TEXAS BOARD OF WATER ENGINEERS

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BULLETIN 6001

SURFACE RUNOFF

FROM

TEXAS WATERSHEDS AND SUB-BASINS

Prepared by
Lockwood, Andrews, and Newnam
Consulting Engineers
for
Texas Board of Water Engineers

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December 1, 1958

Board of Water Engineers
1410 Lavaca Street
Austin, Texas

Gentlemen:

Pursuant to the contract of August 28, 1958, we submit this summary report, together with all maps and supplementary data, complete as contemplated by the contract. This submission, therefore, constitutes the results of our investigation of the present availability of water from all Texas rivers and major streams under existing conditions of development and use.

Completing this study in only three months of contract time proved perhaps even more demanding - both for your staff and ours - than anyone anticipated. Cooperation simply is not an adequate word to describe the prompt, thoughtful and friendly assistance supplied without exception by the State and Federal agencies and by the several unnamed consulting engineers referred to in the report. While we can, and do, acknowledge our indebtedness for this assistance, we must also recognize the greater indebtedness of all the people of Texas. Such uniform willingness to facilitate the planning for which you are responsible manifestly reflects widespread belief in the urgent need for a soundly conceived Texas water plan.

Our work on this project has been under the full-time direction of Mr. C. R. Marks of our firm. He largely conceived the techniques used for processing and presenting the great mass of data; some of these are quite original, and may prove of substantial collateral value in future planning.

We trust that the information we have developed and assembled will adequately fulfill its intended purpose as a component part of the fundamental data needed for your forthcoming report to the Legislature of the State of Texas.

Respectfully submitted,

Lockwood, Andrews & Newnam

By: Mason G. Lockwood
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MGL:nc

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SURFACE RUNOFF FROM TEXAS WATERSHEDS AND SUB-BASINS

SYNOPSIS

Presented herein is an inventory and analysis of data regarding drainage areas, surface runoff, consumptive uses, and reservoir storage for the State of Texas made to determine the present availability of surface water under existing conditions of water resources development and use.

One hundred thirty-eight watershed sub-basins comprising all of Texas and parts of adjoining states and Mexico were delineated and considered; 123 of these are in Texas. The total number includes 12 non-contributing areas in Texas and 5 in Mexico, for which no runoff was determined, so that runoff results are tabulated for only 121 sub-basins, 111 of which are in Texas.

The information developed by the analysis, as well as some of the data used which is not readily available, is listed in eight appendices, and is summarized in several tabulations in the text. The sub-basin drainage areas are shown on Map No. 1 and the estimated minimum and average annual sub-basin runoff is shown on Map No. 2.

The information made available by this study constitutes an essential first step in the development of a State water plan. By bringing together in one volume, runoff and water use data for the entire State, compiled on a uniform basis, this report also will be very helpful in preliminary studies of individual projects for the development and use of water.

INTRODUCTION

Purpose and Scope

The data contained in this report and shown on accompanying maps have been prepared to assist the Texas Board of Water Engineers in reporting on the present "availability" of surface water in Texas. "Availability" is here used in the sense of an inventory of water in the various watersheds and sub-basins within and bordering the State, all under existing conditions of water use and water resource development. Specifically, the term "availability of water" for any portion of a watershed, as used in this report, means the estimated amounts of water which, based upon past experience and upon existing reported consumptive uses in or above such portion of a watershed, can be considered for use in the planning of future watershed developments. No attempt has been made to evaluate possible increased uses upstream or present and potential uses downstream, under existing water rights and appropriations, as affecting the use of the data developed herein.

The specific objectives of the studies reported here were:

(1) To establish and delineate the principal sub-basins of each watershed within or bordering Texas, and to determine the area of each sub-basin.

(2) To determine the minimum and average net runoff from the uppermost and tributary sub-basins in each watershed; and, the same data on an incremental basis from each successive downstream sub-basin; all as if measured at the downstream end of the sub-basin; the determination to be based on the recorded or estimated streamflow experienced during the period 1940-1956, adjusted for present conditions of use, and for storage in reservoirs existing or under construction. The 1940-1956 period is considered the most representative one covered by adequate streamflow records.

(3) To show the results of these studies on two maps of the State, one delineating the sub-basins and giving their areas, and the other indicating the minimum and average runoff from each sub-basin.

In order to make the record more complete, the sub-basin areas shown and reported include out-of-state portions of watersheds entering Texas and of border streams. Estimated historic runoff values are also included for these sub-basins, except for those in Mexico, where large and growing uses and changes in storage make the historic runoff largely meaningless. Adjustments for the effects of these changes involve the International Water Compact, and are beyond the scope of this study. However, the results of studies by the International Boundary and Water Commission regarding the amount of water available to the United States at several points on the Rio Grande are included herein.

It should be noted that the data throughout the study are reported on a calendar year rather than a water year basis.

The application of a standardized method of analysis to all the sub-basins in the State is considered a means giving a reliable index of relative availability of water in these sub-basins, in the sense used here, and the results are applicable to preliminary planning studies. However, these results are not necessarily applicable in all cases to individual projects within an area without some modification, because the standardized approach may fail to reflect with complete accuracy all of the factors which may apply to such an individual project; some examples are discussed later.

The problem of analyzing the mass of data needed in determining minimum and average runoff for each sub-basin required, as a practical matter, electronic computer processing. A highly valuable by-product of this operation was a series of tabulations - one for each sub-basin analyzed by this means, listing the runoff for each month of the study period together with certain additional information. These data, together with the punched cards used in presenting the tabulations, will be extremely valuable in future water resource planning and development.

Appendices to this report contain the output data from the electronic computer operation as well as several sets of tabulations summarizing the data used in the studies and the results obtained.

Sources of Information

As much of the data and other information used in this study as possible was obtained from the Texas Board of Water Engineers. This information was supplemented by additional records of streamflow and reservoir contents obtained from the U. S. Geological Survey and the International Boundary and Water Commission, information secured from the U.S. Bureau of Reclamation and Corps of Engineers, precipitation records from the U.S. Weather Bureau and certain information obtained from several consulting engineers, either directly or from their published reports. Additional studies, analyses and limited field inspections have been made in cases where available data were not sufficient.

General Procedure

The procedure followed in this study was, first, analysis of the general character of runoff and water use in the several watersheds and, from this analysis, subdivision of these watersheds into appropriate sub-basins. After the selected subdivisions have been reviewed, modified somewhat, and approved by the Board of Water Engineers, these sub-basins were delineated on maps and the respective areas of each in square miles determined.

The next step was selection of the stream gages to be used in estimating the runoff from each sub-basin during the study period, 1940-56, and development of the necessary formulas to convert measured runoff at these gages to estimated runoff for the sub-basins. These formulas were applied in most cases through an electronic computer program, arranged to yield also printed tabulations of monthly runoff for each sub-basin and other useful data.

For sub-basins where streamflow data was lacking, it was necessary to estimate runoff as a proportion of the measured runoff in comparable sub-basins, in many cases with the aid of an additional factor based upon relative precipitation. Field inspection of the watershed and drainage pattern in one of the sub-basins was made to assist in runoff estimation.

Besides runoff determination for each sub-basin, it was necessary to collect the data on reported water uses in each sub-basin during the study period, and to develop a means for adjusting the historic streamflow records so that the sub-basin runoff to be reported would correspond to existing conditions of water diversion and use, rather than those which were obtained at the time of the measurements.

It was essential also to determine which reservoirs had been completed during the study period or are now under construction, and to obtain or make hypothetical operation studies for these reservoirs throughout the study period. The results of these operation studies were used to adjust further the measured runoff data, so that the final estimates of sub-basin runoff would uniformly reflect runoff to be expected under present conditions, as regulated by all existing reservoirs as well as those now actually under construction.

Unevaluated Factors

Because of the assigned scope of this study, certain factors which theoretically should enter into a fully refined and accurate study of this nature were not evaluated. Omission of these unevaluated factors generally will not materially affect the reliability of the results for use in overall development planning, or even in preliminary planning of specific projects.

There are, however, several areas in which the results indicate the need for collecting additional data to secure results refined enough for detailed planning studies.

The principal unevaluated factors are described in the following list:

(1) Available published information on watershed and sub-basin areas has been used without checking it against the latest topographic maps.

(2) Measured runoff has been converted to sub-basin runoff on the basis of drainage area ratios, without adjustment for variations in precipitation over the areas affected.

(3) Runoff has been adjusted to existing conditions of use only as reflected in the water use reports made to the Board of Water Engineers, with corrections only for large and obvious discrepancies, and without surveys to determine the possible unreported uses.

(4) Runoff has been adjusted to existing conditions of storage, including reservoirs under construction, by considering the effect of hypothetical operation of major reservoirs on an annual basis only. Inclusion of smaller reservoirs (under 10,000 acre feet, including farm tanks) and evaluation of all of these data on a monthly basis would change the results somewhat, especially the monthly runoffs from some specific sub-basins. This further refinement, however, certainly would not materially change the longtime averages, and it does not appear that it would affect the minimum annual runoff from any sub-basin more than the uncertainties regarding some of the other factors involved.

(5) Where runoff originating in an upper sub-basin passes through a downstream basin, the incremental runoff has been determined in all cases as the net addition to streamflow which occurs within the downstream basin, (or as the net subtraction if losses or diversions are greater than the inflow within the basin). These incremental inflows have not been compared with inflow from the downstream basin itself. If developments which would be affected by this factor were being planned, it would be necessary to make further studies to determine the runoff which would be available in downstream sub-basins with full use or material modification of the entering streamflow.

DELINEATION AND AREAS OF WATERSHEDS AND SUB-BASINS

Base Map Data

The base map of Texas used for showing the sub-basins and other data was obtained by starting with the 1:1,000,000 scale map of Texas published by the U. S. Geological Survey (completed in 1922, edition of 1948). The base map was obtained partially by tracing from a print of the original map and partially by photographic reproduction of major watersheds which had been traced from the same map by the Austin office of the U. S. Bureau of Reclamation in connection with the report, "Water Developments and Potentialities of the State of Texas".

To allow the maximum space for sub-basin data, the map shows only limited information, including the major rivers, certain towns and cities which are well distributed geographically, and the larger reservoirs which include conservation storage.

Establishment of Watershed Sub-Basins

The sub-basins selected for study are shown on the map and are further described in the tabulation in Appendix A. Each major tributary in each watershed was considered one sub-basin, or in some instances the tributary area was divided into two or more sub-basins, with additional sub-basins being selected along the main streams, generally separated at points where there are stream gages. The main stream sub-basins, and those which subdivide tributaries, were selected with reference to uniformity of climate conditions, location of major reservoirs, and areas of large diversions and use.

Determination of Watershed and Sub-Basin Boundaries

Main watershed boundaries were, for the most part, obtained by using the lines established by the U. S. Bureau of Reclamation, in the previously mentioned report. It is understood that the U.S.B.R. established these boundaries by reference to the latest available map data. The limits of non-contributing areas on the High Plains were also largely obtained by using the limits determined by the U.S.B.R. A few minor adjustments of boundaries determined by the U.S.B.R. were made where a check of the topographic maps indicated that it was necessary.

Boundaries of sub-basins in the entire western part of the State were determined by following divide lines as indicated by the 1:250,000 scale series of maps made by the Army Map Service and published by the U.S. Geological Survey. Near the Rio Grande, where certain quadrangles of this series are not yet complete, the dividing lines were obtained from the county highway maps of the Texas State Highway Department, many of which indicate topographic data in this area. In the eastern part of the State, except along the coast, dividing lines between sub-basins were obtained, for the most part, by following the divides between drainage patterns as shown on the 1:1,000,000 scale U.S.G.S. map previously described. Near the coast however, reference was made to the 1:250,000 series of maps and, in critical areas, to larger scale U.S.G.S. maps where available.

Determination of Sub-Basin and Watershed Areas

The most recent published data of the U.S.G.S. and I.B.W.C. where available, were used in the determination of areas. The areas of major watersheds within and outside of Texas were obtained from the unpublished records of the U.S.G.S.

Areas not available from the above sources were obtained by one of the following means:

(1) In the Canadian and Red watersheds, from the report entitled "Drainage Area Data, Arkansas White & Red River Basins" as compiled by the Corps of Engineers. This was supplemented, where necessary, by planimetering of certain Texas portions of watersheds common to two states.

(2) In the Sabine watersheds, from determinations made by the Corps of Engineers and obtained from their Fort Worth District Office, also supplemented by planimetering certain Texas portions of areas common to two states.

(3) Along the Gulf Coast, by planimetering the interior portions of sub-basins, broken down along county lines. These interior portions were added or subtracted from total county land areas, as determined by the U.S. Census Bureau and published in the Texas Almanac, to obtain the total land areas of coastal sub-basins. Thus the areas of these sub-basins include island as well as mainland areas.

(4) All needed areas along the Rio Grande were obtained from publications of the I.B.W.C., except those adjacent to the New Mexico border and the closed basins, all of which were planimetered, either on the 1:250,000 series of maps or on the county highway maps.

(5) Interior sub-basin areas, where not defined by published areas at gages, were generally obtained by using areas given by the Corps of Engineers in their various reports, with adjustments to make totals correspond to the U.S.G.S. areas at stream gages.

A process of estimation automatically gave watershed totals corresponding to those published or furnished by the U.S.G.S. and I.B.W.C., wherever such data are available. These total areas were summed up, along with areas of other sub-basins or portions thereof, coastal sub-basins, non-contributing areas, and portions of tributary areas which join the main streams outside the State. This total so obtained agreed with the total area of Texas published by the U.S. Census Bureau, with a discrepancy of less than 500 square miles out of the total 263,512 square miles. This discrepancy was adjusted by prorating it between areas 16 K and 15 Y.

Data for Individual Sub-Basins

All of the drainage areas for individual sub-basins, both within and adjoining Texas, are tabulated by watersheds in Appendix A. These tabulations also describe the sub-basin and list contributing and non-contributing areas. Portions of watersheds outside the state also are listed.

Tabular Summary and Data on Map No. 1

The individual areas listed in Appendix A are shown on their respective sub-basins on Map No. 1. Also, the watershed totals are tabulated on this map, and presented in the text as Table 1.

Suggested Additional Area Determinations

Although the area determinations made by the various agencies, supplemented by determinations made in this study as described above, are accurate enough for the purposes of this report, and check reasonably well with published area of the State, it would be desirable to refine these figures further whenever there is an opportunity. Some of the older determinations of the U.S.G.S. were necessarily made without benefit of very detailed topography.

As the State's topographic mapping program proceeds, it would be possible to refine portions of the area determinations as rapidly as the new maps are completed. Completion of the mapping program for the state, however, may require some time. Until this time, it appears that a careful, consistent and complete planimetering of all the watersheds, using the 1:250,000 series of Army Map Service maps, would yield results accurate enough for nearly any foreseeable purpose. A cooperative effort by the Board of Water Engineers and the various interested agencies might be the most feasible means of accomplishing this.

CONSUMPTIVE WATER USES

Sources of Data

Nearly all the data on consumptive water uses were obtained from the records of the Board of Water Engineers, which were furnished as total use above each gage, along with supplementary data for tributary sub-basins and breakdowns by types of use for specific sub-basins. The water service reports on which these tabulations were based are admittedly imperfect, especially in the earlier years; but are the best available without extremely detailed local surveys of old records and miscellaneous data.

Where the listed uses for certain years were markedly inconsistent with the general trend of use in a particular sub-basin, individual water service reports were examined. Where this indicated the strong possibility of an erroneous report

TABLE 1

SUMMARY OF DRAINAGE AREAS IN SQUARE MILES

WATERSHED	NO.	AREAS WITHIN TEXAS			AREAS OUTSIDE TEXAS			WATERSHED TOTALS TO MOUTH OR ST. BORDER	
		CONTRI-BUTING	NON-CONTRI-BUTING	TOTAL	CONTRI-BUTING	NON-CONTRI-BUTING	TOTAL	CONTRI-BUTING	TOTAL
CANADIAN	1	9,405	3,249	12,654	12,244	2,995	15,239	21,649	27,893
RED	2	19,191	5,272	24,463	22,903	664	23,567	42,094	48,030
SULPHUR	3	3,558	0	3,558	-	-	-	3,558	3,558
CYPRESS	4	2,812	0	2,812	-	-	-	2,812	2,812
SABINE	5	7,383	0	7,383	2,485	0	2,485	9,868	9,868
NECHES	6	9,995	0	9,995	-	-	-	9,995	9,995
TRINITY	7	17,845	0	17,845	-	-	-	17,845	17,845
SAN JACINTO	8	3,932	0	3,932	-	-	-	3,932	3,932
BRAZOS	9	35,400	7,440	42,840	0	1,800	1,800	35,400	44,640
COLORADO	10	29,863	10,030	39,893	0	1,870	1,870	29,863	41,763
LAVACA	11	2,475	0	2,475	-	-	-	2,475	2,475
GUADALUPE	12	6,033	0	6,033	-	-	-	6,033	6,033
SAN ANTONIO	13	4,217	0	4,217	-	-	-	4,217	4,217
NUECES	14	16,954	0	16,954	-	-	-	16,954	16,954
RIO GRANDE	15	40,045	8,214	48,259	142,170	NOT EST.	-	182,215	-
COASTAL	16	14,487	4,936	19,423	-	-	-	19,423	19,423
RIO GR. DRAINAGE	17	1,777	0	1,777	-	-	-	1,777	1,777
TOTALS		225,372	39,141	264,513					

for such years, an appropriate adjustment was made in the use shown. These instances are noted in the watershed use tabulations, Appendix B.

In a few instances, reports of municipal uses and return flow obtained from the U.S.B.R. or the published records of the U.S.G.S. or from reports by consulting engineers, have been used to supplement or adjust the water uses as reported to the Board. These instances are also noted in the tabulations, Appendix B.

Types of Use Considered "Consumptive"

"Consumptive" uses in this study are considered to be those which divert the water from the stream, without an immediate return. Consumptive uses include municipal, industrial (other than cooling), irrigation and mining. Non-consumptive uses are those for hydro-electric power or for cooling purposes in steam or industrial plants.

Return flow allowance has been included in the estimates in only about half a dozen cases where it is known to be significant and where it can readily be determined or estimated. In other cases, the refinement possible by considering return flow does not appear to be consistent with the general accuracy of the records and the methods of estimation used.

Adjusting Historic Runoff for Present Conditions of Use

The minimum and average amounts of runoff available for consideration in future development and use in any sub-basin have been based upon the experienced historic runoff from that sub-basin as measured or estimated for the period 1940-1956 inclusive. The 17-year period 1940-1956 generally is a representative one, since it includes two or more years of very high runoff (in the 1940-1942 period) and several years of extreme drought (between 1950 and 1957). It is therefore assumed that the runoff experienced during the 1940-1956 period (referred to as the "study period") provides a reasonable and conservative estimate of the runoff that may be expected in the future.

If exactly the same rainfall pattern and other weather conditions which occurred in some past year should recur next year, the runoff from a sub-basin would not necessarily be the same as experienced in that past year. Changes in use, storage and land treatment measures, and other changes which have occurred since the year in question might change the measured runoff. For this study, only the effects of changes in use and major changes in storage conditions (the latter is discussed in the next section of this report) have been included in the analysis. The effects of other changes are relatively small, except in a few instances, and the data and analysis required to determine their effects are so extensive as to prohibit their inclusion.

For the purposes of this study, if the records show that there has been a substantial increase in use for any sub-basin during the study period, the measured runoff for any of the earlier years of the period has been adjusted by subtracting, from the measured runoff in that past year, the amount by which the present annual use exceeds the reported use in that year. Diversion from a stream of a given quantity at one point will not necessarily reduce all downstream flows by the same quantity. However, because of the effect of compensating return flow and channel losses, this method of adjustment is conservative in the sense that it yields runoff results which may be less than would actually occur, and it is considered sufficiently accurate for the purposes of this study. If this method results in too large an adjustment in some cases, this fact will offset, to some extent, other possible but unevaluated factors which may further reduce runoff if

the historic weather conditions which caused the runoff are repeated under present conditions of use.

Adjustments for changes in use have been made only in sub-basins where a definite and consistent trend of increasing use is evident. Where uses have been sporadic - higher in some years and lower in others - the historic runoff has not been adjusted. In the sub-basin tabulations, Appendix F, reported uses are listed in all cases. Where no use adjustment has been made, there is a note to that effect.

Basis for Determining "Present Conditions of Use"

The amounts of consumptive water use in each sub-basin, as reported to the Board of Water Engineers for the calendar year 1956, have generally been taken as the measure of existing, or present, conditions of water use. But in instances where it is known or believed that the use of water during 1956 is not representative of existing water demands, because of the lack of water or similar reasons; or where there is in progress a very large and predictable increase in the rate of water use in an area, other bases than the 1956 use have been adopted as a measure of "present conditions of use". These exceptions to the general rule are noted on the summaries of consumptive uses for the specific sub-basins involved (Appendix B).

Adjusting Monthly Runoff

In order to make the results of this study most useful in future planning work, the annual adjustments for changes in use have been applied to the monthly runoff values. The procedure followed was to subtract, from the runoff for each month of a particular year, 1/12 of the annual adjustment for that year with respect to uses for municipal, industrial or mining purposes; and, similarly to subtract a varying portion of the annual adjustment for irrigation purposes. The portion of the annual irrigation adjustment subtracted for each month of the calendar year was varied from one part of the State to the other, on the basis of experienced average irrigation water demand for each month for representative points in each area. (The factors for proportioning the annual use to each month of the year in a given area are designated as a "use code" as discussed below.)

This process admittedly is approximate, especially concerning municipal water use, but the approximations involved are probably of less consequence than the uncertainties regarding past records of water use and present water demands.

Adjustments for Changes in Return Flow

Where large and predictable quantities of return flow enter a sub-basin, and where substantial increases in such returns have occurred during the period studied, an allowance for return flow has been included in the use adjustment. Naturally the effect of an increase in return flow over the years is just the opposite of that of an increase in use.

Use Adjustment for Coastal Areas

For the coastal sub-basins and for some of those near the mouths of the main rivers, the historic runoff was estimated by a combination area and precipitation ratio from measured runoff on central areas which have little or no uses. These estimated amounts reflect no historic uses and therefore the use adjustment was assumed to be the full amount of the present use, rather than the increase in use as was assumed for sub-basins with measured historic flows.

Summary of Consumptive Uses

The data on consumptive uses tabulated by watersheds in Appendix B is summarized for the State in Table 2.

REGULATION OF RUNOFF BY STORAGE IN RESERVOIRS

Effects of Regulation on Historic Streamflows

To estimate the amount of surface water which will actually run off in the future from the various sub-basins and be available for development and use, it is necessary to use historic records of streamflow. It is also necessary, however, to consider the effects of all reservoirs which would change the amount of runoff should past weather cycles be repeated under present conditions of watershed development and use. In this study all major reservoirs now completed or actually under construction have been so considered.

The effect of reservoirs which were completed and filled before the beginning of the study period has generally been assumed to be the same as is reflected in the historic records, and the only adjustments made in such cases are those due to changes in water use. This procedure is not completely accurate, because changes in water use will change the operation of the reservoirs, but the effect of these changes in operation generally is of minor importance.

For reservoirs constructed during the study period, the same assumption has been made for the portion of the period after these reservoirs were completed and filled. For reservoirs completed after the beginning of the study period, and for those now under construction, hypothetical operating studies have been made to estimate the changes in historic streamflow which would have been caused by these reservoirs had they been completed and filled prior to the beginning of the study period.

Effect of Types of Reservoir Regulation

The effects of reservoir operation and use upon the streamflow downstream varies widely according to the purpose and use of the reservoir.

If water is being diverted from the reservoir for municipal, industrial or irrigation use, the reservoir may intercept a large part of the streamflow and hold it until it is used, evaporated or partially returned as water or sewage.

If the water is to be used for generating hydroelectric power or released for downstream diversion, the reservoir may operate merely to smooth out irregularities in the streamflow.

A reservoir designed solely for flood control generally is filled only during floods and emptied as soon thereafter as the safe rate of release will permit.

Despite these different types of regulation and their various effects on downstream flows, if the effects of changes in use and those caused by the reservoir itself are treated separately, as has been done in this study, the effect of the reservoir storage alone for any type of reservoir upon the unregulated streamflow during any period of time can be determined as the sum of two quantities, namely:

(1) The amount of water lost by evaporation.

(2) The change in contents of the reservoir.

TABLE 2

SUMMARY OF CONSUMPTIVE USES

WATERSHED	TOTAL CONSUMPTIVE USE IN WATERSHED, AC. FT. PER YEAR REPORTED* 1956	ADOPTED "PRESENT CONDITIONS"
CANADIAN	380	380
RED	134,418	88,273
SULPHUR	2,035	2,035
CYPRESS	19,179	19,179
SABINE	232,199	232,199
NECHES	312,642	549,205
TRINITY	332,420	422,705
SAN JACINTO	108,852	108,852
BRAZOS	375,785	478,988
COLORADO	449,269	516,404
LAVACA	6,639	6,639
GUADALUPE	46,925	103,592
SAN ANTONIO	10,786	10,786
NUECES	53,184	80,085
RIO GRANDE	1,193,440	1,971,535
R.G. DRAINAGE & COASTAL	133,508	165,148
TOTAL	3,411,661	4,756,005

NOTE: Amounts listed under Adopted, "Present Conditions", where different from those reported in 1956, indicate that 1956 use is not considered representative of present conditions.

