

Period of Record April 18-20, 1968 Drainage Area 39.0

| Time | G. Ht. Feet | Sh. Adj. | Discharge c.f.s. | Discharge Inc. | Discharge In/hr. | Runoff Inches | Runoff Acc. In. |
|---|---|---|---|---|---|---|---|
| | | | April 18 | | | | |
| 0000 | 1.43 | -.03 | 14 | 11 | 0.0006 | 0.0066 | 0.0066 |
| 2200 | 1.45 | | 15 | 11.5 | .0006 | .0069 | .0135 |
| 2300 | 1.47 | | 16 | .75 | .0006 | .0004 | .0139 |
| 2330 | 1.62 | -.03 | 25 | .5 | .0010 | .0005 | .0144 |
| 2400 | 3.18 | 0 | 141 | .25 | .0056 | .0014 | .0158 |
| | | | 386.25 | 24 | | | |
| | | | 16 | | | | |
| | | | April 19 | | | | |
| 0000 | 3.18 | 0 | 141 | .25 | .0056 | .0014 | .0172 |
| 0030 | 5.60 | | 370 | .5 | .0147 | .0074 | .0246 |
| 0100 | 7.87 | 0 | 606 | .5 | .0241 | .0120 | .0366 |
| 0130 | 9.28 | +.20 | 803 | .5 | .0319 | .0160 | .0526 |
| 0200 | 10.35 | +.40 | 1,010 | .5 | .0401 | .0200 | .0726 |
| 0230 | 11.00 | | 1,130 | .5 | .0449 | .0224 | .0950 |
| 0300 | 11.24 | | 1,180 | .5 | .0469 | .0234 | .1184 |
| 0330 | 11.08 | | 1,150 | .5 | .0457 | .0228 | .1412 |
| 0400 | 10.50 | +.40 | 1,040 | .75 | .0413 | .0310 | .1722 |
| 0500 | 8.28 | +.15 | 668 | 1 | .0265 | .0265 | .1987 |
| 0600 | 6.07 | 0 | 417 | 1 | .0166 | .0166 | .2153 |
| 0700 | 4.83 | | 293 | 1.5 | .0116 | .0174 | .2327 |
| 0900 | 3.95 | | 210 | 2.5 | .0083 | .0208 | .2535 |
| 1200 | 3.46 | | 166 | 2 | .0066 | .0132 | .2667 |
| 1300 | 3.44 | | 165 | .75 | .0066 | .0050 | .2717 |
| 1330 | 3.92 | | 208 | .5 | .0083 | .0042 | .2759 |
| 1400 | 5.50 | | 360 | .5 | .0143 | .0072 | .2831 |
| 1430 | 7.20 | 0 | 532 | .5 | .0211 | .0106 | .2937 |
| 1500 | 8.32 | +.15 | 672 | .5 | .0267 | .0134 | .3071 |
| 1530 | 10.00 | +.35 | 942 | .5 | .0374 | .0187 | .3258 |
| 1600 | 12.25 | +.40 | 1,390 | .5 | .0552 | .0276 | .3534 |

| Time | G. Ht. Feet | Sh. Adj. | Discharge c.f.s. | Discharge Inc. | Discharge In/hr. | Runoff Inches | Runoff Acc. In. |
|---|---|---|---|---|---|---|---|
| | | | April 19 con't. | | | | |
| 1630 | 13.97 | +.40 | 1,840 | .5 | .0731 | .0366 | .3900 |
| 1700 | 14.73 | | 2,080 | .5 | .0826 | .0413 | .4313 |
| 1730 | 14.98 | | 2,160 | .5 | .0858 | .0429 | .4742 |
| 1800 | 14.57 | | 2,020 | .75 | .0803 | .0602 | .5344 |
| 1900 | 12.55 | | 1,460 | 1 | .0580 | .0580 | .5924 |
| 2000 | 10.62 | +.40 | 1,060 | 1.5 | .0421 | .0632 | .6556 |
| 2200 | 8.72 | +.15 | 720 | 1.5 | .0286 | .0429 | .6985 |
| 2300 | 7.18 | 0 | 530 | 1 | .0211 | .0211 | .7196 |
| 2400 | 6.02 | 0 | 412 | .5 | .0164 | .0082 | .7278 |
| | | | 17918.00 | 24 | | | |
| | | | 747 | | | | |
| | | | April 20 | | | | |
| 0000 | 6.02 | 0 | 412 | 1 | .0164 | .0164 | .7442 |
| 0200 | 4.89 | | 299 | 3 | .0119 | .0357 | .7799 |
| 0600 | 4.19 | | 232 | 5 | .0092 | .0460 | .8259 |
| 1200 | 3.83 | | 200 | 9 | .0079 | .0711 | .8970 |
| 2400 | 3.44 | 0 | 165 | 6 | .0066 | .0396 | .9366 |
| | | | 5259 | 24 | | | |
| | | | 219 | | | | |
| | Runoff acre-feet | | | | 1,950 | | |
| BBH DBU | BBH DBU | BBH DBU | BBH DBU | BBH DBU | BBH HHW | BBH HHW | BBH HHW |

Computed by _____ Date _____ Computed _____ Date _____

A-78 (Revised Feb. 1960)

Sheet 1 of 2

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 31, 1969
Check by: BBH
Date: 8/11/69

WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK NEAR McKINNEY, TEX. Date of storm APRIL 18-19, 1968

| Weight Factor | .462 | | .225 | | .087 | | .104 | | .122 | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage 5-R | | Gage 9-R | | Gage 12-R | | Gage 13-R | | Gage 16-R | | Gage | | | |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| APRIL 18, 1968 | | | | | | | | | | | | | | |
| 2100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| 2200 | .01 | .005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | .005 | .00 |
| 15 | .03 | .014 | .02 | .004 | 0 | 0 | 0 | 0 | 0 | 0 | | | .018 | .02 |
| 30 | .03 | .014 | .21 | .047 | .01 | .001 | 0 | 0 | 0 | 0 | | | .062 | .06 |
| 45 | .03 | .014 | .22 | .050 | .37 | .032 | .10 | .010 | .23 | .028 | | | .134 | .13 |
| 2300 | .05 | .023 | .61 | .137 | .43 | .037 | .24 | .025 | .24 | .029 | | | .251 | .24 |
| 15 | .05 | .023 | .78 | .176 | .62 | .054 | .40 | .042 | .43 | .052 | | | .347 | .33 |
| 30 | .48 | .222 | 1.56 | .351 | .86 | .075 | .57 | .059 | .55 | .067 | | | .774 | .74 |
| 45 | 1.16 | .536 | 1.66 | .374 | 1.39 | .121 | 1.10 | .114 | 1.07 | .131 | | | 1.276 | 1.22 |
| 2400 | 1.25 | .578 | 1.73 | .389 | 1.92 | .167 | 1.50 | .156 | 1.39 | .170 | | | 1.460 | 1.40 |
| APRIL 19, 1968 | | | | | | | | | | | | | | |
| 0015 | 1.31 | .605 | 1.74 | .392 | 2.07 | .180 | 1.70 | .177 | 1.59 | .194 | | | 1.548 | 1.49 |
| 30 | 1.33 | .614 | 1.76 | .396 | 2.15 | .187 | 1.80 | .187 | 1.63 | .199 | | | 1.583 | 1.52 |
| 45 | 1.34 | .619 | 1.76 | .396 | 2.24 | .195 | 1.90 | .198 | 1.75 | .214 | | | 1.622 | 1.56 |
| 0100 | 1.35 | .624 | 1.77 | .398 | 2.25 | .196 | 1.95 | .203 | 1.76 | .215 | | | 1.636 | 1.57 |
| 1200 | 1.46 | .674 | 1.84 | .414 | 2.32 | .202 | 2.08 | .216 | 1.80 | .220 | | | 1.726 | 1.66 |
| 15 | 1.50 | .693 | 2.04 | .459 | 2.32 | .202 | 2.09 | .217 | 1.80 | .220 | | | 1.791 | 1.72 |
| 30 | 1.75 | .808 | 2.07 | .466 | 2.44 | .212 | 2.09 | .217 | 1.86 | .227 | | | 1.930 | 1.85 |
| 45 | 1.81 | .836 | 2.13 | .479 | 2.49 | .217 | 2.15 | .224 | 1.91 | .233 | | | 1.989 | 1.91 |
| 1300 | 1.85 | .854 | 2.17 | .488 | 2.53 | .220 | 2.21 | .230 | 1.98 | .242 | | | 2.034 | 1.95 |
| 15 | 2.02 | .933 | 2.30 | .518 | 2.58 | .224 | 2.28 | .237 | 2.02 | .246 | | | 2.158 | 2.07 |
| 30 | 2.10 | .970 | 2.71 | .610 | 2.71 | .236 | 2.34 | .243 | 2.25 | .274 | | | 2.333 | 2.24 |
| 45 | 2.45 | 1.132 | 2.73 | .614 | 2.97 | .258 | 2.49 | .259 | 2.40 | .293 | | | 2.556 | 2.45 |
| 1400 | 2.55 | 1.178 | 2.73 | .614 | 3.04 | .264 | 2.58 | .268 | 2.49 | .304 | | | 2.628 | 2.52 |
| 1500 | 2.57 | 1.187 | 2.73 | .614 | 3.10 | .270 | 2.64 | .275 | 2.49 | .304 | | | 2.650 | 2.54 |
| (continued) | | | | | | | | | | | | | | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-S | .0666 | 1.91 | .127 | 7-S | .0888 | 3.02 | .268 | 13-R | .0591 | 2.76 | .163 |
| 2-S | .0715 | 2.48 | .177 | 8-S | .0689 | 2.76 | .190 | 14-S | .0620 | 3.04 | .188 |
| 3-S | .0720 | 2.27 | .163 | 9-R | .0854 | 2.85 | .243 | 15-R | .0399 | 2.06 | .082 |
| 4-S | .0600 | 2.70 | .162 | 10-S | .0523 | 2.97 | .155 | 16-R | .0310 | 2.54 | .079 |
| 5-R | .0889 | 2.87 | .255 | 11-S | .0477 | 3.00 | .143 | | | | 2.724 |
| 6-S | .0695 | 3.08 | .214 | 12-R | .0364 | 3.16 | .115 | | | | |