* With adjustments as noted in text.

The natural streamflow will be reduced by the amount of water evaporated in the reservoir and also by the amount of water stored in the reservoir. If water is released from storage, the streamflow will be increased by the amount of the release.

Basis for Operation Studies

Where a reservoir is intended to supply water for diversion away from the stream, the actual or estimated amounts of diversion under present conditions of use, rather than the maximum yield of the reservoir, have formed the basis of the operation studies.

Where a reservoir is intended to regulate downstream flow, the full yield of the reservoir has been used as a basis for the operation studies.

The operation studies made for this report have been carried out on an annual basis only. This procedure may introduce a considerable inaccuracy in a particular year, and would not suffice to determine the safe yield of the reservoir. But since the only purpose of these operation studies was to determine the reservoir's effect on minimum and average annual runoff, the procedure used is considered sufficiently accurate. The scope of this study did not permit making operation studies on a monthly basis for all reservoirs involved.

Only those reservoirs having a storage capacity in excess of 10,000 acre-feet have been considered, since the aggregate effect of the smaller reservoirs would not be sufficient to warrant their inclusion.

Sources of Data

Inflow to a reservoir was generally obtained by applying a drainage area ratio to the runoff at the closest measuring point. Estimated inflow and net evaporation depth determined by others for the site in question were used where available, and in some cases use was made of available evaporation data for other reservoirs in the same vicinity or in similar climate zones. In only a few cases, where no evaporation data was available, were actual estimates of net evaporation depths made.

Area-capacity data were obtained, for the most part, from the files of the Board of Water Engineers, or from the agencies operating the reservoirs. In some cases these data were estimated from the published records of the U.S. Geological Survey; which source was also used for the capacities of all reservoirs.

The results of hypothetical operation studies made by the Corps of Engineers, the Bureau of Reclamation, the International Boundary and Water Commission, or consulting engineers were obtained and used where available and applicable. Where these did not cover the full period up to the time the reservoirs were filled, the studies made by others were extended.

Adjustments During Filling Period

During the initial filling period of any reservoir completed during the study period, the storage adjustment was estimated as the difference between the actual effect the reservoir had during its initial filling and the effect on streamflow the reservoir would have had if filled before the beginning of the study period and operated throughout this period.

Adjustments for Reservoirs in Border Streams

The only reservoirs on border streams are Lake Texoma on the Red River and Falcon Reservoir on the Rio Grande. The I.B.W.C. has estimated the effect under present conditions, with allowances for increase of use which can be expected in the immediate future, of the latter reservoir on water available to the United States. This estimate has been adopted. The effect of Lake Texoma on the runoff from Texas and Oklahoma respectively has been computed, for the purpose of this report, by assuming that 50% of the total storage adjustment in any year is applicable to each state. This proportion is the same as the proportion of the drainage areas in each state above the dam site.

Results of Reservoir Storage and Operation

The amount of conservation storage in the various major reservoirs in or bordering the states is summarized by watersheds in Appendix C and, for the state as a whole, in Table 3. The time of completion of the various storage increments also is shown, and the reservoirs included in this study are noted. The amounts of the total storage adjustment, which is the algebraic sum of evaporation plus change in contents, with reversed sign, is shown for each sub-basin in the tabulations of Appendix F.

PROCEDURE FOR DETERMINING RUNOFF FROM SUB-BASINS

Sources of Data

For about 80% of the sub-basins, the basic data for runoff were obtained by using punch-card records of streamflow obtained from the Board of Water Engineers, or from the published or advance records of the U.S.G.S. and the I.B.W.C. These records were sufficient to permit determination or estimation of the runoff during the study period for most of the sub-basins, with the addition of a small amount of estimated data to fill gaps in the records.

On the 10 contributing coastal sub-basins and on 9 of the sub-basins at the lower ends of the main river watersheds, there are no gaging stations to measure runoff. Runoff for these sub-basins was estimated, on an annual basis only, using measured runoff in control areas consisting of the closest comparable basins for which runoff has been measured. The runoff for the unmeasured coastal areas in any year was computed by applying to the runoff in the control area, first, the ratio of the area of the coastal basin to that of the control area, and, second, the ratio of the average precipitation on the coastal area for that year to the corresponding precipitation in the control area.

A similar process was applied, on a monthly basis, to the upper portion of the Prairie Dog Town Fork of the Red River for the years 1953 to 1957, for which virtually no runoff data is available on this river. (The control area in this case was the South Fork of the Red River above the gage near Carter.)

General Procedure

In only relatively few of the sub-basins were gages located, or gage readings made, throughout the study period, so that the runoff for the sub-basin was actually measured by a gage, or by the difference between the quantities measured at two successive gages on a stream. It was therefore necessary to estimate the

TABLE 3

SUMMARY OF RESERVOIR STORAGE

Conservation Storage in Reservoirs Over 10,000 Acre-Feet, Completed or Under Construction

WATERSHED	TOTAL CONSERVATION STORAGE (Ac.Ft.)
Canadian	0
Red	2,418,476
Sulphur	145,300
Cypress	279,700
Sabine	976,700
Neches	1,557,560
Trinity	1,436,003
San Jacinto	160,000
Brazos	854,113
Colorado	517,650
Lavaca	0
Guadalupe	366,400
San Antonio	249,220
Nueces	300,000
Rio Grande	1,512,200
Rio Grande Drainage & Coastal	0

TOTAL CONSERVATION STORAGE 10,773,322 Acre-Feet

runoff from the sub-basin by formulas for converting the measured runoff at the nearest available gage or gages to the runoff for the sub-basin.

Since most of the sub-basins are relatively small and extend over a rather limited climatic range, it was considered unnecessary for the formulas to allow for the effect of variation in precipitation over the watershed. Therefore, the formulas were based entirely on drainage area ratios. The runoff from an area larger than that measured by a gage, however, has not generally been determined simply as the measured flow multiplied by the ratios of the areas except in cases where this process is clearly the most applicable one. Instead, where possible, runoff measured at other gages on the river or its tributaries has been used, in order to limit the proportioning process as much as possible to a compact area which does not include the upper portions of any watershed. This process is illustrated by the diagram in Fig. 1 and explanation thereof.

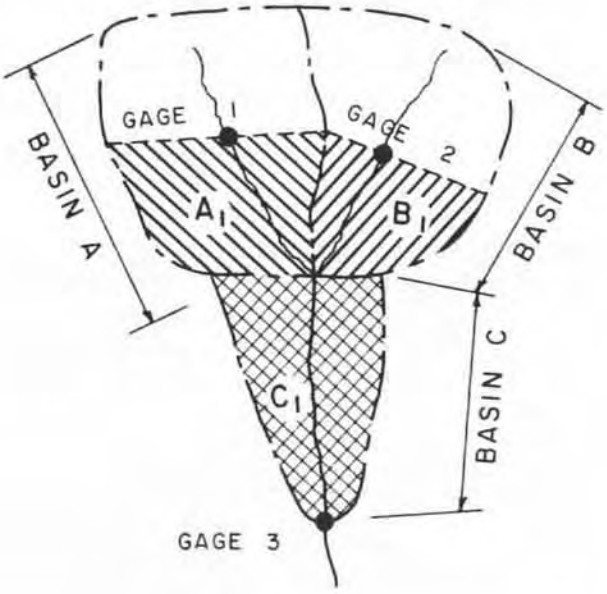


Fig. 1

Referring to **Fig. 1,** if Q_1, Q_2 and Q_3 are measured flows at the three gages: Q_a, Q_b and Q_c the computed flows at the lower edges of the three areas: A_1, B_1 and C_1 the areas between the gages; then,

$$Q_a = Q_1 + \frac{A_1}{A_1 + B_1 + C_1} \left[Q_3 - (Q_1 + Q_2)\right]$$

$$Q_b = Q_2 + \frac{B_1}{A_1 + B_1 + C_1} \left[Q_3 - (Q_1 + Q_2)\right]$$

$$Q_c = \frac{C_1}{A_1 + B_1 + C_1} \left[Q_3 - (Q_1 + Q_2)\right]$$

General Formula

The preceding formulas expand into the following general form, Q_x being the runoff from any sub-basin.

$$Q_x = K_1 Q_1 + K_2 Q_2 + K_3 Q_3 + \text{----------}$$

The number of terms depends upon the number of gages involved, and the coefficients K_1, K_2, and K_3 etc., which may be either positive or negative, are different for each sub-basin involving this particular combination of gages.

This formula can be further extended to include the adjustments for change in use.

Letting M_p = Present Municipal & Industrial Use

M_n = Municipal & Industrial Use in any year

A_p = Present Agricultural Use (irrigation)

A_n = Agricultural Use in any year

K_a = Monthly coefficient for agricultural use

then for the assumption already explained regarding adjustments for changes in use, the entire formula becomes:

$$Q_x = K_1 Q_1 + K_2 Q_2 + K_3 Q_3 + \text{----------} - \frac{M_p}{12} + \frac{M_n}{12} - K_a \times A_p + K_a \times A_n$$

A limitation was placed upon the application of this formula in all sub-basins so located that they do not receive runoff from another upstream sub-basin. This limitation was that, if the runoff resulting from application of the formula in any month were negative, the runoff for such a month would be reported as zero, since it obviously is impossible to have less than zero runoff originating in any sub-basin.

Tabulation of Gage Factors

Application of the general formula to the various sub-basins results in a series of "gage factors" for the various gages used in each sub-basin: these factors are the coefficients K_1, K_2 and K_3, etc. in the above equation.

The tabulation in Part I of Appendix D gives the identifying numbers, description, and period of record of all stream gages used in this analysis. The tabulations in Part II of Appendix D, one for each watershed, give the identifying numbers of the gages used in estimating the runoff for each sub-basin as well as the corresponding gage factors. The relative location of the gages used in the analysis, as well as other gages in each watershed, is shown in diagrammatic form on a series of charts in Appendix E. (This information for Watershed 1 is shown on the diagram for this watershed in the Appendix, H-1.) The tabulations in Part II of Appendix D also indicate, in the last two columns, the agricultural "Use Code" which applies to this particular sub-basin, and whether or not a storage adjustment is required. The use codes 0 and 00 are identical, in effect, but code 0 indicates no reported use and code 00 indicates that no use adjustment was made. The monthly factors making up the irrigation use codes and the portions of the state to which they apply are listed in Table 4.

Irrigation Use Codes

The irrigation use codes listed in Table 4 were derived as follows:

Code NW: This was determined from the average monthly use of water from the Altus Dam project in Oklahoma for the water years 1951 to 1956 inclusive as listed by the U.S.G.S. in the water supply papers.

TABLE 4

LIST OF IRRIGATION USE CODES

TABULATED NUMBERS INDICATE FRACTION OF ANNUAL TOTAL FOR EACH CALENDAR MONTH

USE CODE	NW	NC	MC	SC	CO	UR	MR	LR	0&00
JAN.	0	0	.02	.02	0	.01	.0833	.06	0
FEB.	.02	.01	.02	.03	0	.02	.0833	.08	0
MAR.	.03	.02	.04	.05	0	.09	.0833	.10	0
APRIL	.10	.04	.06	.08	.06	.13	.0833	.09	0
MAY	.03	.01	.08	.09	.15	.11	.0833	.09	0
JUNE	.06	.10	.13	.16	.22	.13	.0833	.09	0
JULY	.24	.26	.20	.15	.23	.15	.0833	.10	0
AUG.	.34	.35	.21	.16	.23	.15	.0833	.10	0
SEPT.	.13	.13	.11	.10	.11	.10	.0833	.07	0
OCT.	.03	.06	.07	.08	0	.05	.0833	.08	0
NOV.	.02	.02	.04	.06	0	.03	.0833	.08	0
DEC.	0	0	.02	.02	0	.03	.0833	.06	0
TOTAL	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

APPLICATION OF CODES - GENERAL AREAS

NW - CANADIAN AND UPPER RED RIVER

NC - UPPER AND CENTRAL TRINITY, BRAZOS AND COLORADO

MC - GUADALUPE RIVER

SC - SAN ANTONIO AND NUECES RIVERS

CO - COASTAL (RICE IRRIGATION)

UR - UPPER RIO GRANDE AND PECOS RIVERS

MR - MIDDLE RIO GRANDE (NOT USED)

LR - LOWER RIO GRANDE

0 - NO USE

00 - NO USE ADJUSTMENT

Code NC: This was determined from the average monthly irrigation requirements for the Brownwood Project for the calendar years 1936 - 1956 inclusive, for 15,000 acres as given us by the Austin office of the U.S.B.R.

Code MC: This was determined as a sort of an average between the NC and the SC codes.

Code SC: This was determined from the average monthly diversions from the Medina River in the Medina Canal from 1923 - 1934 inclusive, as given in U.S.G.S. Water Supply Paper No. 850.

Code CO: This was determined as the approximate average pumpages for the American and Richmond Canal Companies for the years 1932 - 1954 inclusive.

Codes UR, MR & LR: These were determined from the long time averages published in the most recent IBWC bulletin for the American Canal, Maverick Canal and Lower Rio Grande diversions respectively.

The application of the use adjustment to the monthly flows for upper sub-basins, and to the annual flow for the coastal sub-basins and the lowermost sub-basins of the main rivers, is described on pages 8 through 10, and the "use codes" and their area of application are listed in Table 4. In addition, the use code actually applied to each sub-basin is given in the next to the last column of the tabulation of gage factors on Appendix D.

The amount of the use adjustments applied to any sub-basin can be determined from the tabulations on Appendix B. The use adjustment for any year is generally the difference between the "present use" and the reported use in any given year. In most cases this adjustment is broken down between municipal and industrial uses, and irrigation uses, since a different monthly adjustment factor is applied to each. It should be noted however, that where the use code 00 appears, no use adjustment to the historic flows was made, because there was no definite trend apparent as to increasing use. It should also be noted that negative use adjustments were not made, except for return flow in the instances noted.

Electronic Computer Operation

Calculations on the electronic digital computer were performed by Forney W. Fleming, Consulting Engineer, and John C. Allred, Ph. D., Consulting Physicist, using the IBM 650 Computer.

The primary purpose of the computer operation was the calculation, from runoff records, gage coefficients, annual consumptive uses, and storage adjustments, of the 17 year average annual and the minimum yearly runoff for each sub-basin under present conditions. It was easily possible, however, by using the intermediate results necessary to accomplish the basic calculations, to calculate the monthly and annual averages for three sub-periods, two of 6 years and one of 5 years. It was also possible to compute the minimum running totals for periods extending from one month to ten years. In addition, the computer operation permitted the printing in convenient tabular form of part of the input data and all of the output data. Accordingly, these data, including monthly values for runoff adjusted to present conditions of use, were tabulated for each of the 95 sub-basins in which the computer operation was utilized.

The data to be processed consisted of the annual uses (broken down where significant into irrigation and non-irrigation), the irrigation use code, the gage coefficients, the historic flows at the selected gages, and the storage adjustments.

A schematic box diagram (Figure 2) indicates the input data and the operations performed upon it.

Adjustments to the calculated flows were made by the addition, by algebraic means, of the difference between the amount of uses of either type in each year under consideration and the total use of the same type for 1956. In cases where some other use value than that of 1956 was adopted as a measure of "present use", the adopted amount was substituted as a fictitious 1956 use and the output sheet changed to report the actual 1956 use. In this way the 1956 runoff was not adjusted, since in most cases a low use in 1956 reflected a water shortage in that year. Inasmuch as the calculations for distributing annual uses on a monthly basis were most easily made by operations on the differential between the 1956 uses and those of the subject year, the data for them was an early item of input, with intermediate results stored internally until runoff data was processed.

In the next operation, the unadjusted monthly sub-basin runoff was calculated from the predetermined gage factors and the punched-card record of monthly flows at the selected gages. This completed monthly runoff was then adjusted for changes in consumptive use. The resulting adjusted monthly runoff values were totaled for annual values and storage adjustments applied to this latter figure.

Monthly and annual adjusted values were held in storage until the entire period under study had been calculated, and then all averages were computed through the addition of the pertinent quantities for a specified period and division of the sum by the length of the period.

Computations for the minimum running totals were calculated by first adding the initial series of values for the length of period under study. Thereafter a single following month was added to the total and a preceding month deducted, the resultant compared with the previous total, and the minimum figure, with ending month, retained. Successive repetition of this process produced the minimum month, the minimum 3 months, the minimum 6 months, the minimum one year, two year, five year and ten year totals, and the month terminating the period of minimum flow. The minimum calendar year runoff was not selected in the computer process since it could be very easily picked out by inspection and added to the output sheet.

In these calculations it is estimated that approximately 150,000 specific items of information were introduced into the computer. Since the transcription and computation of these data into a form suitable for manual operations would have been a herculean task, the necessity for the computer in this study is evident.

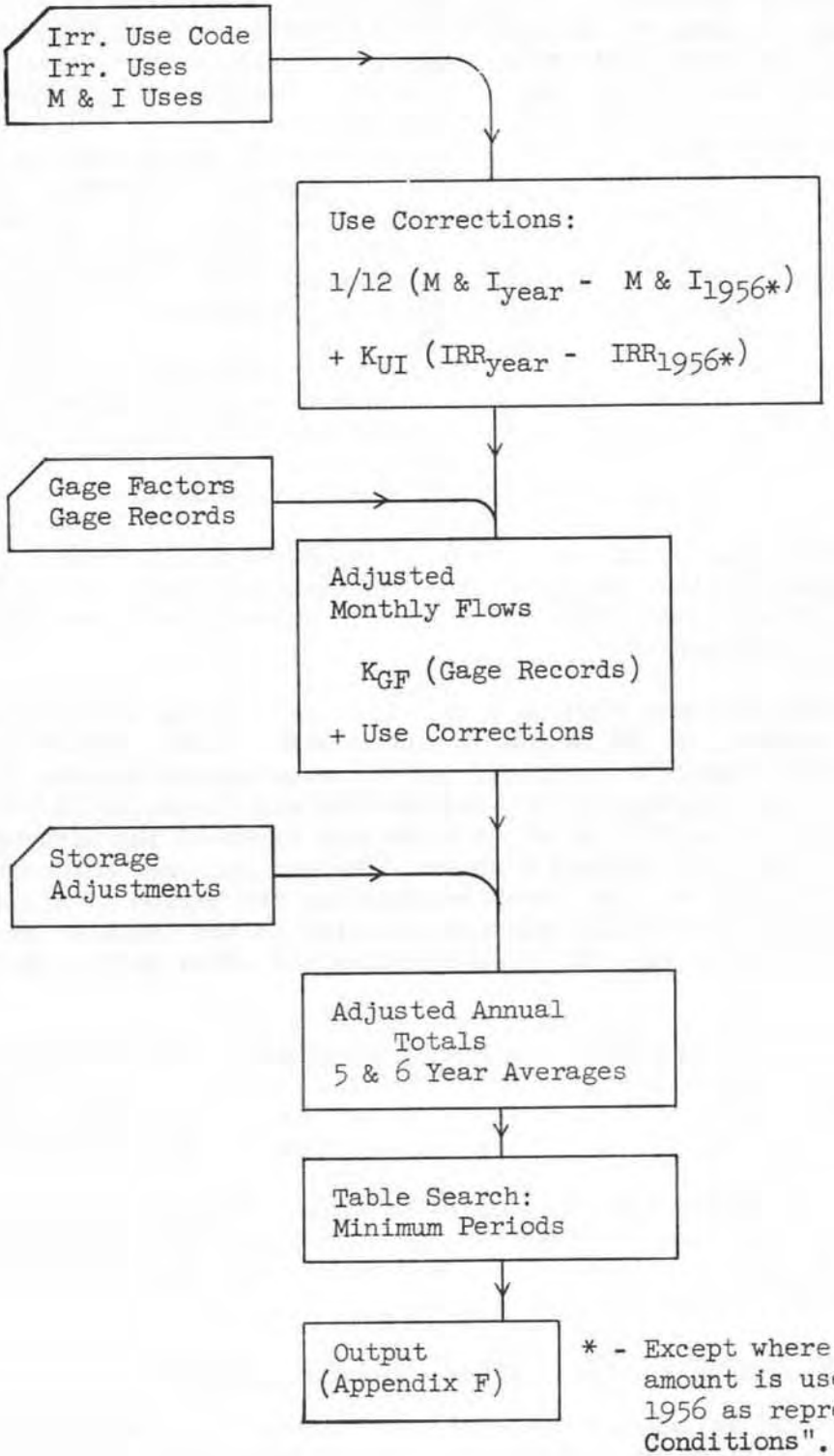
Upon completion of the calculations, output data was printed in the format shown in Appendix F with some necessary additions. These additions basically were the left-hand column of each table plus titles and qualitative and non-uniform notes relating to specific sub-basins.

Special Procedures Where Runoff Data are Lacking

The general procedure followed in coastal sub-basins, where no runoff measurments are available, has already been described. The locations of the coastal areas and their principal streams, the adjacent main river sub-basins, the "control" areas and the stream gages used with the record period of each one not shown on the gage charts, are all indicated on the final chart of Appendix E.

In sub-basin 16 J, studies made for another purpose were used to estimate the annual runoff, using rainfall vs. runoff curves, derived from an analysis on

SCHEMATIC DIAGRAM OF COMPUTER OPERATION



* - Except where a different amount is used in place of 1956 as representing "Present Conditions".

Fig. 2

the San Antonio River between the Falls City and Goliad gages, and the Mission River, to estimate runoff from the northern part of the area, and using several area precipitation stations to estimate the average sub-basin rainfall. A field inspection of the area, however, showed the southern half to have almost no drainage pattern, and that portion closer to the coast overlain by an ancient sand sheet. Based on these considerations, only one-fourth of the runoff obtained from the curves was estimated as obtainable from this part of the drainage area.

It appears certain there will be no runoff to the coast from Area 16 K, because of the sand dunes near the coast that absorb all the runoff except possibly a small amount during the most severe floods.

In several other sub-basins it was necessary to piece out records for a portion of a month. This was generally done by using a proportion of the closest known watershed. On the Upper Red River it was necessary to create synthetic runoff records in two instances, one on the Prairie Dog Town Fork, as already described, and one on the Salt Fork, for about a year after the Altus Reservoir was built upstream from the Magnum gage. In this case the records were adjusted for the estimated effect of the reservoir.

For sub-basin 13 A, the Medina River above Riomedina, there were long periods when no records were kept. In these cases there appeared to be no reliable way of estimating runoff, and the reported data was based upon the periods of actual record rather than on the study period used elsewhere. A monthly breakdown of the average annual runoff, however, was assumed for the purpose of estimating the runoff from the next downstream sub-basin.

For sub-basin 14 A, the West Nueces above Bracketville, there is also an extensive gap in the records. Since much of this runoff is absorbed in the Balcones Fault above the gage, there is no way of estimating runoff from rainfall. The estimated flow for the period of no record was therefore based upon a proportion of the flow on the Nueces River below Uvalde. This proportion assumed was based upon past records, spot flood measurements on the West Nueces, and runoff at other nearby gages. Both sub-basin 13 A and 14 A are reported on an annual basis.

The runoff for the Devil's River watershed was reported only on an annual basis, because recent measurements by the I.B.W.C. indicate that a spring flow of about 100,000 acre-feet per year enters the river in the 4.5 miles between the Del Rio gage and the mouth. The quantity of spring flow added to the flows at Del Rio in each year was proportioned to the non-flood flow at Del Rio on a basis estimated from the records for the past two and one-half years at a new station farther downstream.

RUNOFF RESULTS FOR SUB-BASINS

Tabulation of Computer and other Output Data

The output of the computer operation for all of the 95 sub-basins analyzed by this method is given in a series of tabulations in Appendix F. These tabulations, with their appended notes, are generally self-explanatory.

Interspersed in their proper order in Appendix F are tabulations on an annual rather than a monthly basis for the 25 sub-basins analyzed by manual computation, generally by using precipitation records as previously discussed. Included in this number are tabulations for sub-basins 13 A, 14 A and 15 F, where the runoff records are not adequate to provide reliable monthly runoff estimates, for the

reasons already discussed. Also included are tabulations for sub-basins 10 A and 10 C, where special conditions of storage and use made the general formula inapplicable, so that computer operation was not feasible.

Period Covered by Runoff Records

In appraising the minimum runoff values obtained by analysis of the 1940-1956 period, against the possibility of lower minimum values occurring in a longer period of record, it is helpful to portray graphically the entire record period of all stream gaging stations in the various watersheds. The series of gage charts referred to as Appendix E show such a graphical portrayal. They show also a physical diagram for each basin, with all the tributaries on which gages are located. The relative location of the gages on these charts corresponds to their geographical proximity in the watershed.