WMR: 2.724

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 2.724 / 2.839 = .9595

A-78 (Revised Feb. 1960)

Sheet 2 of 2

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 31, 1969
Check by: BBH
Date: 9/11/69

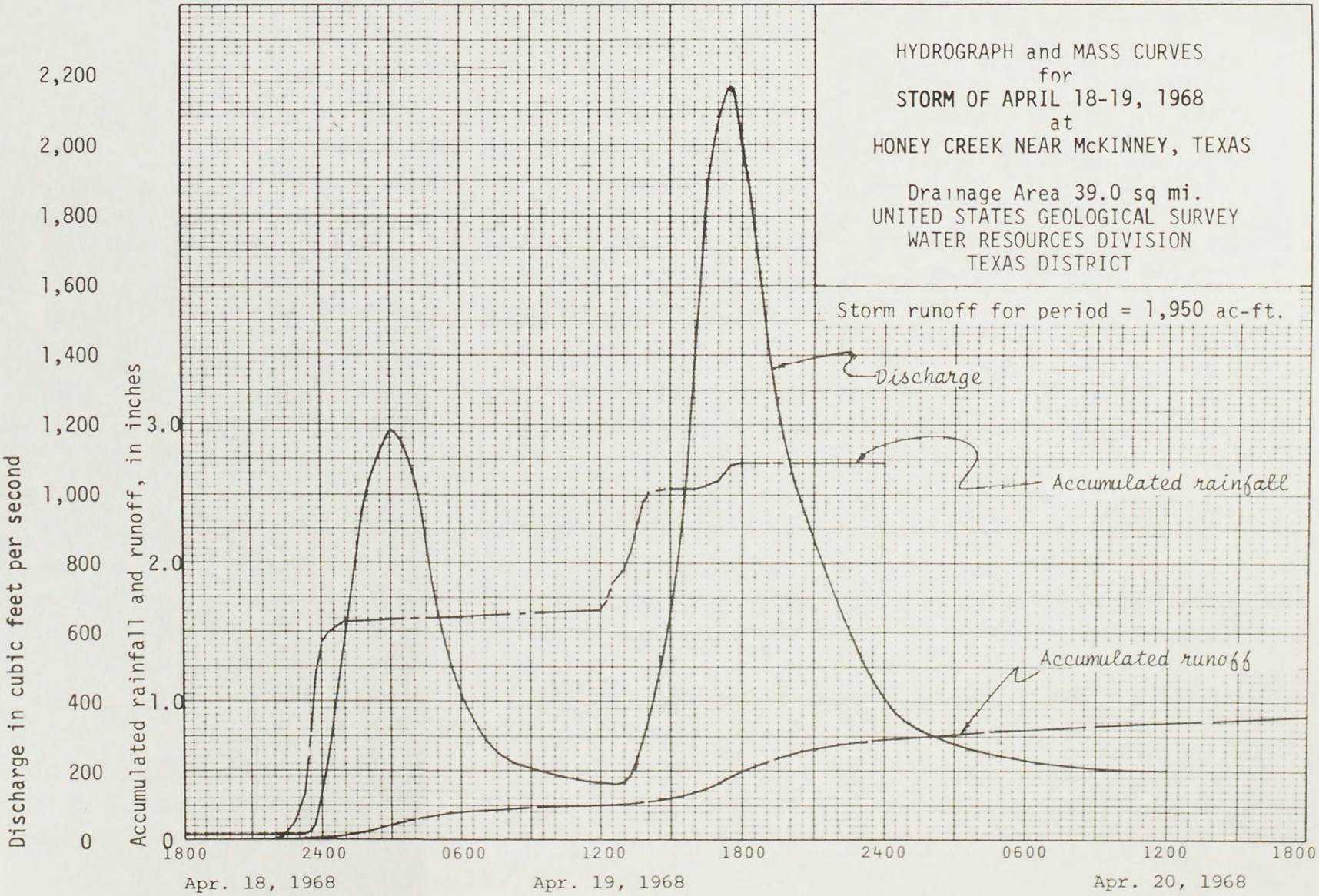
WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK NEAR MCKINNEY, TEX. Date of storm APRIL 18-19, 1968

| Weight Factor | .462 | | .225 | | .087 | | .104 | | .122 | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | |
| | Gage 5-R | | Gage 9-R | | Gage 12-R | | Gage 13-R | | Gage 16-R | | Gage | | | |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| APRIL 19, | 1968 | (con't) | | | | | | | | | | | | |
| 1600 | 2.57 | 1.187 | 2.73 | .614 | 3.10 | .270 | 2.64 | .275 | 2.49 | .304 | | | 2.650 | 2.54 |
| 45 | 2.57 | 1.187 | 2.73 | .614 | 3.12 | .271 | 2.64 | .275 | 2.50 | .305 | | | 2.652 | 2.54 |
| 1700 | 2.67 | 1.234 | 2.81 | .632 | 3.12 | .271 | 2.64 | .275 | 2.50 | .305 | | | 2.717 | 2.61 |
| 15 | 2.75 | 1.270 | 2.85 | .641 | 3.15 | .274 | 2.68 | .279 | 2.51 | .306 | | | 2.770 | 2.66 |
| 30 | 2.86 | 1.321 | 2.85 | .641 | 3.16 | .275 | 2.69 | .280 | 2.54 | .310 | | | 2.827 | 2.71 |
| 1800 | 2.87 | 1.326 | 2.85 | .641 | 3.16 | .275 | 2.76 | .287 | 2.54 | .310 | | | 2.839 | 2.72 |
| 2400 | 2.87 | 1.326 | 2.85 | .641 | 3.16 | .275 | 2.76 | .287 | 2.54 | .310 | | | 2.839 | 2.72 |

| 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 =


HYDROGRAPH and MASS CURVES
for
STORM OF APRIL 18-19, 1968
at
HONEY CREEK NEAR McKINNEY, TEXAS
Drainage Area 39.0 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 1,950 ac-ft.
Discharge
Accumulated rainfall
Accumulated runoff
Discharge in cubic feet per second
Accumulated rainfall and runoff, in inches
2,200
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
3.0
2.0
1.0
0
1800
2400
0600
1200
1800
2400
0600
1200
1800
Apr. 18, 1968
Apr. 19, 1968
Apr. 20, 1968