On the bar charts indicating the period of record for each gage, symbols have been placed to show both the calendar year and the water year of minimum runoff during the period of record. These are based, of course, on unadjusted runoff values, but they are of value in comparing recent dry years with those that occurred before 1940 (where records extend back that far).

Determination of Minimum Runoff Values

The date and amount of the minimum annual runoff for each sub-basin are shown in the tabulations of Appendix F as are the date and amount of the minimum monthly runoff with respect to all basins reported on a monthly basis. Note that where negative runoff is shown for a given month - due to absorption of a flood peak, or due to passage of such a peak near the end of a month, so that its full volume is not measured at a downstream station during that month - the minimum monthly runoff during low flow periods also is shown. The minimum values shown cover only the period 1940 - 1956 inclusive, however, the minimum values for most sub-basins will be found in this period, as discussed below.

Minimum daily runoff rates also were determined or estimated for each sub-basin by reference to the records of the U.S.G.S. and the I.B.W.C. These values are listed in Table 5.

Relative Severity of Historic Droughts

The drought of 1950-56 was the most severe of any on record for a large majority of the state's sub-basins, and the minimum annual runoff for most sub-basins clearly occurs during this period. As indicated in the gage charts in Appendix E, there are only a few portions of the Brazos, Colorado and Nueces watersheds where there is definite evidence that the calendar year of minimum runoff occurred prior to 1940. In these instances a comparison of the minimum year with the minimum since 1940 is shown on the charts. Note that in several other instances, shown on the gage charts, the minimum "water year" runoff occurred prior to 1940, but since minimum runoff for this study is reported on a claendar year basis, no account of the earlier minimum "water year" runoffs has been made.

The gage charts indicate how generally the minimum year occurred during the recent drought, and studies by various agencies and consulting engineers confirm that, except in a very few instances, the critical low flow period can be found during the 1940-1956 period.

TABLE 5

MINIMUM DAILY FLOWS

WATERSHED	SUBBASIN WITH MINIMUM FLOW EQUAL ZERO	SUBBASINS WITH MINIMUM FLOW OTHER THAN ZERO
CANADIAN	ALL	
RED	A to F incl. & V	G/43, H/70, I/400
SULPHUR		All/ND
CYPRESS		All/ND
SABINE	A	B/6, C/7, D/7, E/241, F/ND
NECHES	A & B	C/1, D/ND, E/ND, F/ND, G/ND
TRINITY	A,B,D,E & F	C/1, G/4, H/ND, I/ND
SAN JACINTO	B & D	A/3, C*/ND, E/ND
BRAZOS	A to E incl., J, K & L	F*/ND, G*/ND, H*/ND, I*/ND, M/ND, N/ND
COLORADO	A to I incl.	J*/ND, K/ND, L/ND
LAVACA	ALL	
GUADALUPE	C, D, & E	A*/ND, B/43, F/ND
SAN ANTONIO	A & D	B/3, C/14, E/ND
NUECES	A & C to I incl.	B/5, J*/ND, K/ND
RIO GRANDE	A, B, C & H	D/4, E/ND, F/ND, G/ND, I*/ND, J/ND
COASTAL (Incl. R.G. Drainage)		ALL/ND

Symbols: G/43 - Subbasin / Minimum Daily Flow, cfs
ND - Minimum flow not determinable
* - Depends on reservoir operation

Significance of Certain Runoff Results

The computation and tabulation of the runoff results by sub-basins throughout the state revealed results which, in some cases, had not been fully anticipated. These merit discussion.

Perhaps the most outstanding unanticipated result was the surprisingly large number and amounts of negative incremental runoff values in sub-basins which receive runoff from basins farther upstream. A good example of this will be noted from examination of the tabulation (Appendix, F-102) for sub-basin 15 B which is the Rio Grande from the El Paso gage down to the Fort Quitman gage, a distance of only 83 river miles. The average annual stream flow at El Paso was 451,777 acre feet for the 1940-1956 period, whereas the average annual streamflow at Fort Quitman was only 320,752 acre feet. The river at that point has actually been dry for many months out of each year at times when there was considerable flow at El Paso. This diminishing flow is, of course, due to the large diversions from the river in the El Paso area, which diversions exceed the "side" inflow to this stretch of the river by an average of 131,025 acre feet per year. This excess of diversions over side inflow is expressed in the tabulations as a negative incremental runoff of the same amount and printed in the computer tabulations as 131,025 acre feet.

The same convention (negative incremental runoff) is followed for reporting all cases where the diversions or other losses from the stream in any sub-basin exceed the side inflow to that sub-basin for any period of time. These negative incremental runoff values may result from several causes, namely:

(1) Consumptive diversions which exceed side inflow to the sub-basin, as in the above example.

(2) Channel losses during low flow which exceed side inflow to the basin.

(3) Passage of a flood peak into a sub-basin near the end of a month so that it does not reach the lower end in time to be recorded that month. In such cases the apparent loss may be compensated by a large runoff the following month.

(4) Actual absorption of flood water in passage through a sub-basin which did not experience the same heavy rainfall which caused the entering flood. This type of loss is shown by the tabulations to be very large in some cases.

(5) Storage of flood inflow in reservoirs (note that the "storage" adjustment made in this report covers only the hypothetical changes in runoff which would result if the reservoirs under construction or completed during the study period had been completed and filled before this period started). Therefore actual storage of floods by reservoirs in normal operation is reflected in the reported runoff values.

(6) Special types of losses, notably on those tributaries of the Nueces River which cross the Balcones Fault and lose a large portion of their flow at this point.

As previously explained, a determination of minimum low-flow monthly runoff values was made and added to the computer output tabulations. No attempt was made, however, to adjust the minimum running totals (at the bottom of these tabulations).

Hence these latter values reflect cases in which large absorptions of flood peaks occurred, and do not necessarily reflect minimum runoff during low flow periods for intermediate sub-basins on many of the watersheds.

Another result that should be noted is that, where a large increase in use had occurred in only one portion of a watershed, application of the use adjustment according to the formula may be inaccurate in a given month because the computed reduction in historic flow for such a month might be larger than the total runoff obtainable at the point of diversion. It does not appear, however, that the aggregate effect of these cases would be important, and since the true picture cannot be obtained without a detailed study, no allowance has been made for this condition, except in sub-basins 10 A and 10 C, where the effect was very pronounced and where a special study was made and the results reported on an annual basis.

Results for the Lower Rio Grande

The results tabulated in Appendix F for the Rio Grande are based on the application of the general formula exactly as in other areas of the state except that in sub-basin 15 I, no storage adjustment was made for Falcon Reservoir. Conditions on the Rio Grande, however, particularly from the Laredo area to the mouth, are quite different from those on other streams. This is due partially to the very large consumptive uses and partially to the effects of applying the U.S.-Mexico Water Treaty provisions to water originating in the United States and Mexico, and to the operation of Falcon Reservoir. Hence the tabulations in Appendix F do not give the true picture of water availability for the sub-basins adjacent to the Mexican border.

The International Boundary and Water Commission has in preparation a report on the proposed Diablo Dam. In this report, the I.B.W.C. has analyzed the effects on water available to the United States in various parts of the watershed based upon:

(1) Historic runoff from 1900 to 1956.

(2) Hypothetical operation of Falcon Reservoir over this period.

(3) Consumptive uses as they now exist and/or can be expected to become in the near future, with full utilization of all existing storage facilities, but without further development.

The results of these studies have been used with the permission of the I.B.W.C. Several of the Commission's tabulations are incorporated in Appendix G, together with the pertinent explanation, and the applicable results are included in the summaries and other results incorporated in this study.

Summary of Runoff by Watersheds

In Appendix H are a series of tabulations, one for each watershed, listing pertinent runoff data for each sub-basin and giving also a diagram of the watershed on which the sub-basins are identified. The values listed in these tabulations are:

(1) Drainage Area in square miles.

(2) Minimum daily runoff in cubic feet per second.

(3) Minimum monthly runoff in acre feet - adjusted for present conditions of use.

(4) Minimum annual runoff in acre feet. Adjusted for

(5) Average annual runoff 1952-1956 in acre feet. present

conditions

(6) Average annual runoff 1940-1956 in acre feet. of use

(7) Cumulative average annual runoff in acre feet. and

storage

Summary of Runoff for State

In addition to the summaries of minimum and average runoff for each watershed of the State in Appendix H the total average runoff is summarized by watersheds in Table 6, which also shows the state total average runoff under present conditions of development and use.

It is not possible to arrive at a total minimum annual runoff by watersheds, because the minimum values often occur in different years, so that a total of them would be meaningless.

Data Shown on Runoff Maps

On Map No. 2 entitled "Runoff From Watersheds and Major Sub-Basins" the essence of the data obtained from this study is shown for each of the sub-basins. On the map itself are shown two figures for each sub-basin, the first giving the minimum annual runoff from that sub-basin and the second giving the average annual runoff for the period 1940-1956 inclusive. In both cases, these are the historic runoff values adjusted for present conditions of use, and for the effects of all storage completed or under construction. The tabulation contained in Table 6 also is shown on this map. Another table shows the minimum daily flows as previously described for all sub-basins in which these flows are determinable and are other than zero.

SUPPLEMENTARY BENEFITS AND USES OF STUDY

Computation of Representative Runoff Rates

Computed on a uniform basis for all areas of the state, the data obtained in this study can be used to obtain representative runoff rates in inches or in acre feet per square mile - for average conditions, minimum month or year, or for any desired period. This information was not included in the study because some selection of data is necessary to give a true picture. In determining runoff rates for sub-basins which receive runoff from an upper sub-basin, for instance, the data must be selected according to whether the sought runoff rates are the incremental rates or the amounts of runoff originating in the sub-basin. Determination of the latter would involve exclusion of certain types of losses previously discussed.

Savings in Time and Effort for Reservoir Yield Studies

Probably the greatest potential use for the results of this study is in making reservoir yield studies, particularly for overall planning or for preliminary studies of specific projects. For overall planning, the runoff results tabulated in Appendix F, or the output data punch-cards which produced these tabulations, could be used directly in many cases for making reservoir yield studies, merely by

TABLE 6

AVERAGE ANNUAL RUNOFF IN ACRE FEET FOR PERIOD 1940-1956 INCLUSIVE
(ADJUSTED FOR EXISTING CONDITION OF USE AND STORAGE)

WATERSHED	NO.	RUNOFF FROM TEXAS PORTIONS	RUNOFF ENTERING TEXAS FROM OUT OF STATE	RUNOFF FROM OUT OF STATE PORTIONS OF BORDER STREAMS	WATERSHED TOTALS
CANADIAN	1	317,460	267,421		584,881
RED	2	2,376,517		7,135,707	9,512,224
SULPHUR	3	2,381,965			2,381,965
CYPRESS	4	1,601,393			1,601,393
SABINE	5	5,038,327		2,290,073	7,328,400
NECHES	6	5,873,273			5,873,273
TRINITY	7	5,808,817			5,808,817
SAN JACINTO	8	1,931,120			1,931,120
BRAZOS	9	5,277,042			5,277,042
COLORADO	10	1,746,681			1,746,681
LAVACA	11	634,539			634,539
GUADALUPE	12	960,946			960,946
SAN ANTONIO	13	400,545			400,545
NUECES	14	476,317			476,317
RIO GRANDE	15	-546,039*	667,985	Not Determined	121,946*
COASTAL	16	4,435,628			4,435,628
RIO GRANDE DRAINAGE	17	61,339			61,339
TOTALS		38,775,870	935,406	9,425,780	49,137,056*

Total Texas Runoff 39,711,276* Acre Feet, including only runoff originating in Texas along border streams.

* Including effects of Treaty Provisions.

introducing a factor representing the portion of the sub-basin which is tributary to the reservoirs. In other cases, some further factors would be needed in applying the data, but the compilation of all the data in one volume should save much time and effort in almost any type of yield study.

Use of "Minimum Running Totals" in Preliminary Planning Studies

In all cases where the minimum running totals, tabulated as "Minimum Totals for Periods of Consecutive Months" at the bottom of the computer output data in Appendix F, reflect low flow periods and are not affected by large losses from flood peaks passing through a basin as already discussed, these minimum running totals can be used to select critical periods. They can be used also to obtain preliminary estimates of the yield obtainable from a given amount of storage in a sub-basin, since they will give the minimum inflow to the sub-basin -- or, by proportion, a portion of the sub-basin during the periods of time tabulated. Furthermore, by plotting the tabulated values for any sub-basin and drawing a smooth curve through them, a synthetic mass curve can be plotted from which the minimum inflow can be interpolated for intermediate periods.

Adaptation of Developed Computer Program for Obtaining Additional Data

The program developed can be used directly to obtain similar results from future runoff records on the same sub-basins, and, in some cases, to obtain results for periods prior to 1940. It can also be readily adapted to yield results for portions of any sub-basins, or for different assumptions regarding consumptive uses or operation of existing reservoirs.

It also appears likely that the punch-cards for input and output data can be adapted to produce synthetic runoff data, based on a probability function, for the periods of lowest runoff in any sub-basin which can be expected at any desired frequency, such as once in 100 years.

Establishing of Areas in Which Streamflow Data is Inadequate

In the process of developing the formulas for computing sub-basin runoff, it became very apparent that there is insufficient information to give reliable estimates of runoff in several areas. Detailed examination of the formulas will indicate particular instances where more streamflow measurements would be desirable for certain cases, but in general the following seem to be the most vitally needed points at which additional records are needed.

(1) On the Prairie Dog Town Fork of the Red River at or below the old gage near Estelline.

(2) On the lower Pease River.

(3) On one or more of the Texas creeks tributary to the Red River below the gage at Colbert.

(4) On the Sulphur River below the confluence of the North and South Forks.

(5) At San Jacinto Dam, in the form of a gage which would calibrate spillway overflow and combine this with reported diversions to obtain total runoff at this point.

(6) On several coastal streams where runoff is not materially affected by diversions or return flow, and particularly in watershed 16 J.

(7) On the Clear Fork of the Brazos River near the mouth.

(8) On Pecan Bayou near the mouth.

(9) On the West Fork of the Nueces River above the Balcones Fault.

SUMMARY AND CONCLUSIONS

The complete conclusions resulting from this collection and analysis of data on the runoff from the streams and rivers of Texas under existing conditions of water resources development and use consist of the tabular information contained in the several appendices to this report. The most significant conclusions, in the form of areas, minimum runoff and average runoff from individual sub-basins, together with the total of these values by watersheds, are further shown on the two State maps which accompany this report.

The information contained in the Appendices is summarized in several tabulations in the text of the report, listing, generally by watersheds, the drainage areas, consumptive uses, existing storage in major reservoirs, and minimum and average runoff values.

The conclusions regarding runoff can be summarized further as a single amount of 39,711,276 acre-feet annually, representing the estimated average annual runoff from the entire state, under existing conditions, for the period 1940-1956, inclusive.

The minimum annual runoff cannot be summarized because it occurs at different times for different sub-basins, and therefore a total of these values would be meaningless.

APPENDIX A

LIST OF WATERSHED SUB-BASINS

AND DRAINAGE AREAS

IN SQUARE MILES

APPENDIX A

LIST OF WATERSHED SUB-BASINS AND DRAINAGE AREAS IN SQUARE MILES

	Areas within Tex.		Areas outside Tex.	
	Contr.	Non-Contr.	Contr.	Non-Contr.
WATERSHED NO. 1 - CANADIAN RIVER (INCL. NORTH CANADIAN)				
A. Canadian River above New Mexico State Line			12,244	2,995
B. Canadian River from New Mexico State Line to gage near Amarillo	3,132	1,074		
C. Canadian River from gage near Amarillo to Okla. State Line	3,142	621		
D. North Canadian & Wolf Creek drainage area (Texas area only)	3,131	1,554		
TOTALS CANADIAN	9,405	3,249	12,244	2,995

		Areas within Tex. Contr.	Areas within Tex. Non-Contr.	Areas outside Tex. Contr.	Areas outside Tex. Non-Contr.
WATERSHED NO. 2 - RED RIVER					
V.	Washita River above Oklahoma State Line	443			
W.	North Fork Non-Contributing Area		399		
X.	Salt Fork Non-Contributing Area		209		
Y.	Prairie Dog Town Fork Non-Contributing area		4,105		664
Z.	Pease River Non-Contributing Area		559		
A.	North Fork above Oklahoma State Line	1,512			
B.	Salt Fork above Oklahoma State Line	1,171			
C.	Prairie Dog Town Fork above mouth (Junction with North Fork) (in Texas)	4,154			
C_O.	Prairie Dog Town Fork tributaries (in Oklahoma)			4,148	
D.	Pease River above mouth	3,016			
E.	Wichita River above mouth	3,483			
F.	Little Wichita River above mouth	1,477			
G.	Red River from junction of Prairie Dog Town Fork & North Fork to gage at Terral, Okla., exclud. 2D, 2E & 2F (in Texas)	478			
G_O.	Red River from junction of Prairie Dog Town Fork & North Fork to gage at Terral, Okla., exclud. 2D, 2E & 2F (in Oklahoma)			3,308	
H.	Red River from gage at Terral, Okla. to gage at Colbert, Okla. (in Texas)	1,187			
H_O.	Red River from gage at Terral, Okla. to gage at Colbert, Oklahoma (in Oklahoma)			9,424	
I.	Red River from gage at Colbert, gage at Index, Ark. to Texas-Arkansas State Line (in Texas)	2,270			
I_{OA}.	Red River from gage at Colbert, gage at Index, Ark. to Texas-Arkansas State Line (in Okla. and Ark.)			5,983	
	TOTALS RED RIVER	19,191	5,272	22,903	664

	Areas within Tex.		Areas outside Tex.	
	Contr.	Non-Contr.	Contr.	Non-Contr.
WATERSHED NO. 3 - SULPHUR RIVER above Arkansas State Line	3,558			
WATERSHED NO. 4 - CYPRESS CREEK above Louisiana State Line	2,812			
WATERSHED NO. 5 - SABINE RIVER				
A. Sabine River above gage near Mineola	1,445			
B. Sabine River from gage near Mineola to gage near Gladewater	1,401			
C. Sabine River from near Gladewater to gage at Logansport, Louisiana	1,944			
D. Sabine River from gage at Logansport, La. to gage near Milam (in Texas)	759			
D_L. Sabine River from gage at Logansport, La. to gage near Milam (in Louisiana)			994	
E. Sabine River from gage near Milam to gage near Ruliff (in Texas)	1,514			
E_L. Sabine River from gage near Milam to gage near Ruliff (in Louisiana)			1,383	
F. Sabine River from gage near Ruliff to mouth (in Texas)	320			
F_L. Sabine River from gage near Ruliff to mouth (in Louisiana)			108	
TOTALS SABINE	7,383	0	2,485	0
WATERSHED NO. 6 - NECHES RIVER				
A. Neches River above gage near Alto	1,903			
B. Neches River from gage near Alto to gage near Rockland	1,636			
C. Angelina River above gage near Lufkin	1,630			
D. Angelina River from gage near Lufkin to mouth	1,889			
E. Neches River from gage near Rockland to gage near Evadale excluding Angelina River	850			
F. Village Creek above gage near Kountze	837			
G. Neches River from gage at Evadale to mouth excluding 6F	1,250			
TOTALS NECHES	9,995	0	0	0

		Areas within Tex.		Areas outside Tex.	
		Contr.	Non-Contr.	Contr.	Non-Contr.
WATERSHED NO. 7 - TRINITY RIVER					
A.	West Fork above Fort Worth gage	2,627			
B.	Elm Fork above gage near Carrollton	2,457			
C.	Trinity River above Dallas gage excluding 7A and 7B	1,036			
D.	East Fork above mouth	1,309			
E.	Richland Creek above mouth	1,990			
F.	Trinity River from Dallas gage to Oakwood gage, exclud. 7D and 7E	3,493			
G.	Trinity River from Oakwood gage to Riverside gage	2,707			
H.	Trinity River from Riverside gage to Liberty gage	1,920			
I.	Trinity River from Liberty gage to mouth	306			
	TOTALS TRINITY	17,845	0	0	0
WATERSHED NO. 8 - SAN JACINTO RIVER					
A.	East Fork above mouth	931			
B.	West Fork above mouth	1,856			
C.	San Jacinto from confluence of East and West Forks to mouth(shipchannel)	101			
D.	Buffalo Bayou above gage near Addicks	310			
E.	Buffalo Bayou from gage near Addicks to mouth of shipchannel, excl. 8A, 8B and 8C	734			
	TOTALS SAN JACINTO RIVER	3,932	0	0	0

		Areas within Tex.		Areas outside Tex.	
		Contr.	Non-Contr.	Contr.	Non-Contr.
WATERSHED NO. 9 - BRAZOS RIVER					
X.	White River Non-Contributing Area		2,590		1,800
Y.	Double Mountain Fork Non-Contributing area		4,850		
A.	Salt Fork above mouth	2,269			
B.	Double Mountain Fork above mouth	1,779			
C.	Clear Fork above Nugent gage	2,220			
D.	Clear Fork from Nugent gage to mouth	3,544			
E.	Brazos River from confluence of Double Mountain Fork & Salt Forks to South Bend, exclud. Clear Fork	2,548			
F.	Brazos River from South Bend gage to Glen Rose gage	3,240			
G.	Bosque River above mouth	1,639			
H.	Brazos River from Glen Rose gage to Waco gage, excl. Bosque River	2,021			
I.	Leon River above gage near Belton	3,513			
J.	Little River above mouth, exclud. 9I	3,982			
K.	Yegua Creek above mouth	1,112			
L.	Navasota River above mouth	2,159			
M.	Brazos River from Waco gage to gage near Hempstead, excluding 9I, 9J, 9K and 9L	3,374			
N.	Brazos River from gage near Hempstead to mouth	2,000			
	TOTALS BRAZOS RIVER	35,400	7,440	0	1,800

		Areas within Tex. Contr.	Areas within Tex. Non-Contr.	Areas outside Tex. Contr.	Areas outside Tex. Non-Contr.
WATERSHED NO. 10 - COLORADO RIVER					
X.	Colorado River Non-Contributing Area above Colorado City		2,000		1,870
Y.	Colorado River Non-Contributing Area Beals Creek Portion		7,730		
Z.	Concho River Non-Contributing Area		300		
A.	Colorado River above Colorado City gage	1,492			
B.	Colorado River from Colorado City gage to Ballinger gage	3,748			
C.	Concho River above gage near San Angelo	4,217			
D.	Concho River from gage near San Angelo to mouth	1,237			
E.	Pecan Bayou above mouth	2,194			
F.	San Saba River above mouth	3,143			
G.	Colorado River from Ballinger gage to gage near San Saba, exclud. 10C, 10D, 10E and 10F	2,669			
H.	Llano River above mouth	4,491			
I.	Pedernales River above mouth	1,288			
J.	Colorado River from gage near San Saba to Austin gage, exclud. 10H and 10I	2,021			
K.	Colorado River from Austin gage to Columbus gage	2,670			
L.	Colorado River from Columbus gage to mouth	693			
	TOTALS COLORADO	29,863	10,030	0	1,870
WATERSHED NO. 11 - LAVACA RIVER					
A.	Navidad River above mouth	1,424			
B.	Lavaca River above mouth, excluding Navidad River	1,051			
	TOTALS LAVACA	2,475	0	0	0

		Areas within Tex.		Areas outside Tex.	
		Contr.	Non-Contr.	Contr.	Non-Contr.
WATERSHED NO. 12 - GUADALUPE RIVER					
A.	Guadalupe River above New Braunfels gage (above mouth of Comal)	1,516			
B.	San Marcos River above mouth	1,350			
C.	Guadalupe River from New Braunfels gage to old Gonzales gage, exclud. 12B	587			
D.	Guadalupe River from Gonzales gage to old Cuero gage	1,470			
E.	Guadalupe River from Cuero gage to Victoria gage	238			
F.	Guadalupe River from Victoria gage to mouth	872			
	TOTALS GUADALUPE	6,033	0	0	0
WATERSHED NO. 13 - SAN ANTONIO RIVER					
A.	Medina above gage near Riomedina	623			
B.	Medina River from gage near Riomedina to gage near San Antonio	602			
C.	San Antonio River above gage near Falls City exclud. 13A and 13B	846			
D.	Cibolo Creek above gage near Falls City	831			
E.	San Antonio River from gage near Falls City to mouth, exclud. 13D	1,315			
	TOTALS SAN ANTONIO	4,217	0	0	0
WATERSHED NO. 14 - NUECES RIVER					
A.	West Nueces River above gage near Brackettville	700			
B.	Nueces River above Laguna gage	764			
C.	Nueces from Laguna gage to gage below Uvalde, excluding 14A	483			
D.	Nueces River from gage below Uvalde to Cotulla gage	3,313			
E.	Frio River above Concan gage	405			
F.	Frio River from Concan gage to gage nr. Derby	3,088			
G.	Frio River from gage near Derby to mouth, excluding Atascosa River	2,095			
H.	Atascosa River above mouth	1,423			
I.	Nueces River from Cotulla gage to Three Rivers gage, exclud. Frio & Atascosa	3,329			
J.	Nueces River from Three Rivers gage to gage near Mathis	1,060			
K.	Nueces River from gage near Mathis to mouth	294			
	TOTALS NUECES	16,954	0	0	0

		Areas within Tex.		Areas outside Tex.	
		Contr.	Non-Contr.	Contr.	Non-Contr.
WATERSHED NO. 15 - RIO GRANDE					
X.	Pecos River Non-Contributing Area		3,167		
Y.	Closed Basin between Pecos & Rio Grande		5,047		
A.	Rio Grande above New Mexico State Line			29,169	
B.	Rio Grande from State Line to gage at Fort Quitman (in Texas)	1,437			
B_M.	Rio Grande from State Line to gage at Fort Quitman (in Mexico)			1,429	
C.	Pecos River above New Mexico State Line			19,754	
D.	Pecos River from New Mexico State Line to gage near Girvin	9,808			
E.	Pecos River from gage near Girvin to gage near Shumla	5,600			
F.	Devil's River above mouth	4,305			
G.	Rio Grande from gage at Fort Quitman to Diablo Dam Site, Excl. Pecos & Devil's rivers (in Texas)	12,617			
G_M.	Rio Grande from gage at Fort Quitman to Diablo Dam Site excl. Pecos & Devil's rivers (in Mexico)			42,304	
H.	Rio Grande from Diablo Dam Site to Laredo gage (in Texas)	3,028			
H_M.	Rio Grande from Diablo Dam Site to Laredo gage (in Mexico)			6,525	
I.	Rio Grande from Laredo gage to Chapeno gage (in Texas)	2,044			
I_M.	Rio Grande from Laredo gage to Chapeno gage (in Mexico)			26,518	
J.	Rio Grande from Chapeno gage to mouth (in Texas)	1,206			
J_M.	Rio Grande from Chapeno gage to mouth (in Mexico)			16,471	
	TOTALS RIO GRANDE	40,045	8,214	142,170	Not Est.

		Areas within Tex. Contr.	Areas within Tex. Non-Contr.	Areas outside Tex. Contr.	Areas outside Tex. Non-Contr.
WATERSHED NO. 16 - COASTAL STREAMS					
A.	Coastal area from Neches River to Trinity Bay drainage (Taylor's Bayou)	926			
B.	Trinity River Coastal area, excluding Cedar Bayou	536			
C.	San Jacinto Coastal area, Cedar Bayou to Clear Creek	593			
D.	Brazos Coastal area, Dickinson Bayou to Oyster Creek	1,382			
E.	San Bernard River Basin	945			
F.	Colorado-Lavaca Coastal area, Linville Creek to and including Lavaca Bay Drainage	3,285			
G.	Guadalupe Coastal Region, Matagorda Bay to Mission River	803			
H.	Mission River above Mouth	1,148			
I.	Aransas River Coastal area, Mission River to Nueces River	1,109			
J.	Coastal area south of Nueces, to and including Los Olmos Creek	3,760			
K.	Coastal Non-Contributing area, Los Olmos Creek to North Floodway		4,396		
	TOTALS COASTAL	14,487	4,936	0	0
WATERSHED NO. 17 - RIO GRANDE DRAINAGE					
	North Floodway and Arroyo Colorado to high bank of Rio Grande	1,777	0	0	0

APPENDIX B

REPORTED CONSUMPTIVE USES

BY WATERSHEDS

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 1 - CANADIAN RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Canadian	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	B	0	0	0	0	0	0	0	0	900	600	900	0	0	0	0	0	0	0	0	0	
	C	111	1	11	8	7	12	10	41	113	110	71	192	190	174	179	162	245	245	0	245	
	D	110	0	10	7	6	11	9	40	4	2	0	5	5	20	33	45	135	135	0	135	
TOTALS		221	1	21	15	13	23	19	81	1,017	712	971	197	195	194	212	207	380	380	0	380	

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 2 - RED RIVER NO. 3 - SULPHUR RIVER NO. 4 - CYPRESS CREEK

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Red	V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	A	383	368	0	0	886	771	292	725	0	0	619	0	*	100	138	549	472	549	1	548	
	B	0	0	0	0	0	0	0	0	0	0	0 **	70	196	263	460	646	636	636	0	636	
	C	3,712	0	0	0	0	0	501	567	769	3,590	12,115	1,303	1,573	1,048	2,311	6,440	5,180	6,499	6,138	361	
	D	4,060	3,981	614	1,059	166	1,370	1,030	1,210	162	547	219	225	127	127	127	215	294	294	*	294	
	E	29,449	19,570	13,859	19,659	142,926	21,729	44,236	37,005	18,392	22,692	25,454	25,000 **	27,259	27,677	28,284	26,564	44,494	44,494	9,073	35,421	
	F	322	112	0	740	748	767	950	3,049	9,850	8,996	9,718	12,821	14,847	13,562	12,871	12,950	17,651	17,651	17,651	0	
	G	428	413	370	0	886	1,264	892	725	529	645	619	70	204	363	1,326	1,968	1,108	1,108	1	1,107	
	H	26	110	55	97	123	115	411	118	556	511	453	607	3,399	6,660	38,728	11,965	54,546	7,005	7,005	0	
	I	44	47	3,520	4,488	5,168	6,031	2,763	5,403	3,321	3,758	3,000	2,294	2,295	5,462	5,250	6,770	10,037	10,037	10,037	0	
TOTALS		38,424	24,601	19,418	26,043	150,903	32,047	51,075	48,802	33,579	40,739	** 52,177	42,390	49,908	57,262	89,495	68,067	134,418	88,273	49,906	38,367	
Total Sulphur		527	674	967	1,568	871	704	599	867	802	689	257	392	680	3,531	7,558	1,569	2,035	2,035			2,035
Total Cypress		70	63	7	382	1,322	1,740	1,111	1,173	3,307	5,212	7,119	5,865	4,398	6,362	6,461	12,285	19,179	19,179			19,179
*Small amounts or zero																						

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 5 - SABINE RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Sabine	A	200	222	2,044	1,934	2,161	2,156	2,041	3,738	2,188	2,514	2,305	2,090	2,001	394	2,984	2,322	2,585	2,585	2,585	*	
	B	31	31	1,237	123	2,035	1,929	1,698	1,636	2,278	2,269	2,389	1,703	70	330	877	798	1,474	1,474	1,474	*	
	C	812	913	1,061	2,510	842	347	1,192	455	476	272	250	3,089	7,443	5,585	22,683	7,078	25,539 **	25,539	25,539	*	
	D	0	0	166	168	224	193	224	249	282	203	226	238	274	663	921	0	10	10	10	0	
	E	26,919	19,629	28,849	32,935	41,735	29,705	30,591	38,728	53,719	39,168	49,948	60,462	40,450	34,716	45,363	31,110	34,851	34,851	*	34,851	
	F	0	0	0	0	0	0	7,850	56,989	106,033	120,394	120,036	129,971	144,402	167,716	146,845	160,190	167,740	167,740	167,740	*	
TOTALS		27,962	20,795	33,357	37,670	46,997	34,330	43,596	101,795	164,976	164,820	175,244	197,553	194,640	209,404	219,673	201,498	232,199	232,199	147,348	34,851	

*Small amounts or zero

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 6 - NECHES RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Neches	A	1,085	1,357	2,516	2,193	3,076	5,103	4,546	4,287	5,546	5,202	5,306	2,151	589	900	922	1,083	1,697	1,697	1,697	*	
	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	C	0	0	0	0	0	0	0	0	0	0	0	358	5,765	5,136	5,762	5,761	8,768	8,768	8,768	0	
	D	37	36	46	41	46	82	41	55	53	44	51	32	7	3	10	12	18	18	0	18	
	E	13	15	16	23	24	34	44	49	38	31	37	34	11	11	0	0	0	0	0	0	
	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	G **	274,688	257,946	257,763	319,844	376,949	382,122	379,922	409,868	422,595	412,986	447,232	537,929	480,550	518,979	538,722	302,264	302,159	538,722	320,215	218,507	
TOTALS		275,823	259,354	260,341	322,101	380,095	387,341	384,553	414,259	428,232	418,263	452,626	540,504	486,922	525,029	545,416	309,120	312,642	549,205	330,680	218,521	

*Small amounts or zero

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 7 - TRINITY RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Trinity	** A	14,860	14,951	17,698	24,133	27,698	27,857	28,576	31,004	41,006	39,612	39,711	48,907	53,840	54,177	61,067	57,311	59,901	59,901	59,901	*	
	B	29,072	25,685	28,721	36,265	43,342	42,647	47,089	56,066	57,500	58,680	58,913	70,930	86,502	62,938	81,601	97,391	103,455	103,345	103,345	*	
	** C	-8,900	-9,000	-10,600	-14,500	-16,600	-16,700	-17,200	-18,500	-24,500	-23,700	-27,800	-26,600	-33,700	-31,960	-29,180	-29,460	-17,150	-10,655	-10,655	*	
	D	32	35	122	40	163	147	147	189	217	254	189	201	187	279	10,318	376	2,570	2,570	2,570	*	
	E	1,399	1,228	1,277	1,464	1,545	1,320	1,465	1,617	2,413	2,340	1,871	1,946	2,282	5,111	4,337	4,208	7,358	7,358	7,358	*	
	** F	-16,700	-15,200	-17,300	-20,800	-25,800	-24,900	-28,100	-30,600	-35,000	-36,700	-36,300	-32,400	-33,300	-35,100	-23,300	-51,800	-41,700	-41,700	-41,700	*	
	G	0	0	0	0	0	0	0	0	0	0	500	1,823	1,665	0	0	50	1,830	1,830	0	1,830	
	H	25	25	25	25	28	31	28	32	29	18	12	15	14	2	50	88	56	56	*	56	
	I	195,125	147,497	160,911	287,942	195,514	191,388	185,754	189,610	251,633	276,041	241,729	298,820	271,495	247,893	256,827	22,707	216,100	300,000	*	300,000	
TOTALS		214,913	165,221	180,854	314,569	225,89	221,790	217,759	229,418	293,298	316,545	278,825	363,642	348,985	304,240	362,720	300,871	332,420	422,705	120,819	301,886	
*Small amounts or zero																						

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 8 - SAN JACINTO RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
San Jacinto	A	0	0	1,100	1,600	1,800	1,800	1,633	1,600	1,600	1,800	1,800	1,800	1,800	1,800	1,712	1,078	800	800	800	*	
	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	C	0	0	6	6	6	32,804	41,808	51,357	58,568	49,666	59,270	63,358	58,665	53,614	40,890	89,323	108,052	108,052	0	0	108,052
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTALS		0	0	1,106	1,606	1,806	34,604	43,441	52,957	60,168	51,466	61,070	65,158	60,465	55,414	42,602	90,401	108,852	108,852	800	0	108,052

*Small amounts or zero

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 9 - BRAZOS RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED**																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Brazos	A	0	0	0	23	56	0	0	0	56	56	31	0	37	75	65	61	33	33	*	33	
	B	0	55	48	49	47	58	37	49	34	26	21	12	7	4	11	14	78	78	*	78	
	C	1	1	0	8,311	8,095	7,060	6,189	6,249	7,503	6,984	9,305	10,107	10,084	8,845	11,359	10,589	14,252	14,252	14,252	*	
	D	2,213	1,354	4,317	5,605	11,917	4,457	7,639	10,202	9,062	10,381	7,706	7,590	9,499	16,575	10,834	17,212	7,180	17,212	17,212	*	
	E	0	0	84	110	110	138	126	187	203	281	0	8	1	0	123	115	173	173	*	173	
	F	647	712	3,374	4,042	4,862	4,154	2,413	2,906	3,275**	2,583**	2,208**	3,159**	4,054**	4,213**	5,385**	5,140	6,261	6,261	6,261	*	
	G	5,863	132	6,433	7,251	7,574	7,688	8,192	9,248	10,856	10,587	11,318	12,438	14,009	14,631	16,861	14,758	17,077	17,077	16,162	915	
	H**	4	6	9	10	19	11	6	5	8	8	3	0	1	255	801	395	1,312	1,312	*	1,312	
	I	145	141	1,079	1,306	797	850	1,076	1,415	1,404	1,410	1,331	1,388	958	1,169	1,685	6,092	7,137	7,137	6,896	241	
	J	384	349	2,918	3,337	4,657	4,962	5,218	4,867	5,333	5,464	5,314	5,271	6,049	22,855	9,389	4,982	7,745	9,389	8,783	606	
	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	L	0	0	12	195	144	475	487	520	581	477	611	647	683	725	973	1,001	926	926	*	926	
	M	5	0	0	0	0	0	0	0	583	536	908	1,691	3,760	9,442	10,259	8,838	10,870	10,870	9,174	1,696	
	N	67,244	66,111	79,973	293,630	238,508	290,336	188,298	250,492	408,730	288,295	296,637	338,168	280,526	367,022	363,129	319,611	302,741	394,268	189,720	204,548	
TOTALS		76,506	68,861	98,247	323,869	276,786	320,189	219,681	286,140	447,628	327,088	335,393	380,479	329,678	445,811	430,874	388,738	375,785	478,988	268,460	210,528	
*Small amounts or zero																						

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 10 - COLORADO RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Colorado	A	0	0	0	0	22	20	8	0	0	0	0	0	0	341	2,145	13,053	18,621	18,621	18,621	*	
	B	605	461	787	1,626	759	1,414	1,913	2,272	2,502	2,035	3,543	4,375	3,188	4,342	4,949	3,874	7,565	7,565	6,251	1,314	
	C	4,012	3,275	2,070	5,411	5,101	5,157	13,295	13,380	14,550	16,795	8,974	6,374	10,749	15,637	17,612	17,730	22,797	22,797	14,075	8,722	
	D	575	169	160	1,036	842	836	933	854	1,347	967	1,346	1,289	792	935	1,579	1,473	1,533	1,533	33	1,500	
	E	213	724	7,170	10,085	10,005	11,047	13,859	14,876	10,951	7,163	14,407	17,070	17,843	19,595	22,082	23,280	25,961	25,961	6,573	19,388	
	F	3,724	1,972	2,655	7,681	7,423	3,748	3,539	4,611	3,088	7,217	7,471	7,766	4,242	4,882	13,161	13,054	12,641	13,686	525	13,161	
	G	84	61	437	677	534	595	1,683	1,074	1,243	1,059	1,402	1,479	1,820	1,805	1,404	2,019	2,647	2,647	*	2,647	
	H	263	195	199	286	251	251	195	506	576	880	1,158	1,572	1,544	1,632	2,146	1,692	2,367	2,367	*	2,367	
	I	0	0	0	0	0	0	0	0	0	0	2	15	70	92	412	150	214	412	*	412	
	J	10,321	9,891	10,025	12,984	14,211	13,398	14,971	18,700 **	21,700 **	20,800 **	21,800 **	23,900 **	24,200 **	24,600 **	27,100 **	20,300 **	19,700 **	19,700	19,700	*	
	K	-4,942	-4,644	-4,491	-5,800	-6,076	-5,650	-6,200	-8,296	-9,500	-8,594	-10,574	-11,106	-11,485	-12,146	-12,505	-12,158	-14,134	-14,134	-14,500	366	
	L	256,464	248,701	277,947	316,423	327,246	331,549	291,093	272,948	367,449	335,525	365,527	354,509	308,864	343,126	415,249	346,113	349,357	415,249	0	415,249	
TOTALS		271,319	260,805	296,959	350,409	360,318	362,365	335,289	320,925	413,906	383,847	415,056	407,246	361,827	404,841	495,334	430,580	449,269	516,404	51,278	465,126	
*Small amounts or zero																						

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 11 - LAVACA RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Lavaca	A	9,223	5,578	7,469	7,374	6,920	7,189	8,113	9,075	9,454	9,544	9,277	7,333	8,528	3,071	3,839	4,135	5,516	5,516	0	5,516	
	B	2,450	3,316	3,200	3,400	3,000	3,030	5,149	4,399	3,563	3,898	4,351	3,057	3,490	4,103	1,994	2,724	1,123	1,123	0	1,123	
TOTALS		11,673	8,894	10,669	10,774	9,920	10,219	13,262	13,474	13,017	13,442	13,628	10,390	12,018	7,174	5,833	6,859	6,639	6,639	0	6,639	

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 12 - GUADALUPE RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Guadalupe	A	93	106	110	197	194	152	249	204	220	233	303	456	553	387	471	609	670	670	96	574	
	B	69	1	** 308	** 518	** 502	** 769	** 269	** 215	** 213	398	89	135	81	269	216	338	559	559	191	368	
	C	436	329	2,611	2,192	2,496	702	1,693	2,601	6,054	6,386	2,952	7,113	6,178	6,338	7,227	6,238	4,259	7,220	6554	666	
	D	0	0	0	0	0	0	0	0	1,190	201	1,759	1,970	2,020	1,707	2,158	1,619	1,656	1,656	0	1,656	
	E	0	0	0	0	0	0	0	0	0	6	18	226	909	1,013	1,022	1,347	1,229	1,410	338	1,072	
	F	0	0	2,400	1,667	1,500	3,200	3,200	43,188	100,000	50,155	59,315	71,241	81,271	92,077	88,547	57,107	38,552	92,077	22,580	69,497	
TOTALS		598	436	5,429	4,574	4,692	4,823	5,411	46,208	107,677	57,319	64,436	81,141	91,012	101,791	99,641	67,258	46,925	103,592	29,759	73,833	

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 13 - SAN ANTONIO RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
San Antonio	A	21,551	8,743	9,411	20,697	33,845	14,245	24,973	22,117	8,632	12,217 **	12,500 **	555	500	6,185	34,035	202	200	200			200
	B	219	218	74	43	23	622	18	57	110	1,102	1,736	23	413	49	39	21	74	74			74
	C	1,504	1,208	2,291	2,663	2,225	1,898	1,423	2,219	2,946	2,571	2,046	2,933	3,123	2,900	3,366	3,498	7,961	7,961		7,961	
	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	E	4	0	0	0	0	0	0	0	451	22	393	1,297	1,361	850	1,386	2,434	2,551	2,551	0	2,551	
TOTALS		23,278	10,169	11,776	23,403	36,093	16,759	26,414	24,393	12,139	15,912	16,675	4,808	5,397	9,984	38,826	6,155	10,786	10,786	0	10,512	274

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 14 - NUECES RIVER

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS AS NOTED **																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Nueces	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	B	83	79	152	164	165	74	86	117	195	347	591	641	962	665	992	720	1,460	1,460	*	1,460	
	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	D	14,221	196	19,334	17,235	21,035	21,565	23,222	17,190	14,570	13,579	13,383	3,158	39,190	6,336	7,268	2,097	3,935	3,935	0	0	3,935
	E	929	770	531	709	396	638	636	642	14	6	32	31	335	407	546	611	812	812	0	0	812
	F	648	758	366	766	362	875	127	971	548	729	161	0	30	60	45	40	5	5	0	0	5
	G	226	147	559	502	427	562	542	962	453	970 **	603 **	407	896	1,607	1,309	724	276	276	0	0	276
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	I	1,160	1,545	1,381	1,219	1,284	554	697	833	860	557	921	288	397	498	800	1,323	1,564	1,564	*	1,564	
	** J	1	2	2	2	5	5	2	7	4	3	4	4	4	3	7	34	33	33	*	33	
	** K	14,795	16,400	13,437	15,260	20,381	28,210	26,680	28,884	30,351	31,860	35,934	49,293	53,492	56,616	47,129	51,990	45,099	72,000	67,000	5,000	
TOTALS		32,063	19,897	35,762	35,857	44,055	52,483	51,989	49,606	46,995	48,051	51,629	53,822	95,306	66,192	58,096	57,539	53,184	80,085	67,000	8,057	5,028

*Small amounts or zero

REPORTED CONSUMPTIVE USES BY WATERSHEDS

NO. 15 - RIO GRANDE

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS																	ASSD. PRES. USE	BREAKDOWN OF PRESENT CONSUMPTIVE USE WITH ADJUSTMENTS		
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956		MUN., IND. & MINING	IRRIGATION	NOT SEPARATED
Rio Grande	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	B	220,295	141,449	219,181	284,653	278,174	314,403	294,284	302,308	260,887	75,028	278,480	182,699	221,641	214,793	77,671	52,058	55,944	55,944	0	0	55,944
	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	D	129,345	114,004	90,646	194,135	179,831	178,895	115,518	115,460	118,294	93,173	156,209	118,032	93,882	45,582	67,738	133,307	54,167	64,167	0	0	64,167
	E	190	482	313	305	537	447	1,196	1,408	1,296	725	801	631	443	185	2,963	7,191	669	7,191	*	7,191	
	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	G	6,435	7,280	5,785	7,866	10,414	9,156	9,667	10,523	10,582	11,898	13,633	9,765	10,877	9,880	10,514	10,789	13,098	13,098	*	13,098	
	H	29,300	7,980	11,098	29,160	10,517	10,510	10,817	57,380	66,385	114,472	122,087	135,950	165,469	164,680	163,399	156,349	163,268	170,045	7,193	162,852	
	I	6,997	2,425	6,004	9,414	11,676	11,298	9,096	11,885	11,462	13,853	11,554	15,287	15,816	15,384	16,536	17,674	31,024	31,024	0	31,024	
	J	638,378	252,434	370,573	750,127	612,612	794,413	897,217	817,092	1,094,752	1,005,687	1,387,106	916,994	618,779	572,100	1,530,161	1,611,396	865,270	1,630,066	65,578	1,564,488	
TOTALS		1,031,803	526,054	703,560	1,275,700	1,103,766	1,319,122	1,337,795	1,316,056	1,563,658	1,314,836	1,869,870	1,379,358	1126,907	1022,604	1,868,982	1,988,764	1,193,440	1,971,535	72,771	1,778,653	120,111
*Small amounts or zero																						

NO. 16 - COASTAL NO. 17 - RIO GRANDE DRAINAGE

WATERSHED DESCRIPTION	SUB-BASIN	TOTAL REPORTED CONSUMPTIVE USE WITH ADJUSTMENTS																	ASSD. PRES. USE
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	
16-COASTAL	A	17,756	19,411	22,548	23,550	24,458	25,948	22,218	23,926	23,114	25,492	21,738	24,811	26,105	29,275	33,778	33,470	24,304	34,200
	B	800	2,162	944	4,206	5,382	4,801	5,254	6,770	7,042	7,781	5,546	7,225	9,580	10,624	10,603	9,799	10,206	10,206
	C	0	0	0	0	3,400	1,786	4,931	7,050	1,509	10,611	7,626	12,141	7,515	6,462	3,073	4,644	4,327	12,000
	D	6,959	9,459	12,076	13,781	14,572	13,756	15,728	17,468	15,018	34,980	37,491	40,117	46,544	50,195	58,927	47,757	75,092	75,092
	E	6,319	6,034	6,490	4,677	6,463	6,650	5,987	7,119	7,690	9,074	10,096	9,220	11,246	9,598	10,604	8,017	5,946	11,000
	F	3,478	2,198	3,515	3,426	3,351	4,099	5,482	6,674	7,915	8,619	5,490	13,629	11,980	16,299	13,805	13,787	9,723	16,000
	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	J	0	0	0	0	0	0	237	3,120	0	0	0	0	0	0	0	0	0	3,000
	K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal 17-RG. DRAINAGE		35,322	39,264	45,573	49,640	57,626	59,040	59,837	72,127	62,288	96,557	88,057	107,143	112,970	122,453	130,790	117,474	129,718	161,358
		*	0	0	2,190	2,570	3	1,003	1,159	814	896	2,238	2,435	1,658	1,916	1,636	4,063	3,790	3,790
TOTAL 16 & 17		35,322	39,264	45,573	51,830	60,196	59,043	60,840	73,286	63,102	97,453	90,295	109,578	114,628	124,369	132,426	121,537	133,508	165,148

* NO RECORD

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS

OVER 10,000 ACRE FEET CAPACITY

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #1 Canadian River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
						No of Res.	Cumulative Storage Ac-Ft.
	Sub-basins A, B, C & D have no storage.						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #2 Red River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	C	E	F	H	I	No of Res.	Cumulative Storage Ac-Ft.
1901		11,000				1	11,000
1923					10,755	2	21,755
1925		438,000				4	499,755
		40,000					
1929		11,600				5	511,355
1939	18,121					6	529,476
1943				1,783,000*		7	2,312,476
1947			106,000*			8	2,418,476

Sub-basins A, B, D & G have no storage

*Reservoirs considered in storage adjustments

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #3 Sulphur River & #4 Cypress Creek

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	Sulphur		Cypress			No of Res.	Cumulative Storage Ac-Ft.
1954	145,300*					1	145,300
1943			24,700*			1	24,700
1958			255,000*			2	279,700
* Reservoirs considered in storage adjustments.							