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period May 16-17, 1968

8-0575 Honey Creek subwatershed No. 11 near McKinney, Tex. D.A. 2.14 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May 16 1968 | | | | | | | | | | | | | | | | |
| 0000 | 16.04 | 480.38 | - | - | - | - | - | - | | | | | - | - | - | .0000 |
| 0600 | 16.01+ | 479.26 | 6.0 | - 1.12 | - 2.2 | 16.03 | 6.06 | 3.9 | | | | | 3.9 | .0028 | .0168 | .0168 |
| 1200 | 15.97+ | 477.46 | 6.0 | - 1.80 | - 3.6 | 15.99 | 6.04 | 2.4 | | | | | 2.4 | .0017 | .0102 | .0270 |
| 1800 | 15.93 | 475.45 | 6.0 | - 2.01 | - 4.1 | 15.95 | 6.02 | 1.9 | | | | | 1.9 | .0014 | .0084 | .0354 |
| 2300 | 15.90 | 474.11 | 5.0 | - 1.34 | - 3.2 | 15.92 | 6.01 | 2.8 | | | | | 2.8 | .0020 | .0100 | .0454 |
| 2315 | 15.89+ | 474.00 | .25 | - .11 | - 5.3 | 15.90 | 6.00 | .7 | | | | | .7 | .0005 | .0001 | .0455 |
| 2330 | 15.89+ | 473.89 | | - .11 | - 5.3 | 15.89 | 6.00 | .7 | 0 | | | | .7 | .0005 | .0001 | .0456 |
| 2345 | 15.90 | 474.11 | | + .22 | + 10.6 | 15.90 | 6.00 | 16.6 | .06 | 44.6 | .22 | 10.6 | 6.0 | .0043 | .0011 | .0467 |
| 2400 | 15.98 | 477.69 | .25 | + 3.58 | + 173 | 15.94 | 6.02 | 179.0 | .50 | 44.7 | 1.86 | 90.0 | 89.0 | .0644 | .0161 | .0628 |
| | | | | | | 96) | 579.10 | | | | | | | | | |
| | May 17 1968 | | | | | | 6.03 | | | | | | | | | |
| 0000 | 15.98 | 477.69 | - | - | - | - | - | - | - | - | - | - | - | - | - | .0628 |
| 0015 | 16.06 | 481.28 | .25 | + 3.59 | + 174 | 16.02 | 6.06 | 180.1 | .10 | 44.9 | .37 | 17.9 | 162 | .1173 | .0293 | .0921 |
| 0030 | 16.17 | 486.24 | | + 4.96 | 240 | 16.12 | 6.10 | 246.1 | .09 | 45.2 | .34 | 16.5 | 230 | .1665 | .0416 | .1337 |
| 0045 | 16.30 | 492.15 | | + 5.91 | 286 | 16.24 | 6.14 | 292.1 | .08 | 45.5 | .30 | 14.5 | 278 | .2013 | .0503 | .1840 |
| 0100 | 16.42 | 497.64 | | + 5.49 | 266 | 16.36 | 6.19 | 272.2 | .05 | 45.8 | .19 | 9.2 | 263 | .1904 | .0476 | .2316 |
| 0115 | 16.53 | 502.71 | | + 5.07 | 245 | 16.48 | 6.23 | 251.2 | .02 | 46.1 | .08 | 3.9 | 247 | .1788 | .0447 | .2763 |
| 0130 | 16.62 | 506.87 | | + 4.16 | 201 | 16.58 | 6.26 | 207.3 | 0 | | | | 207 | .1499 | .0375 | .3138 |
| 0145 | 16.69 | 510.12 | | + 3.25 | 157 | 16.66 | 6.29 | 163.3 | | | | | 163 | .1180 | .0295 | .3433 |
| 0200 | 16.75 | 512.93 | .25 | + 2.81 | 136 | 16.72 | 6.31 | 142.3 | | | | | 142 | .1028 | .0257 | .3690 |
| 0230 | 16.82 | 516.21 | .50 | + 3.28 | 79.4 | 16.78 | 6.33 | 85.7 | | | | | 85.7 | .0620 | .0310 | .4000 |
| 0300 | 16.87 | 518.50 | | + 2.29 | 55.4 | 16.84 | 6.35 | 61.8 | | | | | 61.8 | .0447 | .0224 | .4224 |
| 0330 | 16.90 | 519.98 | | + 1.48 | 35.8 | 16.88 | 6.36 | 42.2 | | | | | 42.2 | .0306 | .0153 | .4377 |
| 0400 | 16.93 | 521.40 | | + 1.42 | 34.4 | 16.92 | 6.38 | 40.8 | | | | | 40.8 | .0295 | .0148 | .4525 |
| 0430 | 16.95+ | 522.59 | | + 1.19 | 28.8 | 16.94 | 6.38 | 35.2 | | | | | 35.2 | .0255 | .0128 | .4653 |
| 0500 | 16.97 | 523.30 | | + .71 | 17.2 | 16.96 | 6.39 | 23.6 | | | | | 23.6 | .0171 | .0086 | .4739 |
| 0530 | 16.98+ | 524.01 | | + .71 | 17.2 | 16.98 | 6.39 | 23.6 | | | | | 23.6 | .0171 | .0086 | .4825 |
| 0600 | 16.99+ | 524.50 | .50 | + .49 | 11.9 | 16.99 | 6.40 | 18.3 | 0 | | | | 18.3 | .0132 | .0066 | .4891 |
| 0615 | 17.00+ | 525.00 | .25 | + .50 | 24.2 | 17.00 | 6.40 | 30.6 | .02 | 47.5 | .08 | 3.9 | 26.7 | .0193 | .0048 | .4939 |
| 0630 | 17.03 | 526.15 | | + 1.15 | 55.7 | 17.02 | 6.40 | 62.1 | .18 | 47.6 | .71 | 34.4 | 27.7 | .0201 | .0050 | .4989 |
| 0645 | 17.04 | 526.63 | | + .48 | 23.2 | 17.04 | 6.41 | 29.6 | .02 | 47.6 | .08 | 3.9 | 25.7 | .0186 | .0046 | .5035 |
| 0700 | 17.07 | 528.06 | .25 | + 1.43 | 69.2 | 17.06 | 6.42 | 75.6 | .18 | 47.7 | .72 | 34.8 | 40.8 | .0295 | .0074 | .5109 |