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #5 Sabine River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	A	C				No of Res.	Cumulative Storage Ac-Ft.
1948		50,700*				1	50,700
**	926,000*					2	976,700
Sub-basins B, D, E & F have no storage							
*	Reservoirs considered in storage adjustments.						
**	Under Construction						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #6 Neches River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	A	C	D	E		No of Res.	Cumulative Storage Ac-Ft.
1949		39,000*				1	39,000
1951				77,600*		2	116,600
1957	30,500*					3	147,100
1957		26,960*				4	174,060
**			1,383,500			5	1,557,560
Sub-basins B, F & G have no storage							
*	Reservoirs considered in storage adjustments						
**	Under Construction						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #7 Trinity River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	A	B	C	D&E	F&I	No of Res.	Cumulative Storage Ac-Ft.
				D	F		
1911					14,276	1	14,276
1914	40,077					2	54,353
1931	270,300					3	324,653
1932	182,000					4	506,653
1937			27,100			5	533,753
1952	72,500*	161,250*		100,000*		8	867,503
				E	I		
1954		436,000*			35,300***	10	1,338,803
1955				12,000*		11	1,350,803
1956	20,000*						
1956	19,500*					13	1,390,303
1957			45,700*			14	1,436,003
	Sub-basins G & H have no storage						
	* Reservoirs considered in storage adjustments						
	*** Off Channel Storage						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #8 San Jacinto River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	C					No of Res.	Cumulative Storage Ac-Ft.
1954	160,000*					1	160.000
Sub-basins A, B, D & E have no storage							
*	Reservoirs considered in storage adjustments.						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #9 Brazos River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	C & N	D & I	F	G	H & K	No of Res.	Cumulative Storage Ac-Ft.
	C	D			H		
1923		41,100				1	41,100
1929				22,000		2	63,100
1930	13,290					3	76,390
1941	69,550*		151,900*			5	297,840
	N						
1947	11,100					6	308,940
1948		10,000				7	318,940
1949	14,000					8	332,940
1952					131,700*	9	464,640
					K		
1953		60,000*			12,000**	11	536,640
		I					
1954	21,973	26,700*	39,000*	104,100			
1954		125,700*				16	854,113
	Sub-basins A, B, E, J, L & M have no storage						
*	Reservoirs considered in storage adjustments						
***	Off Channel Storage						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #10 Colorado River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	A	B	C	E	J	No of Res.	Cumulative Storage Ac-Ft.
1930			12,550			1	12,550
1933				95,000		2	107,550
1938					38,000*	3	145,550
1942					22,000*	4	167,550
1949		29,800*				5	197,350
1952	202,700*	37,200*	80,400*			8	517,650
	Sub-basins D, F, G, H, I, K & L have no storage						
NOTE:	Inks Res., Lake Austin, Granite Shoals*, Marble Falls*, Res.						
	were omitted because use is for power storage with						
	no conservation storage.						
*	Reservoirs considered in storage adjustments.						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #11 Lavaca River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
						No of Res.	Cumulative Storage Ac-Ft.
	Sub-basins A & B have no storage						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #12 Guadalupe River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
						No of Res.	Cumulative Storage Ac-Ft.
**	366,400*					1	366,400
Subbasins B, C, D, E, & F have no storage							
*	Considered in Storage Adjustments						
**	Under Construction						

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #13 San Antonio River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	A					No of Res.	Cumulative Storage Ac-Ft.
1913	249,220					1	249,220

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #14 Nueces River

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	J					No of Res.	Cumulative Storage Ac-Ft.
1934	39,400**					1	39,400
1957	300,000*					1	300,000
* Considered in Storage Adjustments							
** Flooded out by new Reservoir							

APPENDIX C

CONSERVATION STORAGE IN RESERVOIRS OVER 10,000 AC-FT CAPACITY

W. S. #15 Rio Grande

Year	Subbasins & Conservation Storage in Each - Ac. Ft.					Watershed	
	C	I	J			No of Res.	Cumulative Storage Ac-Ft.
1936	270,000					1	270,000
1940			20,000**			2	290,000
1953		1,222,200*				3	1,512,200
Sub-basins A, B, D, E, F, G & H have no storage							
*	Considered in storage adjustments						
**	Off Channel Storage						

APPENDIX D

PART I

LIST OF STREAM GAGES

USED IN STUDIES

LIST OF STREAM GAGES USED IN STUDIES

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
1	CANADIAN		
	01-01-00	Canadian R. at Logan *	1/40 to 9/57
	01-01-01	Canadian R. near Amarillo	1/40 to 9/57
	01-01-02	Canadian R. near Canadian	1/40 to 9/57
	01-01-03	Canadian R. at Bridgeport *	10/44 to 9/57
	01-03-01	North Canadian R. near Guyman *	1/40 to 9/57
	01-03-02	North Canadian R. at Beaver *	1/40 to 9/57
	01-04-01	Coldwater Cr. near Hardesty *	1/40 to 9/57
	01-02-01	Palo Duro Cr. near Spearman	8/45 to 9/57
	01-05-01	Wolf Cr. near Fargo *	10/42 to 9/57
2	RED		
	02-08-02	Salt Fork near Wellington	6/52 to 9/57
	02-08-01	Salt Fork at Magnum *	1/40 to 9/57
	02-02-01	North Fork near Carter *	10/44 to 9/57
	02-02-05	North Fork near Headrick *	1/40 to 9/57
(Syn)	02-02-99	North Fork near Headrick corrected for Altus Res *	12/43 to 9/44
x	02-01-06	Prairie Dog Town Fork near Estelline	1/40 to 6/47
(Syn)	02-01-06	Prairie Dog Town Fork near Estelline	1/53 to 9/57
x	02-01-05	Prairie Dog Town Fork near Brice	10/49 to 7/51
x	02-01-01	Tierra Blanca Cr. near Umbarger	8/51 to 12/52
x	02-01-02	Prairie Dog Town Fork near Canyon	7/47 to 9/49
x	02-03-02	Pease R. near Crowell	1/40 to 6/47
	02-03-01	Quitaque Cr. near Quitaque	7/47 to 9/57

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

LIST OF STREAM GAGES USED IN STUDIES

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
2	RED (Cont'd)		
	02-04-04	Deep Red Run near Randlett *	10/49 to 9/57
	02-04-03	Cache Cr. near Walters *	7/47 to 9/57
	02-05-01	Wichita R. at Wichita Falls	1/40 to 9/57
	02-06-02	Beaver Cr. near Waurika *	6/53 to 9/57
	(Syn) 02-06-02	Beaver Cr. near Waurika	1/53 to 5/53
	02-07-02	Little Wichita near Henrietta	1/53 to 9/57
	02-07-01	Little Wichita near Archer City	1/40 to 12/52
	02-01-08	Red R. near Terral	1/40 to 9/57
	02-09-01	Washita near Cheyenne *	1/40 to 9/57
	02-09-13	Washita near Durwood *	1/40 to 9/57
	02-01-10	Red R. near Colbert	1/40 to 9/57
	02-10-01	Blue R. near Blue *	(1/40 to 9/50 (10/53 to 9/57
	02-11-01	Muddy Boggy near Farris *	1/40 to 9/57
	02-11-03	Clear Boggy near Caney *	10/42 to 9/57
	02-12-01	Kiamichi R. near Belzoni *	1/40 to 9/57
	02-01-12	Red R. at Index	1/40 to 9/57
3	SULPHUR		
	x 03-01-02	Sulphur R. near Darden	1/40 to 9/54
	03-02-01	North Sulphur near Cooper	10/54 to 9/57
	03-01-01	South Sulphur near Cooper	10/54 to 9/57
	03-03-01	White Oak Cr. near Talco	10/54 to 9/57
	02-01-13	Red R. at Fulton *	10/54 to 9/57
	02-01-14	Red R. at Shreveport *	10/54 to 9/57

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

LIST OF STREAM GAGES USED IN STUDIES

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
4	CYPRESS CREEK		
	04-01-02	Cypress Cr. near Jefferson	1/40 to 9/57
	04-02-04	Black Bayou near Gilliam *	9/42 to 9/57
	04-02-05	Twelvemile Bayou near Dixie *	9/42 to 9/57
5	SABINE		
	05-01-02	Sabine R. near Mineola	1/40 to 9/57
	05-01-03	Sabine R. near Gladewater	1/40 to 9/57
	05-01-06	Sabine R. near Logansport	1/40 to 9/57
	05-01-07	Sabine R. near Milam	1/40 to 9/57
	05-01-10	Sabine R. near Ruliff	1/40 to 9/57
	05-01-09	Sabine R. near Bon Wier	1/40 to 9/57
6	NECHES		
	06-01-02	Neches R. near Neches	1/40 to 1/44
	06-01-03	Neches R. near Alto	2/44 to 9/57
	06-01-04	Neches R. near Diboll	1/40 to 1/44
	06-01-05	Neches R. near Rockland	1/40 to 9/57
	06-03-02	Angelina R. near Lufkin	1/40 to 9/57
	x 06-03-03	Angelina R. near Horger	1/40 to 3/51
	06-03-04	Angelina R. near Zavalla	10/51 to 9/51
	06-01-07	Neches R. at Evadale	1/40 to 9/57
	06-08-01	Village Cr. near Kountze	1/40 to 9/57
7	TRINITY		
	07-01-04	West Fork at Fort Worth	1/40 to 9/57
	07-08-01	Elm Fork near Carrollton	1/40 to 9/57

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

LIST OF STREAM GAGES USED IN STUDIES

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
7	TRINITY (Cont'd)		
	07-01-06	Trinity R. at Dallas	1/40 to 9/57
	x 07-12-03	East Fork near Rockwall	1/40 to 5/49
	07-12-04	East Fork near Crandall	6/49 to 9/57
	07-01-07	Trinity R. near Rosser	1/40 to 9/57
	07-15-02	Chambers Cr. near Corsicana	1/40 to 9/57
	07-16-01	Richland Cr. near Richland	1/40 to 9/57
	07-01-08	Trinity R. near Oakwood	1/40 to 9/57
	07-01-10	Trinity R. at Riverside	1/40 to 9/57
	07-01-11	Trinity R. at Romayor	1/40 to 9/57
	07-01-12	Trinity R. at Liberty	1/40 to 9/57
	07-09-01	Isle du Bois near Pilot Point	7/52 to 9/55
8	SAN JACINTO		
	08-04-01	East Fork near Cleveland	1/40 to 3/57
	08-05-01	Peach Cr. at Splendora	1/44 to 3/57
	08-06-01	Caney Cr. near Splendora	1/44 to 3/57
	x 08-01-02	West Fork near Humble	1/40 to 9/54
	x 08-01-03	San Jacinto R. near Huffman	1/40 to 9/53
	(Syn) 08-01-03	San Jacinto R. near Huffman	10/54 to 3/57
	08-02-01	Spring Cr. near Spring	10/54 to 3/57
	08-03-01	Cypress Cr. near Westfield	10/54 to 3/57
	08-01-01	West Fork near Conroe	10/54 to 3/57
	08-07-01	Buffalo Bayou near Addicks	8/45 to 9/57
	08-07-02	Buffalo Bayou at Houston	1/40 to 12/56

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
8	SAN JACINTO (Cont'd)		
	08-08-01	Whiteoak Bayou at Houston	1/40 to 12/56
	08-09-01	Brays Bayou at Houston	1/40 to 12/56
	08-10-01	Sims Bayou at Houston	10/52 to 12/56
	08-11-01	Greens Bayou at Houston	10/52 to 12/56
	08-11-02	Halls Bayou at Houston	10/52 to 12/56
9	BRAZOS		
	09-01-03	Double Mt. Fork near Aspermont	1/40 to 9/57
	09-02-02	Salt Fork near Aspermont	1/40 to 9/57
	09-01-04	Brazos R. at Seymour	1/40 to 9/57
	09-04-01	Clear Fork at Nugent	1/40 to 9/57
	09-04-02	Clear Fork at Ft. Griffin	10/51 to 9/57
	x 09-04-04	Clear Fork near Crystal Falls	1/40 to 9/51
	09-01-06	Brazos R. near South Bend	1/40 to 9/57
	09-01-10	Brazos R. near Glen Rose	1/40 to 9/57
	09-01-11	Brazos R. near Whitney	1/40 to 9/57
	09-10-01	North Bosque near Clifton	1/40 to 9/57
	09-01-12	Brazos R. at Waco	1/40 to 9/57
	09-13-04	Leon R. near Belton	1/40 to 9/57
	09-14-02	Little R. at Cameron	1/40 to 9/57
	09-01-15	Brazos R. near Bryan	1/40 to 9/57
	09-21-01	Yegua Cr. near Somerville	1/40 to 9/57
	09-22-01	Navasota R. near Easterly	1/40 to 12/50

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

LIST OF STREAM GAGES USED IN STUDIES

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
9	BRAZOS (Cont'd)		
	09-22-02	Navasota R. near Bryan	1/51 to 9/57
	09-01-17	Brazos R. near Hempstead	1/40 to 9/57
	09-01-20	Brazos R. at Richmond	1/40 to 5/49
	09-01-21	Brazos R. near Juliff	6/49 to 9/57
10	COLORADO		
	10-01-02	Colorado R. at Colorado City	5/46 to 9/57
	x 10-01-03	Colorado R. at Robert Lee	1/40 to 4/46
	10-01-06	Colorado R. at Ballinger	1/40 to 9/57
	10-10-01	Concho R. near San Angelo	1/40 to 9/57
	10-10-02	Concho R. near Paint Rock	1/40 to 9/57
	10-16-01	Pecan Bayou at Brownwood	1/40 to 9/57
	10-18-03	San Saba R. at San Saba	1/40 to 9/57
	10-01-09	Colorado R. at San Saba	1/40 to 9/57
	10-21-03	Llano R. at Llano	1/40 to 9/57
	10-22-02	Pedernales R. near Johnson City	1/40 to 9/57
	10-01-13	Colorado R. at Austin	1/40 to 9/57
	10-01-16	Colorado R. at Columbus	1/40 to 9/57
11	LAVACA		
	11-01-01	Lavaca R. at Hallettsville	1/40 to 9/57
	11-01-02	Lavaca R. near Edna	1/40 to 9/57
	11-02-01	Navidad R. near Ganado	1/40 to 9/57
12	GUADALUPE		
	12-01-05	Guadalupe R. above Comal at New Braunfels	1/40 to 9/57

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
12	GUADALUPE (Cont'd)		
	12-03-01	Comal R. at New Braunfels	1/40 to 9/57
	12-04-02	San Marcos at Luling	1/40 to 9/57
	12-06-02	Plum Cr. near Luling	1/40 to 9/57
	12-01-10	Guadalupe R. at Victoria	1/40 to 9/57
	12-09-01	Coleto Cr. near Schroeder	10/54 to 9/57
	x 12-09-02	Coleto Cr. near Victoria	1/40 to 9/54
13	SAN ANTONIO		
	13-03-03	Medina R. near San Antonio	1/40 to 9/57
	13-04-05	Cibolo Cr. near Falls City	1/40 to 9/57
	13-01-03	San Antonio R. near Falls City	1/40 to 9/57
	13-01-04	San Antonio R. at Goliad	1/40 to 9/57
	13-03-02	Medina R. near Riomedina	1/40 to 9/57
	(Syn) 13-03-02	Medina R. near Riomedina	1/40 to 12/52
14	NUECES		
	14-02-01	West Nueces near Brackettville (Syn. 10/50 - 3/56)	1/40 to 9/57
	14-01-01	Nueces R. at Laguna	1/40 to 9/57
	14-01-03	Nueces R. below Uvalde	1/40 to 9/57
	14-01-07	Nueces R. at Cotulla	1/40 to 9/57
	14-03-01	Frio R. at Concan	1/40 to 9/57
	14-03-03	Frio R. near Derby	1/40 to 9/57
	14-03-05	Frio R. at Calliham	1/40 to 9/57
	14-07-01	Atascosa at Whitsett	1/40 to 9/57

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

LIST OF STREAM GAGES USED IN STUDIES

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
14	NUECES (Cont'd)		
	14-01-09	Nueces R. near Three Rivers	1/40 to 9/57
	14-01-10	Nueces R. near Mathis	1/40 to 9/57
	14-01-08	Nueces R. near Tilden	12/42 to 9/57
15	RIO GRANDE		
	15-01-01	Rio Grande at El Paso	1/40 to 9/57
	15-01-08	Rio Grande at Ft. Quitman	1/40 to 9/57
	15-06-00	Pecos R. at Red Bluff *	1/40 to 9/57
	15-07-01	Delaware R. near Red Bluff *	1/40 to 12/56
	15-08-01	Screwbean Draw near Orla (Syn. Screwbean Draw near Orla)	1/40 to 12/56 1/41 to 9/43
	15-06-03	Pecos R. near Orla	1/40 to 12/56
	15-06-14	Pecos R. near Girvin	1/40 to 12/56
	15-06-16	Pecos R. near Comstock	1/40 to 8/54
	15-06-17	Pecos R. near Shumla	10/54 to 12/56
	15-24-02	Devils R. near Del Rio	1/40 to 7/54
	15-24-10	Devils R. near Mouth	8/54 to 12/56
	15-02-02	Rio Conchos near Ojinaga *	1/40 to 12/56
	15-03-01	Alamito Cr. near Presidio	1/40 to 12/56
	15-04-01	Terlingua Cr. near Terlingua	1/40 to 12/56
	15-23-01	Goodenough Spring near Comstock	1/40 to 12/56
	15-01-16	Rio Grande near Del Rio	1/40 to 8/54
	15-01-47	Rio Grande below Diablo Dam	9/54 to 12/56
	15-26-01	Arroyo Las Vacas near Cd. Acuna *	1/40 to 12/56
	15-27-01	San Felipe Cr. near Del Rio	1/40 to 12/56

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

W.S. NO.	WATERSHED DESCRIPTION & GAGE NUMBERS	GAGE DESCRIPTION	PERIOD USED
15	RIO GRANDE (Cont'd)		
	15-29-01	Pinto Cr. near Del Rio	1/40 to 12/56
	15-30-01	Rio San Diego at Jimenez *	1/40 to 12/56
	15-33-01	Rio San Rodrigo near El. Moral *	1/40 to 12/56
	15-34-01	Rio Escondido at Villa de Fuente *	1/40 to 12/56
	15-01-18	Rio Grande at Laredo	1/40 to 12/56
	15-36-02	Rio Salado at Los Tortillas *	9/53 to 12/56
	15-36-01	Rio Salado near Guerrero *	1/40 to 12/53
	15-01-42	Rio Grande at Chapeno	1/53 to 12/56
	15-38-01	R. Alamo at Cd. Mier *	1/40 to 12/56
	15-01-20	Rio Grande at Roma	1/40 to 12/52
	15-39-01	Rio San Juan near Santa Rosalia *	1/40 to 6/43
	15-39-03	Contributions from San Juan	1/46 to 12/52
	15-01-27	Rio Grande at Lower Brownsville	1/40 to 12/56
	15-39-02	San Juan below Marte Gomez Dam	7/43 to 12/45
16	COASTAL		
	16-06-01	San Bernard near Boling	5/54 to 12/56
	16-05-01	Mission R. at Refugio	1/40 to 12/56
17	RIO GRANDE DRAINAGE		
	17-01-01	N. Floodway near Sebastian	10/40 to 12/52

x - In front of station number discontinued (except Rio Grande)
* - Out of State Gage

APPENDIX D

PART II

GAGE FACTORS FOR WATERSHED SUB-BASINS

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR CANADIAN RIVER WATERSHED 01

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO Incl.	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
1A	2	1/40	9/57	01-01-00	0.586+	01-01-01	0.414+													0	0
1B	2	1/40	9/57	01-01-00	0.586-	01-01-01	0.586+													00	0
1C	2	1/40	9/44	01-01-02	1.121+	01-01-01	1.121-													NW	0
	3	10/44	9/57	01-01-02	0.849+	01-01-01	1.000-	01-01-03	0.151+											NW	0
1D	3	1/40	9/42	01-04-01	0.419+	01-03-02	1.217+	01-03-01	1.217-											NW	0
	4	10/42	7/45	01-04-01	0.255+	01-03-02	0.742+	01-03-01	0.742-	01-05-01	0.882+									NW	00
	5	8/45	9/57	01-04-01	0.653+	01-02-01	1.393+	01-03-02	0.344+	01-03-01	0.344-	01-05-01	0.882+							NW	0

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR RED RIVER WATERSHED 02

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD FROM	PERIOD TO (Incl.)	1. GAGE NO.	1. GAGE K	2. GAGE NO.	2. GAGE K	3. GAGE NO.	3. GAGE K	4. GAGE NO.	4. GAGE K	5. GAGE NO.	5. GAGE K	6. GAGE NO.	6. GAGE K	7. GAGE NO.	7. GAGE K	8. GAGE NO.	8. GAGE K	9 GAGE* NO.	9 GAGE* K	10 GAGE NO.	10 GAGE K	11 GAGE NO.	11 GAGE K	12 GAGE NO.	12 GAGE K	USE CODE	STOR ADJUST
2A	1	1/40	11/43	02-02-05	0.393+																							NW	O
	1	12/43	9/44	02-02-99	0.393+	Synthetic data for Headrick Adjusted for Storage in Altus Reservoir																						NW	O
	1	10/44	9/57	02-02-01	0.780+																							NW	O
2B	1	1/40	5/52	02-06-01	0.861+																							NW	O
	2	6/52	9/57	02-06-02	0.541+	02-06-01	0.459+																					NW	O
2C	7	1/40	6/47	02-01-06	0.813+	02-01-06	0.187+	02-02-05	0.187-	02-06-01	0.187-	02-01-02	0.187-	02-05-01	0.187-	02-07-01	0.187-											NW	O
	8	7/47	9/49	02-01-02	0.718+	02-01-06	0.282+	02-03-01	0.282-	02-06-01	0.282-	02-02-05	0.282-	02-05-01	0.282-	02-07-01	0.282-	02-04-03	0.282-									NW	O
	9	10/49	7/51	02-01-05	0.754+	02-01-06	0.246+	02-03-01	0.246-	02-06-01	0.246-	02-02-05	0.246-	02-05-01	0.246-	02-07-01	0.246-	02-04-01	0.246-	02-04-04	0.246-							NW	O
	9	8/51	12/52	02-01-01	0.694+	02-01-06	0.306+	02-03-01	0.306-	02-06-01	0.306-	02-02-05	0.306-	02-05-01	0.306-	02-07-01	0.306-	02-04-01	0.306-	02-04-04	0.306-							NW	O
	10	1/53	9/57	02-01-06*	0.813+	02-01-06	0.187+	02-06-05	0.187-	02-06-01	0.187-	02-07-02	0.187-	02-05-01	0.187-	02-03-01	0.187-	02-04-03	0.187-	02-04-04	0.187-	02-06-02A	0.187-					NW	O
2D	7	1/40	6/47	02-01-02	0.937+	02-01-06	0.063+	02-02-05	0.063-	02-01-06	0.063-	02-06-01	0.063-	02-05-01	0.063-	02-07-01	0.063-											OO	O
	8	7/47	9/49	02-01-01	0.753+	02-01-06	0.247+	02-02-05	0.247-	02-01-02	0.247-	02-06-01	0.247-	02-05-01	0.247-	02-07-01	0.247-	02-04-01	0.247-									OO	O
	9	10/49	7/51	02-01-01	0.720+	02-01-06	0.280+	02-02-05	0.280-	02-01-05	0.280-	02-06-01	0.280-	02-05-01	0.280-	02-07-01	0.280-	02-04-01	0.280-	02-04-04	0.280-							OO	O
	9	8/51	12/52	02-03-01	0.743+	02-01-06	0.257+	02-02-05	0.257-	02-01-01	0.257-	02-06-01	0.257-	02-05-01	0.257-	02-07-01	0.257-	02-04-01	0.257-	02-04-04	0.257-							OO	O
	10	1/53	9/57	02-03-01	0.650+	02-01-06	0.350+	02-01-06*	0.350-	02-06-01	0.350-	02-02-05	0.350-	02-07-02	0.350-	02-04-04	0.350-	02-04-01	0.350-	02-05-01	0.350-	02-06-02A	0.350-					OO	O
2E	7	1/40	6/47	02-05-01	0.960+	02-01-06	0.040+	02-02-05	0.040-	02-01-06	0.040-	02-06-01	0.040-	02-03-02	0.040-	02-07-01	0.040-											OO	O
	8	7/47	9/49	02-05-01	0.972+	02-01-06	0.028+	02-02-05	0.028-	02-01-02	0.028-	02-06-01	0.028-	02-01-01	0.028-	02-07-01	0.028-	02-04-01	0.028-									OO	O
	9	10/49	7/51	02-05-01	0.968+	02-01-06	0.032+	02-02-05	0.032-	02-03-01	0.032-	02-06-01	0.032-	02-01-05	0.032-	02-07-01	0.032-	02-04-01	0.032-	02-04-04	0.032-							OO	O
	9	8/51	12/52	02-05-01	0.970+	02-01-06	0.030+	02-02-05	0.030-	02-03-01	0.030-	02-06-01	0.030-	02-01-01	0.030-	02-07-01	0.030-	02-04-01	0.030-	02-04-04	0.030-							OO	O
	10	1/53	9/57	02-05-01	0.960+	02-01-06	0.040+	02-01-06*	0.040-	02-06-01	0.040-	02-02-05	0.040-	02-07-02	0.040-	02-04-04	0.040-	02-04-01	0.040-	02-03-01	0.040-	02-06-02A	0.040-					OO	O
2F	7	1/40	6/47	02-07-01	0.883+	02-01-06	0.117+	02-02-05	0.117+	02-01-06	0.117-	02-06-01	0.117-	02-05-01	0.117-	02-03-02	0.117-											O	X
	8	7/47	9/49	02-07-01	0.917+	02-01-06	0.083+	02-02-05	0.083-	02-01-02	0.083-	02-06-01	0.083-	02-05-01	0.083-	02-03-01	0.083-	02-04-01	0.083-									O	X
	9	10/49	7/51	02-07-01	0.907+	02-01-06	0.093+	02-02-05	0.093-	02-01-05	0.093-	02-06-01	0.093-	02-05-01	0.093-	02-03-01	0.093-	02-04-01	0.093-	02-04-04	0.093-							O	X
	9	8/51	12/52	02-07-01	0.914+	02-01-06	0.086+	02-02-05	0.086-	02-01-01	0.086-	02-06-01	0.086-	02-05-01	0.086-	02-03-01	0.086-	02-04-01	0.086-	02-04-04	0.086-							O	X
	10	1/53	9/57	02-07-02	0.948+	02-01-06	0.052+	02-01-06*	0.052-	02-06-01	0.052-	02-02-05	0.052-	02-05-01	0.052-	02-03-01	0.052-	02-04-01	0.052-	02-04-04	0.052-	02-06-02A	0.052-					O	X
2G	7	1/40	6/47	02-01-06	0.056+	02-05-01	0.056-	02-02-05	0.056-	02-01-06	0.056-	02-06-01	0.056-	02-03-02	0.056-	02-07-01	0.056-											NW	O
	8	7/47	9/49	02-01-06	0.040+	02-05-01	0.040-	02-03-01	0.040-	02-01-02	0.040-	02-06-01	0.040-	02-02-05	0.040-	02-07-01	0.040-	02-04-01	0.040-									NW	O
	9	10/49	7/51	02-01-06	0.045+	02-05-01	0.045-	02-03-01	0.045-	02-01-05	0.045-	02-06-01	0.045-	02-02-05	0.045-	02-07-01	0.045-	02-04-01	0.045-	02-04-04	0.045-							NW	O
	9	8/51	12/52	02-01-06	0.041+	02-05-01	0.041-	02-03-01	0.041-	02-01-01	0.041-	02-06-01	0.041-	02-02-05	0.041-	02-07-01	0.041-	02-04-01	0.041-	02-04-04	0.041-							NW	O

* Synthetic data period 1/53 to 9/57
A Synthetic data period 1/53 to 5/53

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR RED RIVER WATERSHED 02

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		9 GAGE		10 GAGE		11 GAGE		12 GAGE		USE CODE	STOR ADJUST
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
2g	10	1/53	9/57	02-01-08	0.056+	02-01-06*	0.056-	02-06-01	0.056-	02-02-05	0.056-	02-07-02	0.056-	02-04-04	0.056-	02-04-03	0.056-	02-03-01	0.056-	02-05-01	0.056-	02-06-02A	0.056-					NW	0
2Co	7	1/40	11/43	02-02-05	0.462+	02-06-01	0.006-	02-01-06	0.145+	02-01-06	0.145-	02-03-02	0.145-	02-05-01	0.145-	02-07-01	0.145-											0	0
	8	12/43	9/44	02-02-05	0.462+	02-06-01	0.006-	02-01-06	0.145+	02-01-06	0.145-	02-03-02	0.145-	02-05-01	0.145-	02-07-01	0.145-											0	0
	8	10/44	6/47	02-02-05	0.855+	02-06-01	0.006-	02-01-06	0.145+	02-01-06	0.145-	02-03-02	0.145-	02-05-01	0.145-	02-07-01	0.145-	02-02-01	0.780-									0	0
	9	7/47	9/49	02-02-05	0.896+	02-06-01	0.035+	02-01-06	0.102+	02-01-02	0.102-	02-07-01	0.102-	02-04-03	0.102-	02-06-01	0.780-	02-03-01	0.102-	02-05-01	0.102-							0	0
	10	10/49	7/51	02-02-05	0.885+	02-06-01	0.022+	02-01-06	0.115+	02-01-05	0.115-	02-04-04	0.115-	02-04-03	0.115-	02-07-01	0.115-	02-03-01	0.115-	02-05-01	0.115-	02-02-01	0.780-					0	0
	10	8/51	5/52	02-02-05	0.894+	02-06-01	0.031+	02-01-06	0.106+	02-01-01	0.106-	02-04-04	0.106-	02-04-03	0.106-	02-07-01	0.106-	02-03-01	0.106-	02-05-01	0.106-	02-02-01	0.780-					0	0
	11	6/52	12/52	02-02-05	0.894+	02-06-01	0.435+	02-01-06	0.106+	02-01-01	0.106-	02-04-04	0.106-	02-04-03	0.106-	02-07-01	0.106-	02-03-01	0.106-	02-05-01	0.106-	02-02-01	0.780-	02-06-02	0.541-			0	0
	12	1/53	9/57	02-02-05	0.856+	02-06-01	0.397+	02-01-06	0.144+	02-01-06*	0.144-	02-04-04	0.144-	02-04-03	0.144-	02-07-01	0.144-	02-03-01	0.144-	02-05-01	0.144-	02-02-01	0.780-	02-06-02	0.541-	02-06-02*	0.144-	0	0
2Go	7	1/40	11/43	02-01-08	0.392+	02-05-01	0.392-	02-02-05	0.392-	02-06-01	0.392-	02-01-06	0.392-	02-01-02	0.392-	02-07-01	0.392-											0	0
	8	12/43	9/44	02-01-08	0.392+	02-05-01	0.392-	02-02-05	0.392-	02-06-01	0.392-	02-01-06	0.392-	02-03-02	0.392-	02-07-01	0.392-											0	0
	8	10/44	6/47	02-01-08	0.392+	02-05-01	0.392-	02-02-05	0.392-	02-06-01	0.392-	02-01-06	0.392-	02-03-02	0.392-	02-07-01	0.392-											0	0
	8	7/47	9/49	02-01-08	0.218+	02-05-01	0.218-	02-02-05	0.218-	02-06-01	0.218-	02-03-01	0.218+	02-04-03	1.782+	02-07-01	0.218-	02-01-02	0.218-									0	0
	9	10/49	7/51	02-01-08	0.189+	02-05-01	0.189-	02-02-05	0.189-	02-06-01	0.189-	02-03-01	0.189-	02-04-03	1.811+	02-07-01	0.189-	02-01-05	0.189-	02-04-04	1.811+							0	0
	9	8/51	5/52	02-01-08	0.174+	02-05-01	0.174-	02-02-05	0.174-	02-06-01	0.174-	02-03-01	0.174-	02-04-03	1.826+	02-07-01	0.174-	02-04-04	1.826+	02-01-01	0.174-							0	0
	9	6/52	12/52	02-01-08	0.174+	02-05-01	0.174-	02-02-05	0.174-	02-06-01	0.174-	02-03-01	0.174-	02-04-03	1.826+	02-07-01	0.174-	02-04-04	1.826+	02-01-01	0.174-							0	0
	10	1/53	9/57	02-01-08	0.171+	02-05-01	0.171-	02-02-05	0.171-	02-06-01	0.171-	02-03-01	0.171-	02-04-03	1.829+	02-07-02	0.171-	02-04-04	1.829+	02-01-06*	0.171-	02-06-02A	1.829+					0	0
2g	3	1/40	9/57	02-01-10	0.308+	02-01-08	0.308-	02-09-13	0.308-																			—	X
2Go	4	1/40	9/57	02-01-10	0.692+	02-01-08	0.692-	02-09-13	0.308+	02-09-01	0.558-																	—	X
2I	5	1/40	9/42	02-01-12	0.292+	02-01-10	0.292-	02-10-01	0.292-	02-11-01	0.292-	02-12-01	0.292-															0	0
	6	10/42	9/50	02-01-12	0.322+	02-01-10	0.322-	02-10-01	0.322-	02-11-01	0.322-	02-11-03	0.322-	02-12-01	0.322-													0	0
	5	10/50	9/53	02-01-12	0.301+	02-01-10	0.301-	02-11-01	0.301-	02-11-03	0.301-	02-12-01	0.301-															0	0
	6	10/53	9/57	02-01-12	0.678+	02-01-10	0.678-	02-10-01	0.322+	02-11-01	0.322-	02-11-03	0.322-	02-12-01	0.322-													0	0
2I2o	5	1/40	9/42	02-01-12	0.708+	02-01-10	0.708-	02-10-01	0.292+	02-11-01	0.292+	02-12-01	0.292+															0	0
	6	10/42	9/50	02-01-12	0.678+	02-01-10	0.678-	02-10-01	0.322+	02-11-01	0.322+	02-11-03	0.322+	02-12-01	0.322+													0	0
	5	10/50	9/53	02-01-12	0.699+	02-01-10	0.699-	02-11-01	0.301+	02-11-03	0.301+	02-12-01	0.301+															0	0
	6	10/53	9/57	02-01-12	0.678+	02-01-10	0.678-	02-10-01	0.322+	02-11-01	0.322+	02-11-03	0.322+	02-12-01	0.322+													0	0
2Y	1	1/40	9/57	02-02-01	0.558+																								

* Synthetic data 1/53 to 9/57
A Synthetic data 1/53 to 5/53

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR SULPHUR RIVER & CYPRESS CREEK WATERSHEDS 03 & 04

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
3	1	1/40	9/54	03-01-02	1.283+																
	2	10/54	9/57	03-01-14	0.595+	03-01-13	0.595-	04-02-05	0.595-	03-02-01	0.405+	03-01-01	0.405+	03-03-01	0.405+					0	X
4	1	1/40	8/42	04-01-02	3.308+															NC	X
	3	9/42	9/57	04-02-05	1.02+	04-01-02	0.02-	04-02-04	1.02-											NC	X

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR SABINE RIVER WATERSHED 05

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
5A	1	1/40	9/57	05-01-02	1.0+															00	X
5B	2	1/40	9/57	05-01-03	1.0+	05-01-02	1.0-													00	0
5C	2	1/40	9/57	05-01-06	0.966+	05-01-03	0.966-													0	X
5D	2	1/40	9/57	05-01-07	0.450+	05-01-06	0.450-													00	0
5DL	2	1/40	9/57	05-01-07	0.590+	05-01-06	0.590-													0	0
5E	2	1/40	9/57	05-01-10	0.523+	05-01-07	0.523-													00	0
5EL	2	1/40	9/57	05-01-10	0.477+	05-01-07	0.477-													0	0
5F	2	1/40	9/57	05-01-10	0.286+	05-01-09	0.286-													—	0
5FL	2	1/40	9/57	05-01-10	0.097+	05-01-09	0.097-													—	0

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR NECHES RIVER WATERSHED 06

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
6A	2	1/40	1/44	06-01-02	0.499+	06-01-04	0.501+													00	X
	1	2/44	9/57	06-01-03	1.0+															00	X
6B	3	1/40	1/44	06-01-05	1.0+	06-01-02	0.499-	06-01-04	0.501-											0	0
	2	2/44	9/57	06-01-05	1.0+	06-01-03	1.0-													0	0
6C	1	1/40	9/57	06-03-02	1.0+															0	X
6D	2	1/40	3/51	06-03-03	1.032+	06-03-02	1.032-													00	X
	3	4/51	9/51	06-01-07	0.690+	06-01-05	0.690-	06-03-02	0.690-											00	X
	2	10/51	9/57	06-03-04	1.511+	06-03-02	1.511-													00	X
6E	4	1/40	3/51	06-01-07	1.0+	06-01-05	1.0-	06-03-03	1.032-	06-03-02	0.032+									00	X
	3	4/51	9/51	06-01-07	0.310+	06-01-05	0.310-	06-03-02	0.310-											00	X
	4	10/51	9/57	06-01-07	1.0+	06-01-05	1.0-	06-03-04	1.511-	06-03-02	0.511+									00	X
6F	1	1/40	9/57	06-08-01	1.0+															0	0
6G	1	1/40	9/57	06-08-01	1.372+															—	0

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR TRINITY RIVER WATERSHED 07

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO (Inc)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
7A	1	1/40	9/57	07-01-04	1.0+															—	X
7B	1	1/40	3/52	07-08-01	0.971+															O	X
	2	4/52	9/55	07-08-01	1.0+	07-09-01	0.295-													O	X
	1	10/55	9/57	07-08-01	1.0+															O	X
7C	3	1/40	6/52	07-01-06	1.0+	07-01-04	1.0-	07-08-01	0.971-											—	X
	4	7/52	9/55	07-01-06	1.0+	07-08-01	1.0-	07-09-01	0.295+	07-01-04	1.0-									—	X
	3	10/55	9/57	07-01-06	1.0+	07-08-01	1.0-	07-01-04	1.0-											—	X
7D	3	1/40	5/49	07-12-03	0.610+	07-01-07	0.39+	07-01-06	0.39-											O	X
	3	6/49	9/57	07-12-04	0.934+	07-01-07	0.066+	07-01-06	0.066-											O	X
7E	4	1/40	9/57	07-15-02	1.165+	07-16-01	1.165+													O	X
7F	6	1/40	5/49	07-01-08	1.0+	07-01-06	0.610-	07-12-03	0.610-	07-01-07	0.390-	07-16-01	1.165-	07-15-02	1.165-					O	O
	6	6/49	9/57	07-01-08	1.0+	07-01-06	0.934-	07-12-04	0.934-	07-01-07	0.066-	07-15-02	1.165-	07-16-01	1.165-					O	O
7G	2	1/40	9/57	07-01-10	1.0+	07-01-08	1.0-													NC	O
7H	2	1/40	9/57	07-01-12	1.0+	07-01-10	1.0-													OO	O
7I	2	1/40	9/57	07-01-12	0.882+	07-01-11	0.882-													—	O

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR SAN JACINTO RIVER WATERSHED 08

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO 0(Incl.	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
8A	3	1/40	12/43	08-04-01	0.075+	08-01-03	0.925+	08-01-02	0.925-											00	0
	5	1/44	9/54	08-04-01	0.115+	08-01-03	0.885+	08-01-02	0.885-	08-05-01	0.115+	08-06-01	0.115+							00	0
	7	10/54	3/57	08-04-01	0.490+	08-01-03	0.510+	08-01-01	0.510-	08-05-01	0.490+	08-06-01	0.490+	08-02-01	0.510-	08-03-01	0.510-			00	0
8B	3	1/40	12/43	08-04-01	0.069-	08-01-03	0.069+	08-01-02	0.931+											0	0
	5	1/44	9/54	08-04-01	0.106-	08-01-03	0.106+	08-01-02	0.894+	08-05-01	0.106-	08-06-01	0.106-							0	0
	7	10/54	3/57	08-04-01	0.490-	08-01-03	0.490+	08-01-01	0.510+	08-05-01	0.490-	08-06-01	0.490-	08-02-01	0.510+	08-03-01	0.510+			0	0
8C				See Coastal W.B. Computations																—	X
8D	1	1/40	7/45	08-07-02	0.856+															0	0
	1	8/45	9/57	08-07-01	1.0 +															0	0
8E	3	1/40	7/45	08-07-02	0.416+	08-08-01	2.890 +	08-09-01	2.890+											0	0
	4	8/45	9/52	08-07-02	2.890+	08-08-01	2.890+	08-09-01	2.890+	08-07-01	2.890-									0	0
	7	10/52	12/56	08-07-02	1.826+	08-08-01	1.826+	08-09-01	1.826+	08-07-01	1.826-	08-10-01	1.826+	08-11-01	1.826+	08-11-02	1.826+			0	0

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR BRAZOS RIVER WATERSHED 09

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
9A	3	1/40	9/57	09-02-02	0.876+	09-01-04	0.124+	09-01-03	0.124-											00	0
9B	3	1/40	9/57	09-02-02	0.840+	09-01-04	0.160+	09-01-03	0.160-											00	0
9C	1	1/40	9/57	09-04-01	1.0+															0	X
9D	4	1/40	9/51	09-01-06	0.077+	09-01-04	0.077-	09-04-04	0.923+	09-04-01	1.0-									0	X
	4	10/51	9/57	09-01-06	0.116+	09-01-04	0.116-	09-04-02	0.884+	09-04-01	1.0-									0	X
9E	5	1/40	9/51	09-01-06	0.923+	09-02-02	1.716-	09-01-04	0.207-	09-01-03	0.284+	09-04-04	0.923-							NC	0
	5	10/51	9/57	09-01-06	0.884+	09-02-02	1.716-	09-01-04	0.168-	09-01-03	0.284+	09-04-02	0.884-							NC	0
9F	2	1/40	9/57	09-01-10	1.0+	09-01-06	1.0-													0	X
9G	3	1/40	9/55	09-10-01	1.0+	09-01-12	0.244+	09-01-11	0.244-											NC	X
	3	10/55	9/57	09-10-01	1.0+	09-01-12	0.241+	09-01-11	0.241-											NC	X
9H	4	1/40	9/55	09-01-12	0.756+	09-01-10	1.0-	09-10-01	0.756-	09-01-11	0.244+									NC	X
	4	10/55	9/57	09-01-12	0.759	09-01-10	1.0-	09-10-01	0.759-	09-01-11	0.241+									NC	X
9I	1	1/40	9/57	09-13-04	1.0+															NC	X
9J	4	1/40	9/57	09-14-02	0.829+	09-13-04	1.0-	09-01-15	0.171+	09-01-12	0.171-									NC	0
9K	4	1/40	12/50	09-21-01	0.947+	09-01-17	0.053+	09-01-15	0.053-	09-22-01	0.053-									0	0
	4	1/51	9/57	09-21-01	0.933+	09-01-17	0.067+	09-01-15	0.067-	09-22-02	0.067-									0	0
9L	4	1/40	12/50	09-22-01	0.474+	09-01-17	0.526+	09-21-01	0.526-	09-01-15	0.526-									NC	0
	4	1/51	9/57	09-22-02	0.865+	09-01-17	0.135+	09-21-01	0.135-	09-01-15	0.135-									NC	0
9M	6	1/40	12/50	09-01-17	0.421+	09-01-15	0.408+	09-01-12	0.829-	09-22-01	0.421-	09-21-01	0.421-	09-14-02	0.829-					NC	0
	6	1/51	9/57	09-01-17	0.798+	09-01-15	0.031+	09-01-12	0.829-	09-14-02	0.829-	09-22-02	0.798-	09-21-01	0.798-					NC	0
9N	2	1/40	5/49	09-01-20	1.0+	09-01-17	1.0-			Plus computed Runoff for 620 S.M. (Coastal W.S. Computations)										-	0
	2	6/49	9/57	09-01-21	1.0+	09-01-17	1.0-			Plus computed Runoff for 540 S.M. (Coastal W.S. Computations)										-	0

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR COLORADO RIVER WATERSHED 10

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO Incl.	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
10A	1	1/40	4/46	10-01-03	0.358+															O	X
	1	5/46	9/57	10-01-02	1.0 +															O	X
10B	2	1/40	4/46	10-01-06	1.0 +	10-01-03	0.358-													NC	X
	2	5/46	9/57	10-01-06	1.0 +	10-01-02	1.0 -													NC	X
10C	1	1/40	9/57	10-10-01	1.0 +															NC	X
10D	5	1/40	9/57	10-10-02	0.946+	10-01-09	0.054+	10-01-06	0.054-	10-16-01	0.054-	10-18-03	0.054-							NC	O
10E	5	1/40	9/57	10-16-01	0.836+	10-01-09	0.164+	10-01-06	0.164-	10-10-02	0.164-	10-18-03	0.164-							NC	O
10F	5	1/40	9/57	10-18-03	0.971+	10-01-09	0.029+	10-01-06	0.029-	10-10-02	0.029-	10-16-01	0.029-							NC	O
10G	5	1/40	9/57	10-01-09	0.753+	10-01-06	0.753-	10-10-02	0.753-	10-16-01	0.753-	10-18-03	0.753-							NC	O
10H	1	1/40	9/57	10-21-03	1.061+															NC	O
10I	1	1/40	9/57	10-22-02	1.360+															NC	O
10J	4	1/40	9/57	10-01-13	1.0 +	10-21-03	1.061-	10-22-02	1.360-	10-01-09	1.0 -									O	X
10K	2	1/40	9/57	10-01-16	1.0 +	10-01-13	1.0 -													NC	O
10L	2	1/40	3/48	10-01-16	1.0 -	10-01-18	1.0 +	Plus computed Runoff for 383 S.M. (Coastal W.S. Computations)												—	O
	2	4/48	9/57	10-01-16	1.0 -	10-01-19	1.0 +	Plus computed Runoff for 113 S.M. (Coastal W.S. Computations)												—	O

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR LAVACA RIVER & GUADALUPE RIVER WATERSHEDS 11 & 12

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
11A	1	1/40	9/57	11-02-01	1.276+															00	0
11B	2	1/40	9/57	11-01-02	1.209+	11-01-01	0.209-													00_1	0
12A	1	1/40	9/57	12-01-05	1.0+															MC	X
12B	5	1/40	9/57	12-06-02	0.931+	12-04-02	0.931+	12-01-10	0.069+	12-01-05	0.069-	12-03-01	0.069-							MC	0
12C	5	1/40	9/57	12-03-01	0.800+	12-01-10	0.200+	12-01-05	0.200-	12-06-02	0.200-	12-04-02	0.200-							MC	0
12D	5	1/40	9/57	12-01-10	0.629+	12-01-05	0.629-	12-03-01	0.629-	12-06-02	0.629-	12-04- 02	0.629-							MC	0
12E	5	1/40	9/57	12-01-10	0.102+	12-01-05	0.102-	12-03-01	0.102-	12-06-02	0.102-	12-04-02	0.102-							SC	0
12F	1	1/40	9/54	12-09-02	1.696+															—	0
	1	10/54	9/57	12-09-01	2.389+															—	0

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR SAN ANTONIO RIVER WATERSHED 13

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
13A	1	1/40	9/57	13-03-02*	1.0 +															00	0
13B	2	1/40	9/57	13-03-03	1.0 +	13-03-02*	1.0 -													00	0
13C	2	1/40	9/57	13-01-03	1.0 +	13-03-03	1.0 -													SC	0
13D	1	1/40	9/57	13-04-05	1.0 +															0	0
13E	4	1/40	9/57	13-01-04	1.0 +	13-01-03	1.0 -	13-04-05	1.0 -	16-05-01	0.465+									SC	0

* Use synthetic data 1/40 to 12/52.