Comp by BBH
Ch. by JNS

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period May 16-17, 1968

8-0575 Honey Creek subwatershed No. 11 near McKinney, Tex. D.A. 2.14 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| continue May 17 | | | | | | | | | | | | | | | | |
| 0715 | 17.16 | 532.37 | .25 | + 4.31 | 209 | 17.12 | 6.43 | 215.4 | .36 | 47.9 | 1.44 | 69.7 | 146 | .1057 | .0264 | .5373 |
| 0730 | 17.28 | 538.15 | .25 | + 5.78 | 280 | 17.22 | 6.46 | 286.5 | .06 | 48.2 | .24 | 11.6 | 275 | .1991 | .0498 | .5871 |
| 0735 | 17.32 | 540.09 | .083 | + 1.94 | 282 | 17.30 | 6.48 | 288.5 | .03 | 48.5 | .12 | 17.4 | 271 | .1962 | .0163 | .6034 |
| 0740 | 17.36+ | 542.19 | | + 2.10 | 305 | 17.34 | 6.48 | 311.5 | .01 | 48.6 | .04 | 5.8 | 306 | .2215 | .0185 | .6219 |
| 0745 | 17.41 | 544.47 | | + 2.28 | 331 | 17.38 | 6.50 | 337.5 | 0 | | | | 338 | .2447 | .0204 | .6423 |
| 0750 | 17.46 | 546.92 | | + 2.45 | 356 | 17.44 | 6.51 | 362.5 | | | | | 362 | .2621 | .0218 | .6641 |
| 0755 | 17.52 | 549.87 | | + 2.95 | 428 | 17.49 | 6.52 | 434.5 | | | | | 434 | .3142 | .0262 | .6903 |
| 0800 | 17.57 | 552.33 | .083 | + 2.46 | 357 | 17.54 | 6.54 | 363.5 | | | | | 364 | .2635 | .0219 | .7122 |
| 0815 | 17.69 | 558.28 | .25 | + 5.95 | 288 | 17.63 | 6.56 | 294.6 | | | | | 295 | .2136 | .0534 | .7656 |
| 0830 | 17.78 | 562.78 | | + 4.50 | 218 | 17.74 | 6.58 | 224.6 | | | | | 225 | .1629 | .0407 | .8063 |
| 0845 | 17.85 | 566.30 | | + 3.52 | 170 | 17.82 | 6.60 | 176.6 | | | | | 177 | .1281 | .0320 | .8383 |
| 0900 | 17.89+ | 568.57 | .25 | + 2.27 | 110 | 17.87 | 6.62 | 116.6 | | | | | 117 | .0847 | .0212 | .8595 |
| 0930 | 17.95+ | 571.61 | .50 | + 3.07 | 73.6 | 17.92 | 6.63 | 80.2 | | | | | 80.2 | .0581 | .0290 | .8885 |
| 1000 | 18.00 | 573.89 | | + 2.28 | 55.2 | 17.98 | 6.64 | 61.8 | | | | | 61.8 | .0447 | .0224 | .9109 |
| 1030 | 18.04+ | 576.19 | | + 2.30 | 55.7 | 18.02 | 6.66 | 62.3 | | | | | 62.3 | .0451 | .0226 | .9335 |
| 1100 | 18.07 | 577.47 | .50 | + 1.28 | 31.0 | 18.06 | 6.66 | 37.7 | | | | | 37.7 | .0273 | .0136 | .9471 |
| 1200 | 18.10 | 579.00 | 1.00 | + 1.53 | 18.5 | 18.08 | 6.67 | 25.2 | | | | | 25.2 | .0182 | .0182 | .9653 |
| 1300 | 18.13 | 580.54 | 1.00 | + 1.54 | 18.6 | 18.12 | 6.68 | 25.3 | | | | | 25.3 | .0183 | .0183 | .9836 |
| 1400 | 18.14+ | 581.31 | 1.00 | + .77 | 9.3 | 18.14 | 6.68 | 16.0 | | | | | 16.0 | .0116 | .0116 | .9952 |
| 1600 | 18.16 | 582.08 | 2.00 | + .77 | 4.7 | 18.15 | 6.69 | 11.4 | | | | | 11.4 | .0083 | .0166 | 1.0118 |
| 1800 | 18.17 | 582.60 | | + .52 | 3.1 | 18.16 | 6.69 | 9.8 | | | | | 9.8 | .0071 | .0142 | 1.0260 |
| 2000 | 18.17 | 582.60 | | 0 | 0 | 18.17 | 6.69 | 6.7 | | | | | 6.7 | .0048 | .0096 | 1.0356 |
| 2200 | 18.17 | 582.60 | | 0 | 0 | 18.17 | 6.69 | 6.7 | | | | | 6.7 | .0048 | .0096 | 1.0452 |
| 2400 | 18.17 | 582.60 | 2.00 | 0 | 0 | 18.17 | 6.69 | 6.7 | | | | | 6.7 | .0048 | .0096 | 1.0548 |
| | | | | | | | 90)630.29 | | | | | | | | | |
| | | | | | | | 6.57 | | | | | | | | | |

comp by BBH
Ch. by JNS

A-78 (Revised Feb. 1960)

Sheet 1 of 1

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 31, 1969
Check by: BBH
Date: 9/11/69

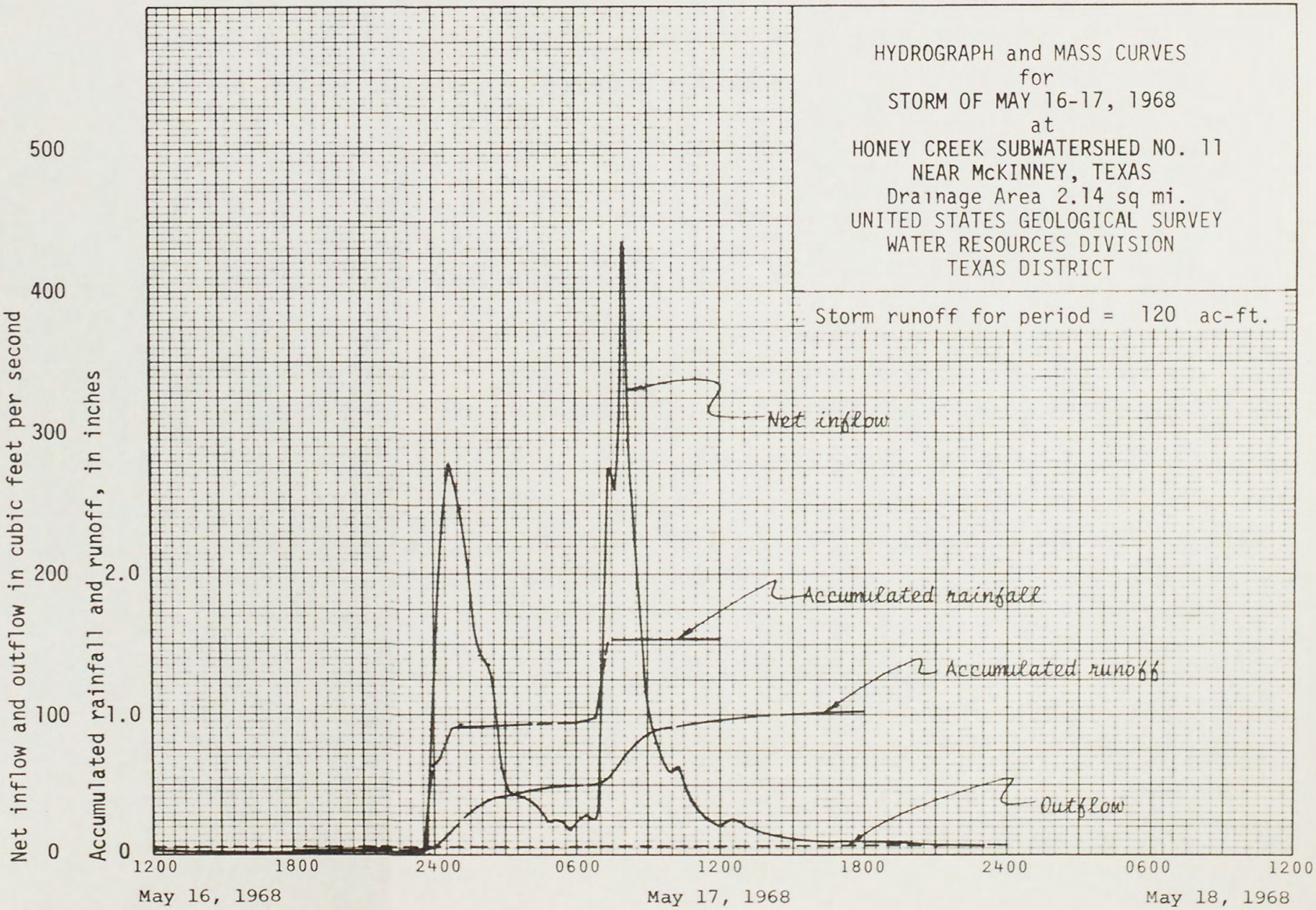
WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK SUBWATERSHED No. 11, NEAR McKINNEY, TEX. Date of storm MAY 16-17, 1968

| Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | 1.000 | | | | | | | | | | | | | |
| Date & Time | Gage 13-R Recorded | x Factor | Gage 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 |
| MAY 16, 1968 | | | | | | | | | | | | | | |
| 2300 | 0. | | | | | | | | | | | | 0. | 0 |
| 30 | 0. | | | | | | | | | | | | 0. | 0 |
| 45 | .23 | | | | | | | | | | | | .23 | .24 |
| 2400 | .62 | | | | | | | | | | | | .62 | .64 |
| MAY 17, 1968 | | | | | | | | | | | | | | |
| 0015 | .67 | | | | | | | | | | | | .67 | .69 |
| 30 | .79 | | | | | | | | | | | | .79 | .82 |
| 45 | .87 | | | | | | | | | | | | .87 | .90 |
| 0100 | .88 | | | | | | | | | | | | .88 | .91 |
| 0600 | .92 | | | | | | | | | | | | .92 | .95 |
| 45 | .96 | | | | | | | | | | | | .96 | .99 |
| 0700 | 1.15 | | | | | | | | | | | | 1.15 | 1.19 |
| 15 | 1.46 | | | | | | | | | | | | 1.46 | 1.51 |
| 30 | 1.48 | | | | | | | | | | | | 1.48 | 1.53 |
| 1200 | 1.48 | | | | | | | | | | | | 1.48 | 1.53 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15-R | .217 | 1.76 | .382 | | | | | | | | |
| 13-R | .688 | 1.48 | 1.018 | | | | | | | | |
| 11-S | .095 | 1.35 | .128 | | | | | | | | |
| | | | 1.528 | | | | | | | | |
| | | | | | | | | | | WMR: | 1.528 |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 1.528 / 1.480 = 1.0324


HYDROGRAPH and MASS CURVES
for
STORM OF MAY 16-17, 1968
at
HONEY CREEK SUBWATERSHED NO. 11
NEAR McKINNEY, TEXAS
Drainage Area 2.14 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 120 ac-ft.
Net inflow
Accumulated rainfall
Accumulated runoff
Outflow
Net inflow and outflow in cubic feet per second
Accumulated rainfall and runoff, in inches
500
400
300
200
100
0
2.0
1.0
0
1200
1800
2400
0600
1200
1800
2400
0600
1200
May 16, 1968
May 17, 1968
May 18, 1968

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period May 16-17, 1968

8-0580 Honey Creek subwatershed No. 12 near McKinney, Tex. D.A. 1.26 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 | Rainfall on Pool Storage ac-ft | Rainfall on Pool Storage cfs | Net Inflow Rate cfs | Net Inflow Rate in/hr | Net Inflow in | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May 16 | | | | | | | | | | | | | | | | |
| 0000 | 15.39 | 129.48 | — | — | — | — | | | | | | | | | | .0000 |
| 0600 | 15.28 | 127.31 | 6.0 | -2.17 | -4.4 | 15.34 | 5.1 | .7 | 0 | | | | .7 | .0009 | .0054 | .0054 |
| 1200 | 15.21 | 125.93 | 6.0 | -1.38 | -2.8 | 15.24 | 3.0 | .2 | 0 | | | | .2 | .0002 | .0012 | .0066 |
| 1800 | 15.16 | 124.95 | 6.0 | -.98 | -2.0 | 15.18 | 1.9 | 0 | 0 | | | | 0 | 0 | 0 | .0066 |
| 2300 | 15.14 | 124.56 | 5.0 | -.39 | -.9 | 15.15 | 1.4 | .5 | 0 | | | | .5 | .0006 | .0030 | .0096 |
| 2330 | 15.13 | 124.36 | .5 | -.20 | -4.8 | 15.14 | 1.2 | 0 | 0 | | | | 0 | 0 | 0 | .0096 |
| 2345 | 15.13 | 124.36 | .25 | 0 | 0 | 15.13 | 1.1 | 1.1 | 0 | | | | 1.1 | .0014 | .0004 | .0100 |
| 2400 | 15.17 | 125.14 | .25 | +.78 | +37.8 | 15.15 | 1.4 | 39.2 | .24 | 19.5 | .39 | 18.9 | 20.3 | .0250 | .0062 | .0162 |
| | | | | | | | 24) 68.23 | | | | | | | | | |
| | | | | | | | 2.84 | | | | | | | | | |
| May 17 | | | | | | | | | | | | | | | | |
| 0000 | 15.17 | 125.14 | - | — | | | | | | | | | | | | |
| 0015 | 15.29 | 127.50 | .25 | + 2.36 | +114 | 15.23 | 2.8 | 117 | .30 | 19.6 | .49 | 23.7 | 93.3 | .1148 | .0287 | .0449 |
| 0020 | 15.36 | 128.89 | .083 | + 1.39 | +202 | 15.32 | 4.6 | 207 | 0 | | | | 207 | .2546 | .0211 | .0660 |
| 0025 | 15.46 | 130.88 | | + 1.99 | +289 | 15.41 | 6.4 | 295 | 0 | | | | 295 | .3629 | .0301 | .0961 |
| 0030 | 15.58 | 133.29 | | + 2.41 | +350 | 15.52 | 6.9 | 357 | 0 | | | | 357 | .4392 | .0365 | .1326 |
| 0035 | 15.71 | 135.92 | | + 2.63 | +382 | 15.64 | 7.1 | 389 | 0 | | | | 389 | .4785 | .0397 | .1723 |
| 0040 | 15.83 | 138.38 | | + 2.46 | +357 | 15.77 | 7.2 | 364 | 0 | | | | 364 | .4478 | .0372 | .2095 |
| 0045 | 15.94 | 140.65 | .083 | + 2.27 | +330 | 15.88 | 7.2 | 337 | .18 | 20.6 | .31 | 45.0 | 292 | .3592 | .0298 | .2393 |
| 0100 | 16.21 | 146.31 | .25 | + 5.66 | +274 | 16.08 | 7.3 | 281 | .08 | 21.0 | .14 | 6.8 | 274 | .3371 | .0843 | .3236 |
| 0115 | 16.47 | 151.88 | | + 5.52 | +267 | 16.34 | 7.3 | 274 | 0 | | | | 274 | .3371 | .0843 | .4079 |
| 0130 | 16.70 | 156.91 | | + 5.03 | +243 | 16.58 | 7.3 | 250 | 0 | | | | 250 | .3075 | .0769 | .4848 |
| 0145 | 16.86 | 160.47 | | + 3.56 | +172 | 16.76 | 7.4 | 179 | 0 | | | | 179 | .2202 | .0550 | .5398 |
| 0200 | 16.94 | 162.26 | .25 | + 1.79 | + 86.6 | 16.90 | 7.4 | 94.0 | 0 | | | | 94.0 | .1156 | .0289 | .5687 |
| 0230 | 17.03 | 164.29 | .5 | + 2.03 | + 49.1 | 16.98 | 7.4 | 56.5 | 0 | | | | 56.5 | .0695 | .0348 | .6035 |
| 0300 | 17.07 | 165.20 | .5 | + .91 | + 22.0 | 17.05 | 7.4 | 29.4 | 0 | | | | 29.4 | .0362 | .0181 | .6216 |
| 0400 | 17.09 | 165.65 | 1.0 | + .45 | + 5.4 | 17.08 | 7.4 | 12.8 | 0 | | | | 12.8 | .0157 | .0157 | .6373 |
| 0600 | 17.09 | 165.65 | 2.0 | 0 | 0 | 17.09 | 7.4 | 7.4 | 0 | | | | 7.4 | .0091 | .0182 | .6555 |
| 0645 | 17.08 | 165.43 | .75 | - .22 | - 3.5 | 17.08 | 7.4 | 3.9 | 0 | | | | 3.9 | .0048 | .0036 | .6591 |
| 0700 | 17.07 | 165.20 | .25 | - .23 | - 11.1 | 17.08 | 7.4 | 0 | 0 | | | | 0 | .0000 | .0000 | .6591 |

TX-64
1-69

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY - TEXAS DISTRICT



## INFLOW AND OUTFLOW COMPUTATIONS

Storm period May 16-17, 1968

8-0580 Honey Creek subwatershed No. 12 near Mc Kinney, Tex. D.A. 1.26 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 | Net Inflow Acc in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May 17 cont. | | | | | | | | | | | | | | | | |
| 0715 | 17.11 | 166.11 | .25 | + .91 | + 44.0 | 17.09 | 7.4 | 51.4 | .02 | 22.8 | .04 | 1.9 | 49.5 | .0609 | .0152 | .6743 |
| 0720 | 17.16 | 167.25 | .083 | + 1.14 | + 166 | 17.14 | 7.4 | 173 | .03 | 22.9 | .06 | 8.7 | 164 | .2017 | .0167 | .6910 |
| 0725 | 17.22 | 168.63 | | + 1.38 | + 200 | 17.19 | 7.4 | 207 | .08 | 23.0 | .15 | 21.8 | 185 | .2276 | .0189 | .7099 |
| 0730 | 17.30 | 170.48 | | + 1.85 | + 269 | 17.26 | 7.4 | 276 | .14 | 23.1 | .27 | 39.2 | 237 | .2915 | .0242 | .7341 |
| 0735 | 17.39 | 172.58 | | + 2.10 | + 305 | 17.34 | 7.4 | 312 | .22 | 23.3 | .43 | 62.4 | 250 | .3075 | .0255 | .7596 |
| 0740 | 17.52 | 175.64 | | + 3.06 | + 444 | 17.46 | 7.5 | 452 | .15 | 23.5 | .29 | 42.1 | 410 | .5044 | .0419 | .8015 |
| 0745 | 17.64 | 178.50 | .083 | + 2.86 | + 415 | 17.58 | 7.5 | 422 | 0 | | | | 422 | .5191 | .0431 | .8446 |
| 0800 | 17.94 | 185.78 | .25 | + 7.28 | + 352 | 17.79 | 7.5 | 360 | 0 | | | | 360 | .4429 | .1107 | .9553 |
| 0815 | 18.16 | 191.26 | | + 5.48 | + 265 | 18.05 | 7.6 | 273 | 0 | | | | 273 | .3358 | .0840 | 1.0393 |
| 0830 | 18.26 | 193.78 | | + 2.52 | + 122 | 18.21 | 7.6 | 130 | 0 | | | | 130 | .1599 | .0400 | 1.0793 |
| 0845 | 18.32 | 195.30 | | + 1.52 | + 73.6 | 18.29 | 7.6 | 81.2 | 0 | | | | 81.2 | .0999 | .0250 | 1.1043 |
| 0900 | 18.35 | 196.06 | .25 | + .76 | + 36.8 | 18.34 | 7.6 | 44.4 | 0 | | | | 44.4 | .0546 | .0136 | 1.1179 |
| 0930 | 18.39 | 197.08 | .5 | + 1.02 | + 24.7 | 18.37 | 7.6 | 32.3 | 0 | | | | 32.3 | .0397 | .0198 | 1.1377 |
| 1000 | 18.42 | 197.86 | .5 | + .78 | + 18.9 | 18.40 | 7.6 | 26.5 | 0 | | | | 26.5 | .0326 | .0163 | 1.1540 |
| 1100 | 18.43 | 198.11 | 1.0 | + .25 | + 3.0 | 18.42 | 7.6 | 10.6 | 0 | | | | 10.6 | .0130 | .0130 | 1.1670 |
| 1200 | 18.43 | 198.11 | 1.0 | 0 | 0 | 18.43 | 7.6 | 7.6 | 0 | | | | 7.6 | .0093 | .0093 | 1.1763 |
| 1800 | 18.33 | 195.56 | 6.0 | - 2.55 | - 5.1 | 18.38 | 7.6 | 2.5 | 0 | | | | 2.5 | .0031 | .0186 | 1.1949 |
| 2400 | 18.20 | 192.26 | 6.0 | - 3.30 | - 6.7 | 18.28 | 7.6 | .9 | 0 | | | | .9 | .0011 | .0066 | 1.2015 |
| | | | | | | | 24) 179.17 | | | | | | | | | |
| | | | | | | | 7.47 | | | | | | | | | |
| | | | | | | | | | | | | | | | | 50.1 |

Comp. by BBH
Checked by FLS

A-78 (Revised Feb. 1960)

Sheet 1 of 1

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date: JULY 31, 1969
Check by: BBH
Date: 9/11/69

WEIGHTED PRECIPITATION RECORD

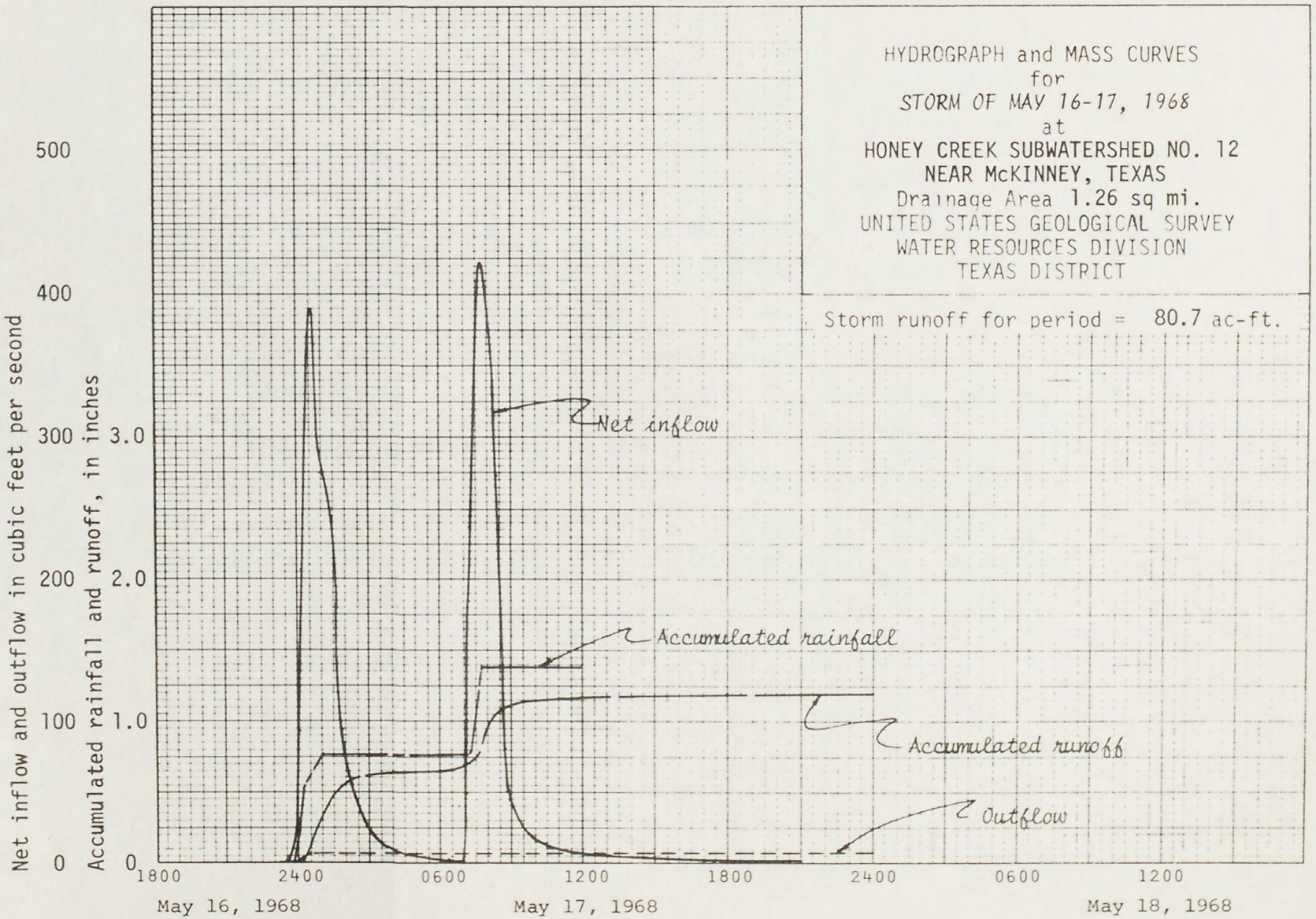
Area: HONEY CREEK SUBWATERSHED No. 12 NEAR McKINNEY, TEX. Date of storm MAY 16-17, 1968

| Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weight Factor | 1.000 | | | | | | | | | | | | | |
| | Gage 16-R | | Gage | | Gage | | Gage | | Gage | | Gage | | | |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| MAY 16, 1968 | | | | | | | | | | | | | | |
| 2300 | 0 | | | | | | | | | | | | 0 | 0 |
| 45 | 0 | | | | | | | | | | | | 0 | 0 |
| 2400 | .24 | | | | | | | | | | | | .24 | .23 |
| MAY 17, 1968 | | | | | | | | | | | | | | |
| 0015 | .54 | | | | | | | | | | | | .54 | .52 |
| 45 | .72 | | | | | | | | | | | | .72 | .69 |
| 0100 | .80 | | | | | | | | | | | | .80 | .77 |
| 0700 | .80 | | | | | | | | | | | | .80 | .77 |
| 15 | .82 | | | | | | | | | | | | .82 | .79 |
| 30 | 1.07 | | | | | | | | | | | | 1.07 | 1.03 |
| 45 | 1.44 | | | | | | | | | | | | 1.44 | 1.38 |
| 0800 | 1.44 | | | | | | | | | | | | 1.44 | 1.38 |
| 1200 | 1.44 | | | | | | | | | | | | 1.44 | 1.38 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10-S | .058 | 1.16 | .067 | | | | | | | | |
| 12-R | .663 | 1.38 | .915 | | | | | | | | |
| 16-R | .279 | 1.44 | .402 | | | | | | | | |
| | | | 1.384 | | | | | | | | |

WMR: 1.384

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 1.384 / 1.440 = .961


HYDROGRAPH and MASS CURVES
for
STORM OF MAY 16-17, 1968
at
HONEY CREEK SUBWATERSHED NO. 12
NEAR McKINNEY, TEXAS
Drainage Area 1.26 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 80.7 ac-ft.
Net inflow
Accumulated rainfall
Accumulated runoff
Outflow
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
1800
2400
0600
1200
1800
2400
0600
1200
May 16, 1968
May 17, 1968
May 18, 1968

A-65
(Rev. 11-66)

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY-TEXAS DISTRICT

RUNOFF COMPUTATIONS

Station Honey Creek near McKinney, Tex.

Period of Record May 16-18, 1968 Drainage Area 39.0

| Time | G. Ht. Feet | Sh. Adj. | Discharge c.f.s. | Discharge Inc. | Discharge In/hr. | Runoff Inches | Runoff Acc. In. |
|---|---|---|---|---|---|---|---|
| | | | May 16 | | | | |
| 0000 | 4.50 | 0 | 260 | 1.5 | 0.0103 | 0.0154 | 0.0154 |
| 0300 | 3.66 | | 184 | 3 | .0073 | .0219 | .0373 |
| 0600 | 3.23 | | 146 | 4.5 | .0058 | .0261 | .0634 |
| 1200 | 2.73 | | 104 | 9 | .0041 | .0369 | .1003 |
| 2400 | 2.31 | 0 | 73 | 6 | .0029 | .0174 | .1177 |
| | | | 2973 | 24 | | | |
| | | | 124 | | | | |
| | | | May 17 | | | | |
| 0000 | 2.31 | 0 | 73 | .25 | .0029 | .0007 | .1184 |
| 0030 | 2.42 | | 81 | .5 | .0032 | .0016 | .1200 |
| 0100 | 4.00 | | 215 | .5 | .0085 | .0042 | .1242 |
| 0130 | 6.23 | | 433 | .5 | .0172 | .0086 | .1328 |
| 0200 | 7.55 | 0 | 570 | .75 | .0226 | .0170 | .1498 |
| 0300 | 9.07 | +.20 | 774 | 1 | .0308 | .0308 | .1806 |
| 0400 | 9.48 | | 835 | .75 | .0332 | .0249 | .2055 |
| 0430 | 9.55 | | 846 | .5 | .0336 | .0168 | .2223 |
| 0500 | 9.38 | +.20 | 819 | .75 | .0325 | .0244 | .2467 |
| 0600 | 8.32 | +.15 | 672 | 1 | .0267 | .0267 | .2734 |
| 0700 | 6.62 | 0 | 472 | .75 | .0188 | .0141 | .2875 |
| 0730 | 6.10 | | 420 | .5 | .0167 | .0084 | .2959 |
| 0800 | 7.55 | 0 | 570 | .5 | .0226 | .0113 | .3072 |
| 0830 | 9.75 | +.30 | 894 | .5 | .0355 | .0178 | .3250 |
| 0900 | 10.53 | +.40 | 1,050 | .75 | .0417 | .0313 | .3563 |
| 1000 | 11.18 | | 1,170 | 1 | .0465 | .0465 | .4028 |
| 1100 | 12.08 | | 1,350 | .75 | .0536 | .0402 | .4430 |
| 1130 | 12.18 | | 1,370 | .5 | .0544 | .0272 | .4702 |
| 1200 | 11.78 | | 1,290 | .75 | .0513 | .0385 | .5087 |
| 1300 | 10.40 | +.40 | 1,020 | 1 | .0405 | .0405 | .5492 |
| 1400 | 8.32 | +.15 | 672 | 1 | .0267 | .0267 | .5759 |

| Time | G. Ht. Feet | Sh. Adj. | Discharge c.f.s. | Discharge Inc. | Discharge In/hr. | Runoff Inches | Runoff Acc. In. |
|---|---|---|---|---|---|---|---|
| | | | May 17 con't | | | | |
| 1500 | 6.57 | 0 | 467 | 1 | .0186 | .0186 | .5945 |
| 1600 | 5.50 | | 360 | 1.5 | .0143 | .0214 | .6159 |
| 1800 | 4.68 | | 278 | 2.5 | .0110 | .0275 | .6434 |
| 2100 | 4.25 | | 238 | 3 | .0095 | .0285 | .6719 |
| 2400 | 4.05 | 0 | 220 | 1.5 | .0087 | .0130 | .6849 |
| | | | 14276.25 | 24 | | | |
| | | | 595 | | | | |
| | | | May 18 | | | | |
| 0000 | 4.05 | 0 | 220 | 6 | .0087 | .0522 | .7371 |
| 1200 | 3.62 | | 181 | 8 | .0072 | .0576 | .7947 |
| 1600 | 3.28 | | 150 | 4 | .0060 | .0240 | .8187 |
| 2000 | 3.02 | 0 | 128 | 4 | .0051 | .0204 | .8391 |
| 2400 | 2.85 | -.10 | 106 | 2 | .0042 | .0084 | .8475 |
| | | | 4092 | 24 | | | |
| | | | 170 | | | | |
| | | | B.R.H. | | | | |
| | | | D.B.K. | | | | |

Computed by _____ Date _____ Checked by _____ Date _____

A-78 (Revised Feb. 1960)

Sheet 1 of 1

UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY, SURFACE WATER BRANCH
AUSTIN DISTRICT