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR NUECES RIVER WATERSHED 14

Date November 26, 1958

IDENT.	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		USE CODE	STOR. ADJUST.
		FROM	TO Incl.	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
14A	1	1/40	9/57	14-02-01	1.0 +															O	O
14B	1	1/40	9/57	14-01-01	1.0 +															SC	O
14C	3	1/40	9/57	14-01-03	1.0 +	14-02-01	1.0 -	14-01-01	1.0 -											O	O
14D	2	1/40	9/57	14-01-07	1.0 +	14-01-03	1.0 -													O O	O
14E	1	1/40	9/57	14-03-01	1.0 +															O O	O
14F	2	1/40	9/57	14-03-03	1.0 +	14-03-01	1.0 -													O O	O
14G	5	1/40	11/42	14-07-01	0.026-	14-01-07	0.026-	14-03-05	0.974+	14-01-09	0.026+	14-03-03	1.000-							O O	O
	5	12/42	9/57	14-03-05	0.870+	14-03-03	1.0 -	14-07-01	0.130-	14-01-09	0.130+	14-01-08	0.130-							O O	O
14H	4	1/40	11/42	14-07-01	0.931+	14-01-07	0.069-	14-03-05	0.069-	14-01-09	0.069+									O	O
	4	12/42	9/57	14-07-01	0.662+	14-01-09	0.338+	14-03-05	0.338-	14-01-08	0.338-									O	O
14I	4	1/40	11/42	14-07-01	0.905-	14-01-07	0.905-	14-03-05	0.905-	14-01-09	0.905+									SC	O
	4	12/42	9/57	14-01-09	0.532+	14-01-07	1.0 -	14-03-05	0.532-	14-01-08	0.468+	14-07-01	0.532-							SC	O
14J		1/40	12/56	14-01-10	1.0 +	14-01-09	1.0 -													—	X
14K	1	1/40	12/56	16-05-01	0.457+															—	O

WATER AVAILABILITY STUDIES
FOR BOARD OF WATER ENGINEERS
GAGE FACTORS FOR RIO GRANDE WATERSHED 15

Date November 26, 1958

IDENT	NO. OF GAGES	PERIOD		1. GAGE		2. GAGE		3. GAGE		4. GAGE		5. GAGE		6. GAGE		7. GAGE		8. GAGE		9. GAGE		10. GAGE		11. GAGE		12. GAGE		USE CODE	STOR ADJUST.
		FROM	TO (Incl.)	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K	NO.	K		
15A	1	1/40	9/57	15-01-01	1.0 +																							O	O
15B	2	1/40	9/57	15-01-08	0.484+	15-01-01	0.484-																					OO	O
15C	2	1/40	9/57	15-06-00	1.0 +	15-07-01	0.311+																					O	O
15D	4	1/40	9/57	15-06-14	1.0 +	15-06-03	1.0 -	15-07-01	0.839+	15-08-01*	2.086+																	OO	O
15E	2	1/40	9/54	15-06-16	0.871+	15-06-14	0.871-																					UE	O
	2	10/54	9/57	15-06-17	1.0 +	15-06-14	1.0 -																					UE	O
15F	1	1/40	7/54	15-24-09	1.089+																							O	O
	1	8/54	9/57	15-24-10	1.0 +																							O	O
15G	2	1/40	8/54	15-01-16	0.438+	15-26-01	0.438-	15-01-08	0.438+	15-02-02	0.438+	15-03-01	0.576+	15-04-01	0.576+	15-23-01	0.576+	15-06-16	0.438-	15-24-09	0.438+							UE	O
	8	9/54	12/56	15-01-47	0.438+	15-06-17	0.438-	15-01-08	0.438-	15-02-02	0.438-	15-03-01	0.560+	15-04-01	0.560+	15-23-01	0.560+	15-24-02	0.438-									UE	O
15H	8	1/40	8/54	15-01-18	0.455+	15-01-16	0.455-	15-26-01	0.581+	15-27-01	0.545+	15-29-01	0.545+	15-30-01	0.455-	15-33-01	0.455-	15-34-01	0.455-									LE	O
	8	9/54	9/57	15-01-18	0.455+	15-01-47	0.455-	15-26-01	0.581+	15-27-01	0.545+	15-29-01	0.545+	15-30-01	0.456-	15-33-01	0.455-	15-34-01	0.455-									LE	O
15I	4	1/40	12/52	15-01-20	0.555+	15-38-01	0.555-	15-36-01	0.555-	15-01-18	0.555-																	—	X
	3	1/53	8/53	15-01-48	0.598+	15-36-01	0.598-	15-01-18	0.598-																			—	X
	3	9/53	9/57	15-01-48	0.555+	15-36-02	0.555-	15-01-18	0.555-																			—	X
15J	4	1/40	6/43	15-01-27	0.307+	15-39-01	0.307-	15-01-20	0.307-	15-38-01	0.050+																	LE	O
	4	7/43	12/45	15-01-27	0.501+	15-39-02	0.501-	15-01-20	0.501-	15-38-01	0.050+																	LE	O
	4	1/46	12/52	15-01-27	0.543+	15-39-03	0.543-	15-01-20	0.543-	15-38-01	0.050+																	LE	O
	2	1/53	9/57	15-01-27	0.073+	15-01-48	0.073-																						

* Synthetic data period 1/41 to 9/43

APPENDIX E

DIAGRAMS AND RECORD PERIOD

FOR STREAM GAGES

APPENDIX E

DIAGRAMS AND RECORD PERIOD

FOR STREAM GAGES

LEGEND FOR GAGE CHARTS

Amount of Minimum Annual Runoff — (Number) Before 1940; (Number) After 1940

Minimum Runoff Year — Calendar Year; Water Year

Gage Not Used

Gage Used Over Part of Period 1940-1957

Gage Used from 1940-1957

CHART E-2

NO. 05 SABINE RIVER VALLEY - STREAMFLOW RECORDS

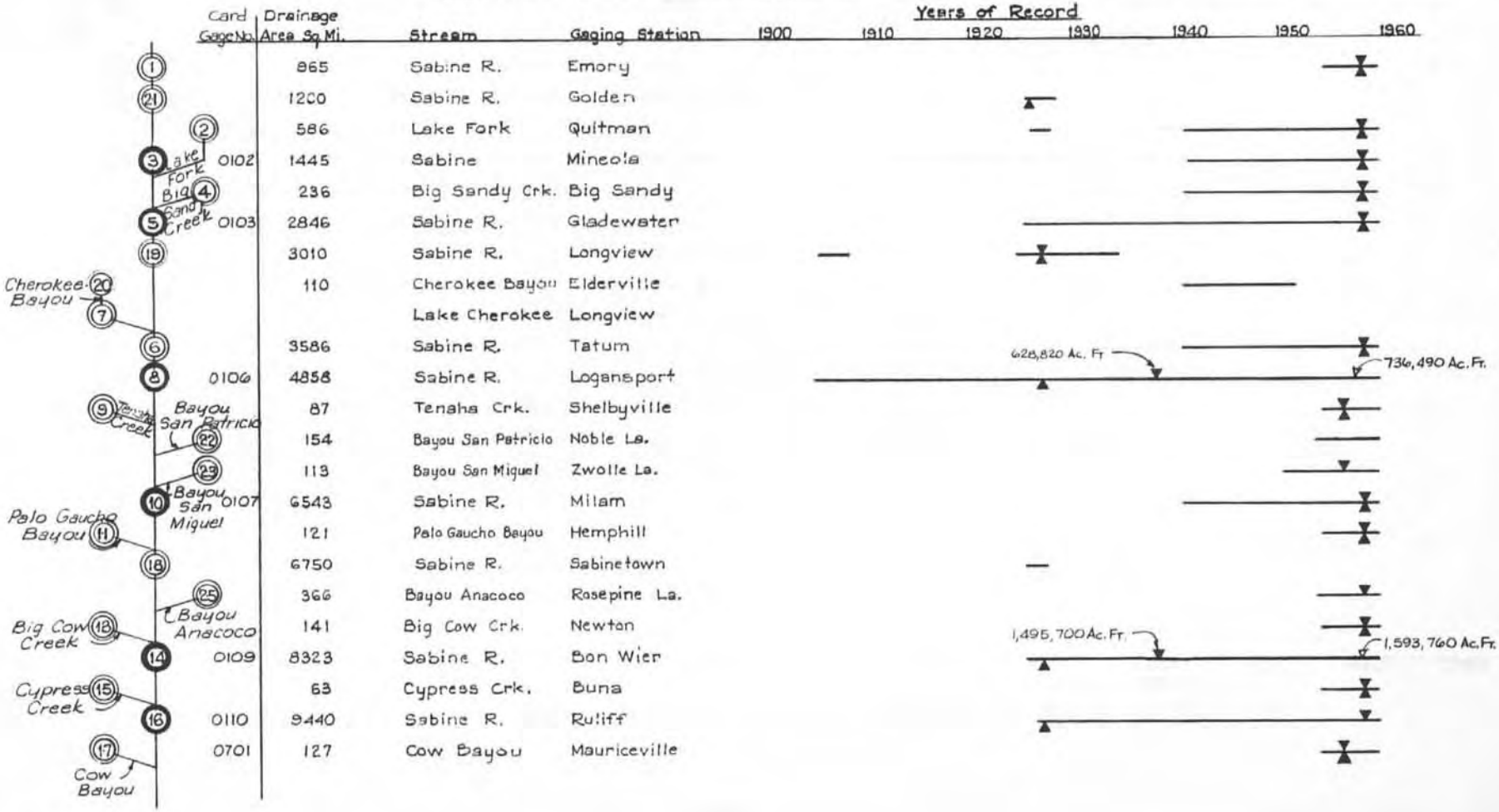
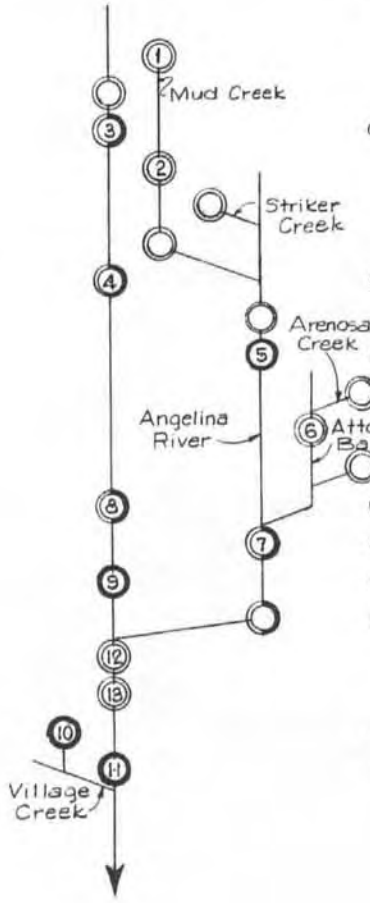


CHART E-3

NO. 06 NECHES RIVER VALLEY - STREAMFLOW RECORDS



Card Gage No.	Drainage Area Sq.Mi.	Stream	Gaging Station
	69	Lake Tyler	Whitehouse
	851	Neches R.	Reese
0102	1129	Neches R.	Neches
	382	Mud Crk.	Jacksonville
	148	Striker Crk.	Summerfield
	481	Mud Crk.	Ponta
0103	1903	Neches R.	Alto
	1274	Angelina R.	Alto
0302	1630	Angelina R.	Lufkin
	76	Arenosa Crk.	San Augustine
	502	Attoyac Bayou	Chireno
		Ayish Bayou	San Augustine
0104	2670	Neches R.	Diboll
0304	2880	Angelina R.	Zavalla
0105	3538	Neches R.	Rockland
0303	3435	Angelina R.	Horger
	7407	Neches R.	Dam B Res.
	7407	Neches R.	Town Bluff
0801	837	Village Crk.	Kountze
0107	7908	Neches R.	Evadale

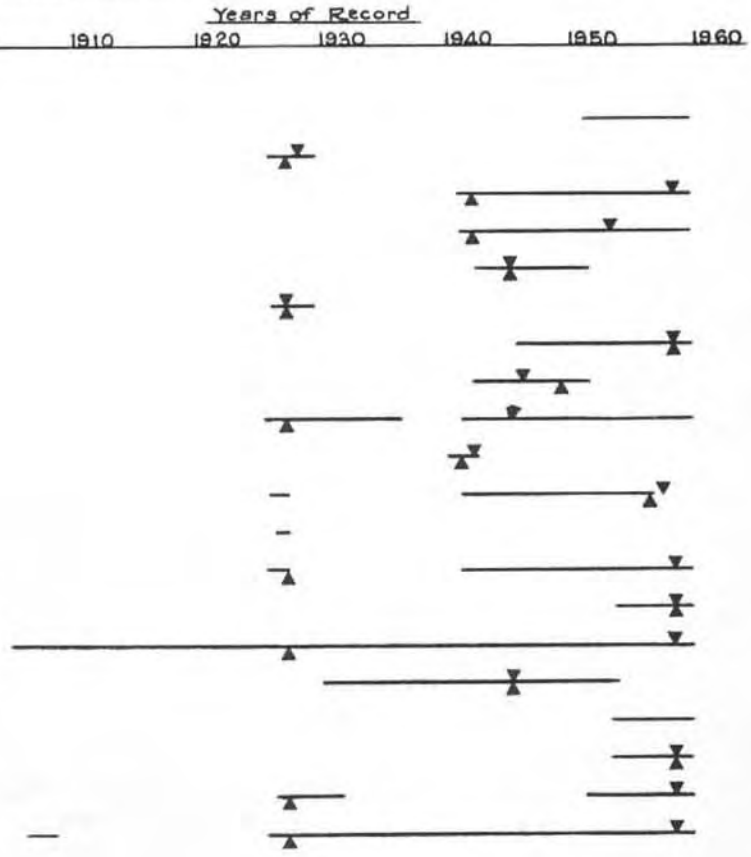
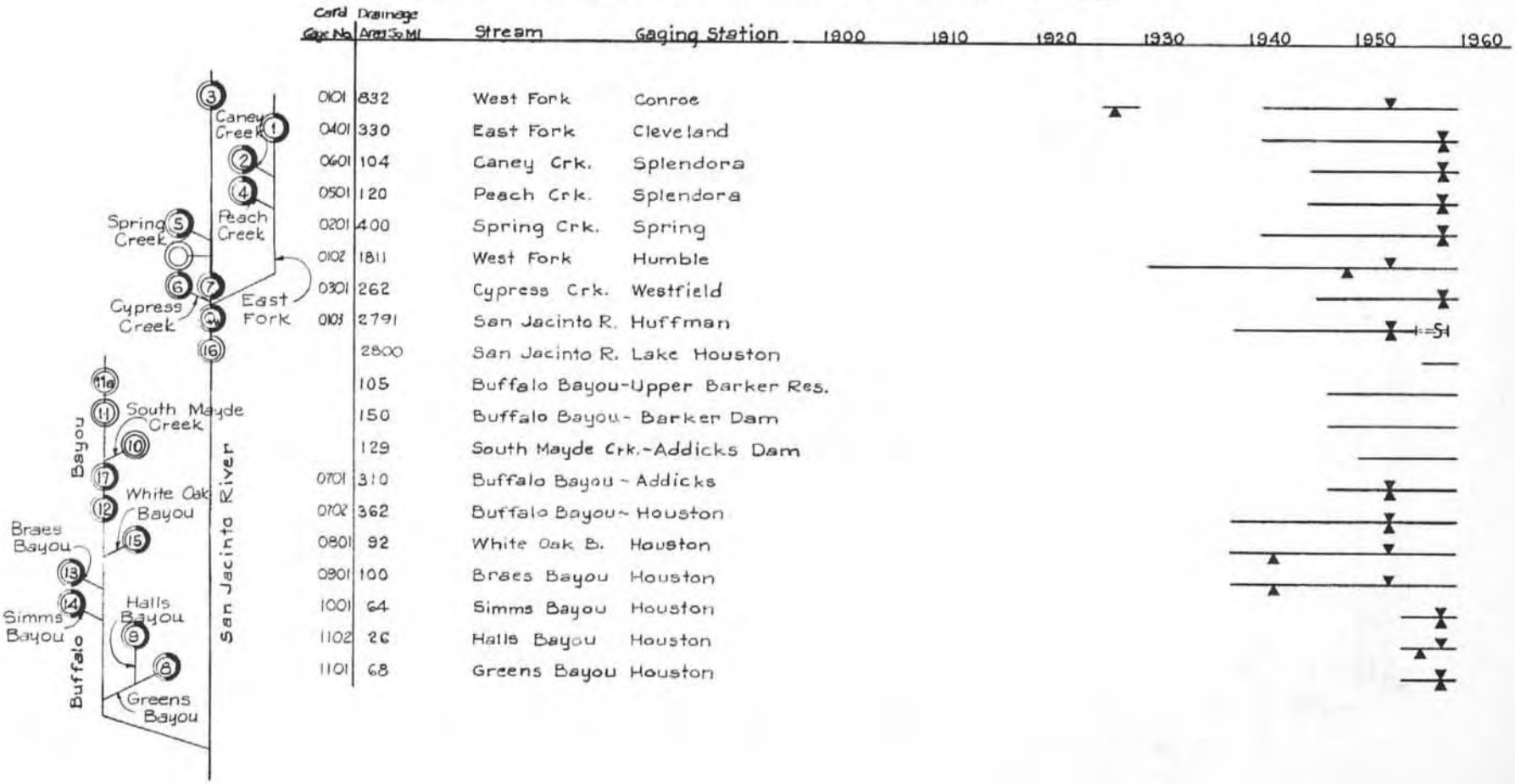


CHART E-5

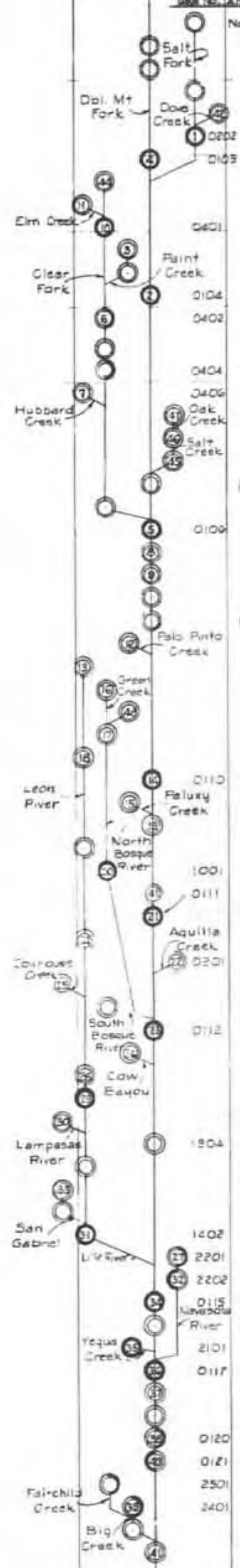
NO. 08 SAN JACINTO RIVER VALLEY - STREAMFLOW RECORDS



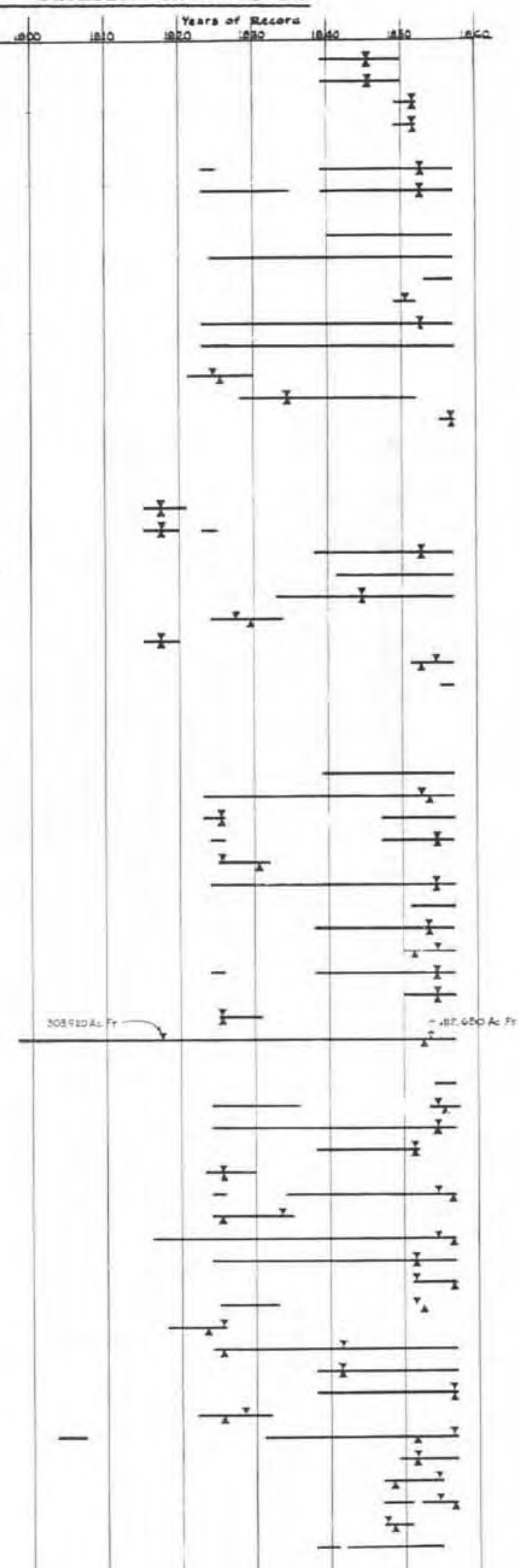
Card Gage No.	Drainage Area Sq Mi	Stream	Gaging Station
0101	832	West Fork	Conroe
0401	330	East Fork	Cleveland
0601	104	Caney Crk.	Splendora
0501	120	Peach Crk.	Splendora
0201	400	Spring Crk.	Spring
0102	1811	West Fork	Humble
0301	262	Cypress Crk.	Westfield
0103	2791	San Jacinto R.	Huffman
	2800	San Jacinto R.	Lake Houston
	105	Buffalo Bayou-Upper Barker Res.	
	150	Buffalo Bayou- Barker Dam	
	129	South Mayde Crk.-Addicks Dam	
0701	310	Buffalo Bayou - Addicks	
0702	362	Buffalo Bayou- Houston	
0801	92	White Oak B.	Houston
0901	100	Braes Bayou	Houston
1001	64	Simms Bayou	Houston
1102	26	Halls Bayou	Houston
1101	68	Greens Bayou	Houston

CHART E-6

NO. 09 BRAZOS RIVER VALLEY - STREAMFLOW RECORDS



Card Gage No.	* Drainage Area Sq. Mi.	Stream	Gaging Sta.
	Non-contr.	White River	Plainview
	do	Dbl. Mt. Fork	Lubbock
	1269	Dbl. Mt. Fork	Rotan
	1490	Salt Fork	Peacock
		Dove Creek	Aspermont
0202	2064	Salt Fork	Aspermont
0103	1509	Dbl. Mt. Fork	Aspermont
		Sweetwater Crk.	Sweetwater
	478	Elm Crk	Nugent
0401	2220	Clear Fork	Nugent
	360	Paint Crk	L. Stamford-Haskell
	679	Paint Crk	Haskell
0104	5250	Brazos	Seymour
0402	3974	Clear Fork	Fort Griffin
	4820	Clear Fork	Crystal Falls
0404	5658	Clear Fork	Crystal Falls
0406	1087	Hubbard Crk	Breckenridge
		Oak Crk	Graham
		Salt Crk	New Castle
		Salt Crk	Olney
	(12900)	Brazos	Graham
	5650	Clear Fork	Elliasville
0109	12360	Brazos	South Bend
	13310	Brazos	Possum Kingdom Dam
	13320	Brazos	Palo Pinto
	13860	Brazos	Mineral Wells
	(20200)	Brazos	Brazos
	567	Palo Pinto Cr	Santo
	293	Leon R.	Eastland
		Green Crk	Dublin
		N. Bosque	Stephenville
		Green Crk	Alexandria
	1242	Leon R.	Hasse
0110	15600	Brazos	Glen Rose
	399	Paluxy Crk.	Glen Rose
	276	Nolands R.	Blum
	1900	Leon R.	Hamilton
1001	986	N. Bosque R.	Clifton
0111	16930	Brazos	Whitney Res.
	16950	Brazos	Whitney
	2313	Leon R.	Gatesville
0201	309	Aquilla Cr.	Aquilla
	475	Cowhouse Cr.	Pidcoke
	388	So. Bosque R.	Speegleville
0112	19260	Brazos	Waco
		Cow Bayou	Mooreville
	3533	Leon R.	Belton Res.
	3547	Leon R.	Belton
	1242	Lampasas R.	Youngsport
1304	3547	Brazos	Marlin
	19910	Little R.	Little River
	415	San Gabriel	Georgetown
	602	San Gabriel	Circleville
1402	7034	Little R.	Cameron
2201	949	Navasota R.	Easterly
2202	1439	Navasota R.	Bryan
0115	29190	Brazos	Bryan
	(27800)	Brazos	College Station
2101	990	Yegua Crk.	Somerville
0117	33430	Brazos	Hempstead
	34450	Brazos	San Felipe
	34760	Brazos	Rosenburg
0120	34810	Brazos	Richmond
0121	34890	Brazos	Juliff
2501	25	Fairchild Crk.	Needville
2401	38	Big Creek	Needville
	112	Big Creek	Guy
	35300	Brazos	East Columbia
		Gulf of Mexico	Brazosport

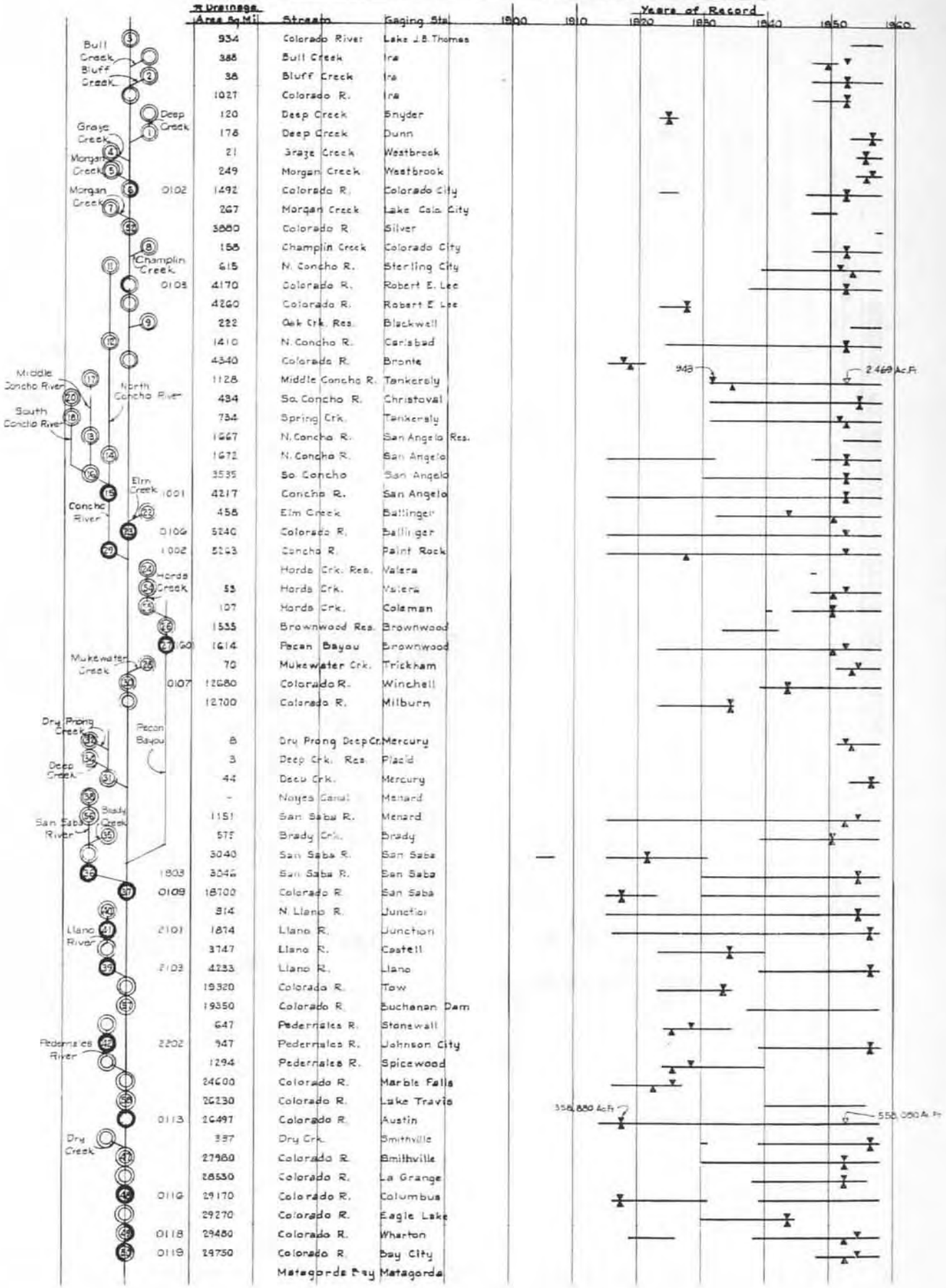


* Drainage areas adjusted to net contributing areas as follows:

Salt Fork	- 2770 Sq. Mi. above Aspermont
Dbl. Mountain Fork	- 6470 Sq. Mi. above Rotan
Non-contr. Total	- 9240 Sq. Mi.