Comp. by: HHW
Date JULY 31, 1969
Check by: BBH
Date 9/11/69

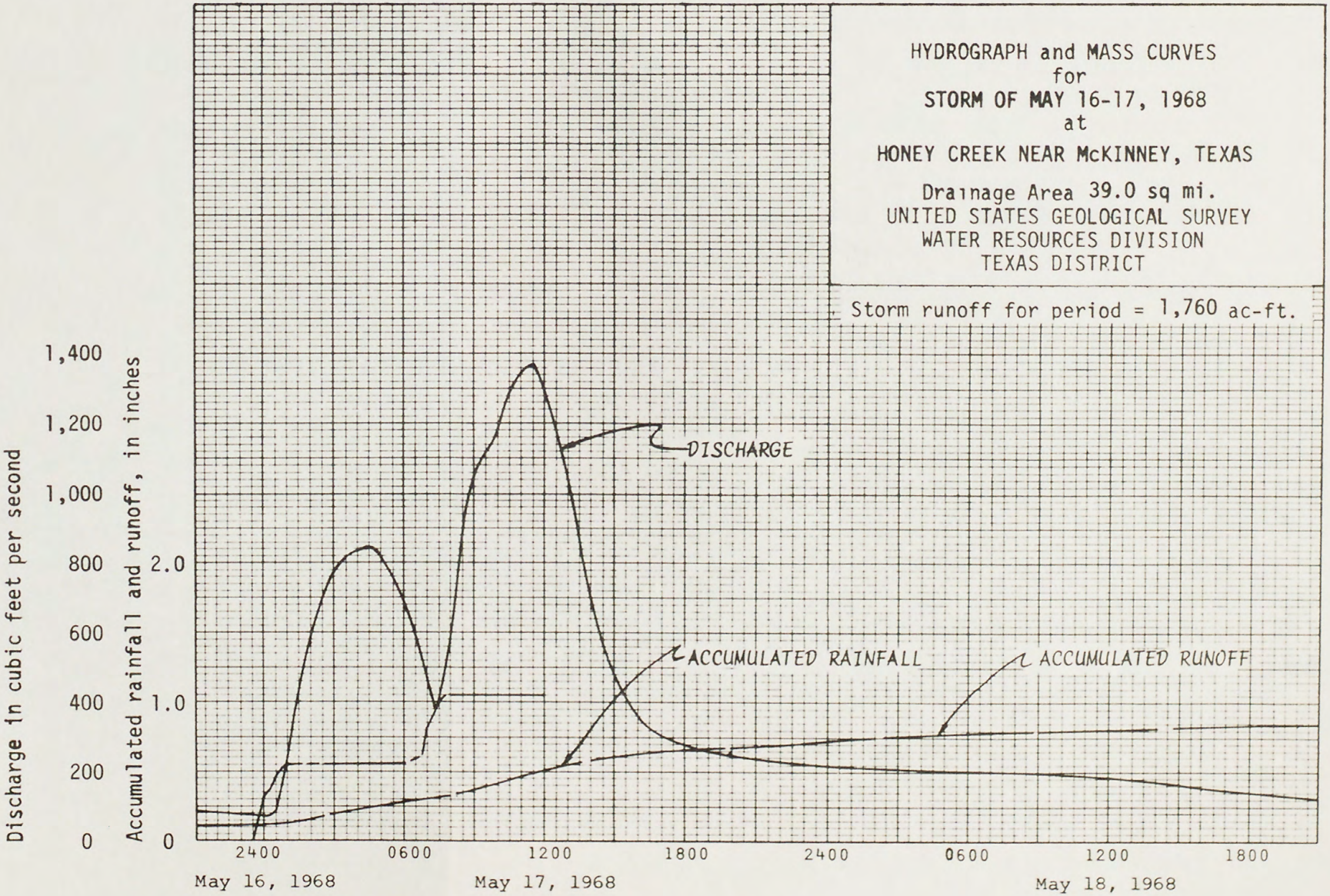
# WEIGHTED PRECIPITATION RECORD

Area: HONEY CREEK NEAR McKINNEY, TEX. Date of storm MAY 16-17, 1968

| Weight Factor | .462 | | .225 | | .087 | | .104 | | .122 | | | | Accumulated Weighted Precipitation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Accumulated Precipitation in Inches for Recording Gages | | | | | | | | | | | | | |
| | Gage 5-R | | Gage 9-R | | Gage 12-R | | Gage 13-R | | Gage 16-R | | Gage | | | |
| Date & Time | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recorded | x Factor | Recording Gages | (Rec. Gages x K) All Gages |
| MAY 16, 1968 | | | | | | | | | | | | | | |
| 2300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| 30 | 0 | 0 | .02 | .004 | 0 | 0 | 0 | 0 | 0 | 0 | | | .004 | .00 |
| 45 | .13 | .060 | .47 | .106 | 0 | 0 | .23 | .024 | 0 | 0 | | | .190 | .18 |
| 2400 | .20 | .092 | .47 | .106 | .42 | .037 | .62 | .064 | .24 | .029 | | | .328 | .32 |
| MAY 17, 1968 | | | | | | | | | | | | | | |
| 0015 | .20 | .092 | .47 | .106 | .59 | .051 | .67 | .070 | .54 | .066 | | | .385 | .37 |
| 30 | .25 | .116 | .70 | .158 | .59 | .051 | .79 | .082 | .54 | .066 | | | .473 | .46 |
| 45 | .30 | .139 | .70 | .158 | .85 | .074 | .87 | .090 | .72 | .088 | | | .549 | .53 |
| 0100 | .30 | .139 | .70 | .158 | .85 | .074 | .88 | .092 | .80 | .098 | | | .561 | .55 |
| 0600 | .31 | .143 | .70 | .158 | .88 | .077 | .92 | .096 | .80 | .098 | | | .572 | .56 |
| 30 | .38 | .176 | .72 | .162 | .88 | .077 | .95 | .099 | .80 | .098 | | | .612 | .59 |
| 45 | .40 | .185 | .80 | .180 | .90 | .078 | .96 | .100 | .80 | .098 | | | .641 | .62 |
| 0700 | .60 | .277 | 1.20 | .270 | 1.07 | .093 | 1.15 | .120 | .80 | .098 | | | .858 | .83 |
| 15 | .70 | .323 | 1.20 | .270 | 1.22 | .106 | 1.46 | .152 | .82 | .100 | | | .951 | .92 |
| 30 | .78 | .360 | 1.20 | .270 | 1.38 | .120 | 1.48 | .154 | 1.07 | .131 | | | 1.035 | 1.01 |
| 45 | .78 | .360 | 1.20 | .270 | 1.38 | .120 | 1.48 | .154 | 1.44 | .176 | | | 1.080 | 1.05 |
| 0800 | .78 | .360 | 1.20 | .270 | 1.38 | .120 | 1.48 | .154 | 1.44 | .176 | | | 1.080 | 1.05 |
| 1200 | .78 | .360 | 1.20 | .270 | 1.38 | .120 | 1.48 | .154 | 1.44 | .176 | | | 1.080 | 1.05 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-S | .0666 | .48 | .032 | 7-S | .0888 | .82 | .073 | 13-R | .0591 | 1.48 | .087 |
| 2-S | .0715 | .70 | .050 | 8-S | .0689 | 1.30 | .090 | 14-S | .0620 | 1.68 | .104 |
| 3-S | .0720 | .72 | .052 | 9-R | .0854 | 1.20 | .102 | 15-R | .0399 | 1.76 | .070 |
| 4-S | .0600 | .84 | .050 | 10-S | .0523 | 1.16 | .061 | 16-R | .0310 | 1.44 | .045 |
| 5-R | .0889 | .78 | .069 | 11-S | .0477 | 1.35 | .064 | | | | 1.050 |
| 6-S | .0695 | .74 | .051 | 12-R | .0364 | 1.38 | .050 | | | WMR: | 1.050 |

WMR = Sum of Precipitation x Weight Factor  K = WMR / Total Recording Gages Weighted Precipitation = 1.050 / 1.080 = .9722


HYDROGRAPH and MASS CURVES
for
STORM OF MAY 16-17, 1968
at
HONEY CREEK NEAR McKINNEY, TEXAS
Drainage Area 39.0 sq mi.
UNITED STATES GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
TEXAS DISTRICT
Storm runoff for period = 1,760 ac-ft.
Discharge in cubic feet per second
1,400
1,200
1,000
800
600
400
200
0
Accumulated rainfall and runoff, in inches
2.0
1.0
0
DISCHARGE
ACCUMULATED RAINFALL
ACCUMULATED RUNOFF
2400
0600
1200
1800
2400
0600
1200
1800
May 16, 1968
May 17, 1968
May 18, 1968

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