CHART E-7

NO. 10 COLORADO RIVER VALLEY - STREAMFLOW RECORDS

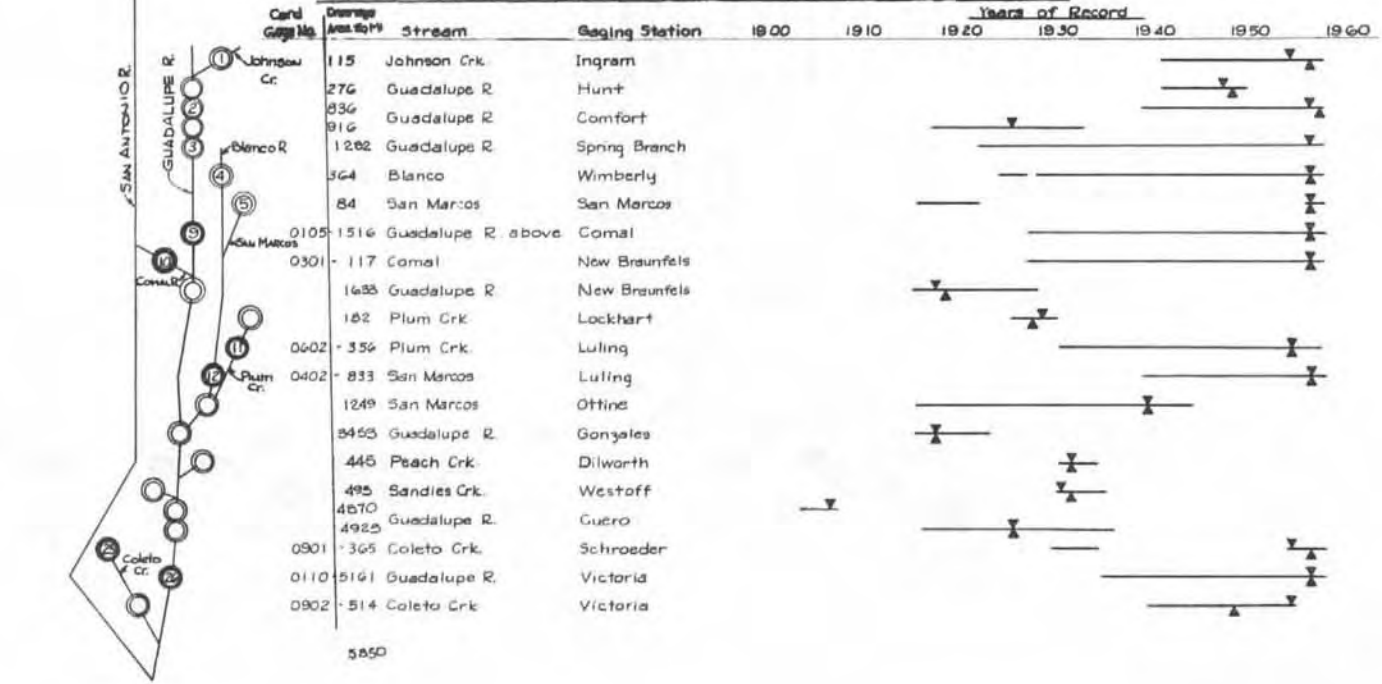


NO. 13 SAN ANTONIO RIVER VALLEY - STREAMFLOW RECORDS

Card Gage No.	Drainage Area Sq. Mi	Stream	Gaging Station
	412	Medina R.	Pipe Crk.
	587	Medina R.	Medina Res.
	623	Medina R.	Medina Canal
0502	623	Medina R.	Rio Medina
	198	Cibolo Crk.	Bulverde
	251	Cibolo Crk.	Bracken
	42	San Antonio R.	San Antonio
	280	Cibolo Crk.	Selma
0303	1225	Medina R.	San Antonio
	77	Calaveras Crk.	Elmendorf
	1786	San Antonio R.	Calaveras
	665	Cibolo Crk	Sutherland Springs
0103	2071	San Antonio R.	Falls City
0405	881	Cibolo Crk.	Falls City
	82	Escondido Crk.	Kenedy
0104	3918	San Antonio R.	Goliad

12 GUADALUPE RIVER VALLEY - STREAMFLOW RECORDS

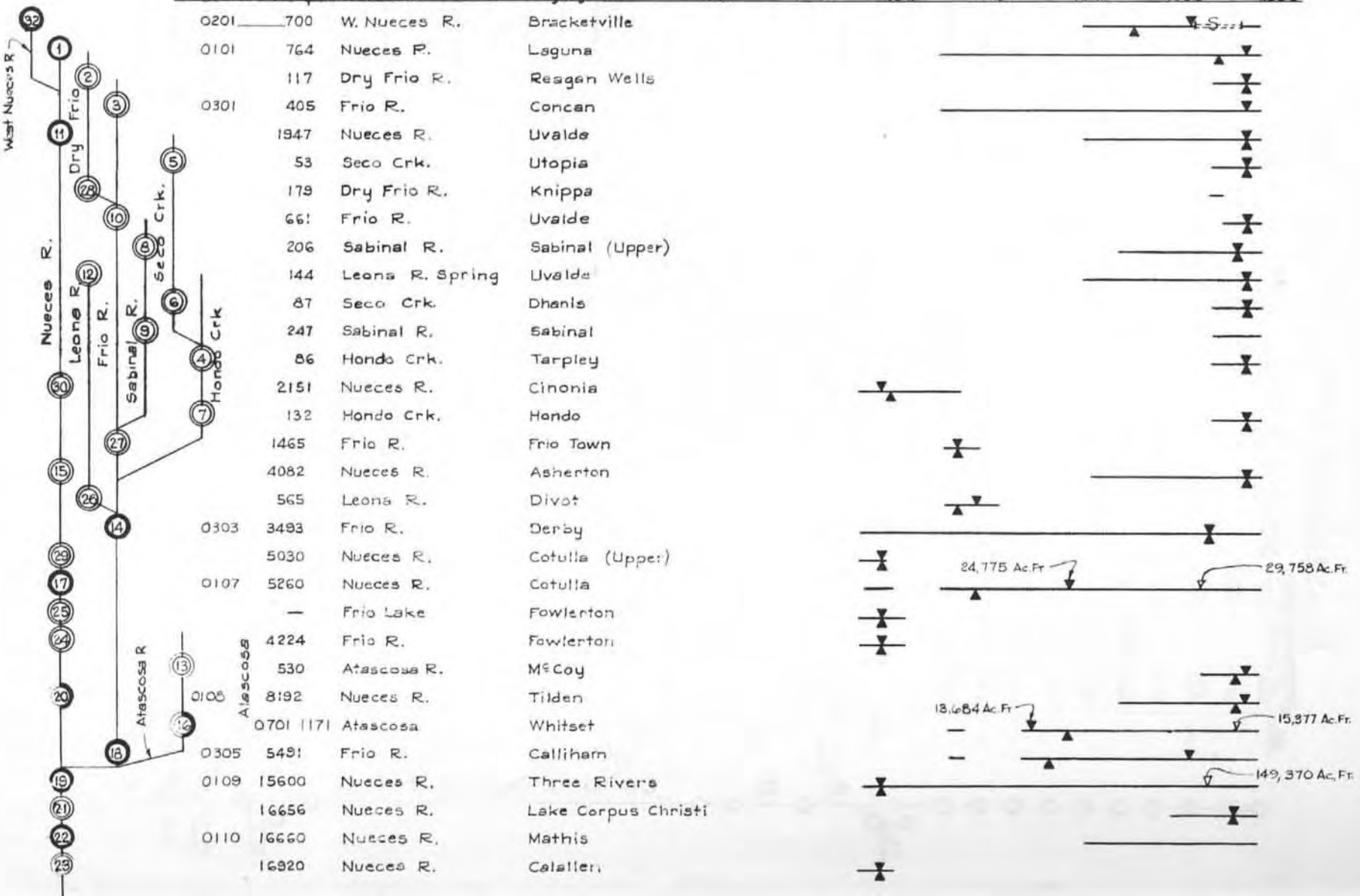
Card Gage No.	Drainage Area Sq. Mi	Stream	Gaging Station
	115	Johnson Crk.	Ingram
	276	Guadalupe R.	Hunt
	836	Guadalupe R.	Comfort
	916		
	1262	Guadalupe R.	Spring Branch
	364	Blanco	Wimberly
	84	San Marcos	San Marcos
0105	1516	Guadalupe R. above	Comal
0301	117	Comal	New Braunfels
	1658	Guadalupe R.	New Braunfels
	182	Plum Crk.	Lockhart
0602	356	Plum Crk.	Luling
0402	833	San Marcos	Luling
	1249	San Marcos	Ottine
	8455	Guadalupe R.	Gonzales
	445	Peach Crk.	Dilworth
	495	Sandies Crk.	Westoff
	4670	Guadalupe R.	Cuero
	4925		
0901	365	Coleto Crk.	Schroeder
0110	5161	Guadalupe R.	Victoria
0902	514	Coleto Crk	Victoria



5850

CHART E-9

NO. 14 NUECES RIVER VALLEY - STREAMFLOW RECORDS



Card G832 No.	Drainage Area Sq.Mi.	Stream	Gaging Sta.
0201	700	W. Nueces R.	Bracketville
0101	764	Nueces R.	Laguna
	117	Dry Frio R.	Reagan Wells
0301	405	Frio R.	Concan
	1947	Nueces R.	Uvalde
	53	Seco Crk.	Utopia
	179	Dry Frio R.	Knippa
	661	Frio R.	Uvalde
	206	Sabinal R.	Sabinal (Upper)
	144	Leona R. Spring	Uvalde
	87	Seco Crk.	Dhanis
	247	Sabinal R.	Sabinal
	86	Hondo Crk.	Tarpley
	2151	Nueces R.	Cinonia
	132	Hondo Crk.	Hondo
	1465	Frio R.	Frio Town
	4082	Nueces R.	Asherton
	565	Leona R.	Divot
0303	3493	Frio R.	Derby
	5030	Nueces R.	Cotulla (Upper)
0107	5260	Nueces R.	Cotulla
	—	Frio Lake	Fowlerton
	4224	Frio R.	Fowlerton
	530	Atascosa R.	McCoy
0108	8192	Nueces R.	Tilden
0701	1171	Atascosa	Whitsett
0305	5491	Frio R.	Calliham
0109	15600	Nueces R.	Three Rivers
	16656	Nueces R.	Lake Corpus Christi
0110	16660	Nueces R.	Mathis
	16920	Nueces R.	Calallen

CHART E-10

NO. 15 RIO GRANDE VALLEY - STREAMFLOW RECORDS

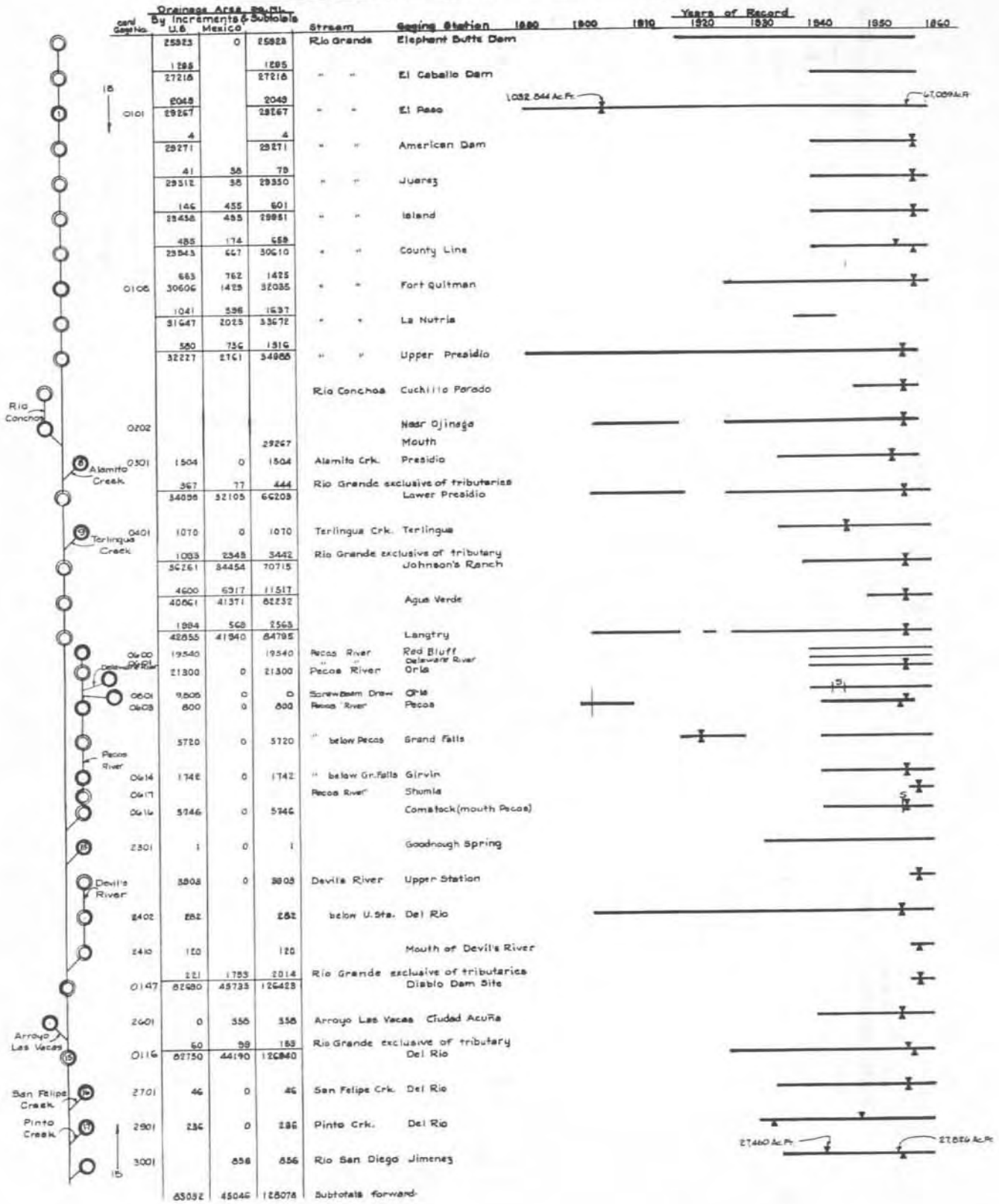
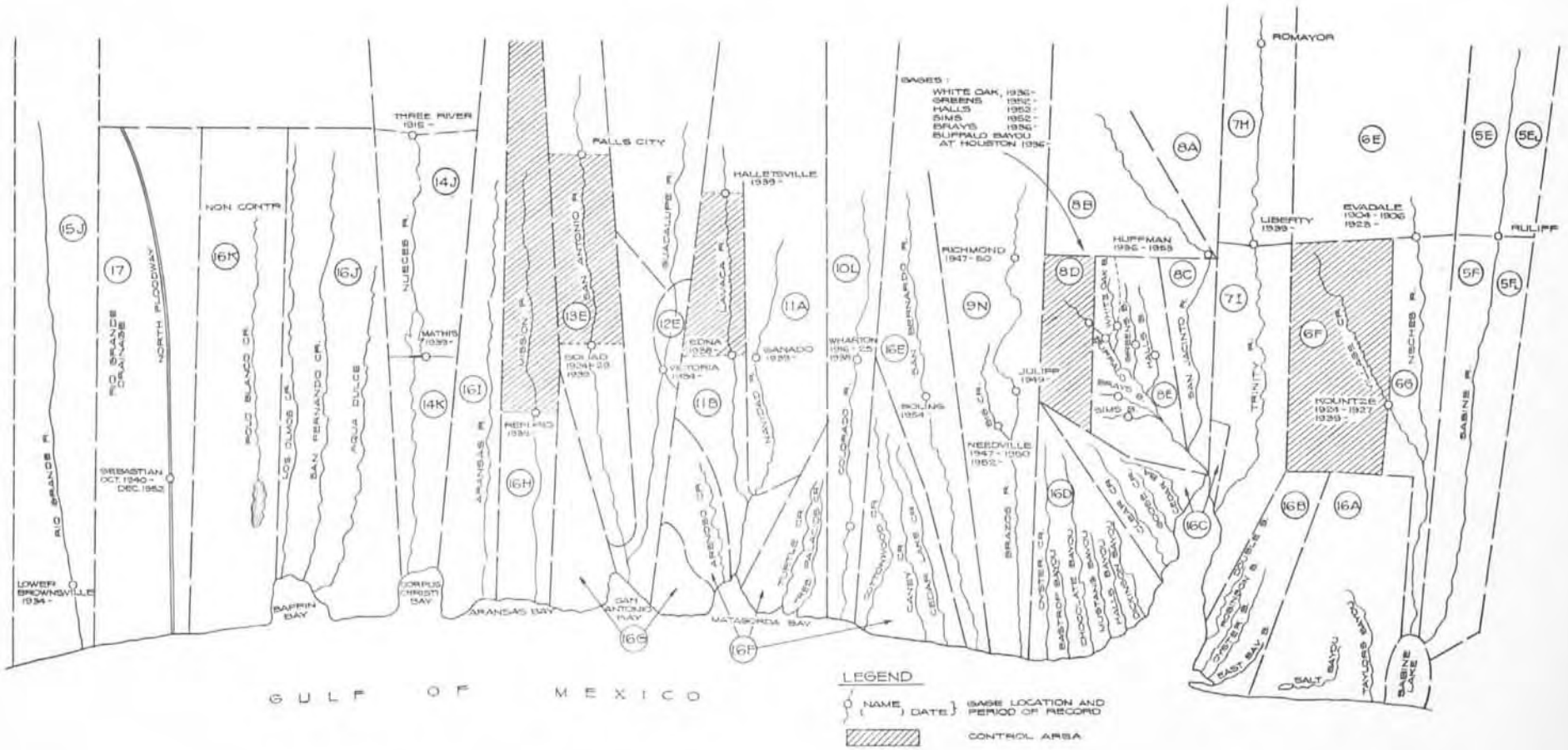


CHART E-12

DIAGRAM OF COASTAL SUBBASINS



APPENDIX F

OUTPUT DATA FOR

BASIN RUNOFF COMPUTATIONS

WATERSHED NO. 1 CANADIAN RIVER - SUBBASIN A CANADIAN RIVER ABOVE NEW MEXICO STATE LINE, AREA 12,244 SQ. MI.

ESTIMATED HISTORICAL RUNOFF IN ACRE FEET FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	467	466	12313	27205	5289	4915	8443
FEBRUARY	867	279	9552	1333	2048	1858	2656
MARCH	233	2255	7597	502	1058	453	2016
APRIL	45	13194	389174	526	977	1142	67510
MAY	15665	304775	169571	1261	37942	873	88348
JUNE	5592	294148	18562	1941	43240	2273	60959
JULY	1757	205461	34415	21632	20440	3771	47913
AUGUST	15097	105020	43170	11131	32838	27482	39123
SEPTEMBER	4601	477352	271207	225	37750	2901	132339
OCTOBER	20	318724	51348	167	2794	5524	63096
NOVEMBER	4723	43129	23577	143	1182	293	12175
DECEMBER	1180	28853	5150	1991	5967	1599	7457
ANNUAL TOTAL	50247	1793656	1035636	68057	191525	53084	532034
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	50247	1793656	1035636	68057	191525	53084	532034

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	622	2106	338	649	610	729	842
FEBRUARY	416	1041	4734	2420	282	1319	1702
MARCH	337	1505	4619	1549	355	1177	1590
APRIL	141	542	418	7945	1586	403	1839
MAY	32815	38803	3588	46504	513	46991	28216
JUNE	5224	5084	91814	59751	20373	10262	32085
JULY	1396	24414	7507	47288	131476	28557	40106
AUGUST	13544	7385	28479	27720	29016	2728	18145
SEPTEMBER	54388	150	312	13106	40616	1217	18298
OCTOBER	76191	135	722	1044	3788	643	13754
NOVEMBER	3905	228	2302	1132	373	1203	1524
DECEMBER	1389	375	287	690	489	418	608
ANNUAL TOTAL	190368	81848	145120	209798	229477	95647	158710
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	190368	81848	145120	209798	229477	95647	158710

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	386	516	503	503	493	249	481
FEBRUARY	237	278	304	392	521	304	346
MARCH	627	307	318	240	378	432	374
APRIL	1823	254	1238	15901	278	3581	3899
MAY	1008	363	24001	49053	16346	20723	18154
JUNE	795	234	2746	7862	6915	17265	3710
JULY	11417	19008	16786	21623	22223	11512	18211
AUGUST	26944	39118	10617	16954	3778	52795	19482
SEPTEMBER	2241	1643	2038	10740	178	7039	3368
OCTOBER	320	3606	51528	1422	183		11412
NOVEMBER	367	953	566	328	220		487
DECEMBER	441	618	351	378	276		413
ANNUAL TOTAL	46606	66900	110996	125396	51789	113900	80337
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	46606	66900	110996	125396	51789	113900	80337

MINIMUM MONTHLY RUNOFF	20	10/40		
MINIMUM CALENDAR YEAR RUNOFF	46606	1952		
AVERAGE ANNUAL RUNOFF	267421	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/47	2/57	7/52	7/53	3/57	7/57
TOTAL ACRE FEET	513	1410	22502	73777	401422	1144068

ALLRED-FLEMING, HOUSTON

F-2

WATERSHED NO. 1 CANADIAN RIVER - SUBBASIN B CANADIAN RIVER FROM NEW MEXICO STATE LINE TO GAGE NEAR AMARILLO, AREA 3,132 SQ. MI. (CONTRIBUTING)

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	0	0	0	0	0	0	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		487	524	1107	4705	4401	3205	2405
FEBRUARY		933	356	1078	387	2262	393	902
MARCH		118-	445-	2443	24-	862	129-	432
APRIL		64	814-	32874-	744	1083	818-	5436-
MAY		18155	113625	8029	211-	11708	590-	25119
JUNE		2508	20452	17228	1866-	14890	1647	9143
JULY		1563	94639	9165	16408	9270	1101-	21657
AUGUST		8843	57780	780	211-	1582	12248	13504
SEPTEMBER		6469	352-	293	94-	11040	2939	3383
OCTOBER		28	29476	14592	101	346	5356	8317
NOVEMBER		6607	5221	2127-	189	252-	50	1615
DECEMBER		1090	663-	2590	2179	4243	1166-	1379
ANNUAL TOTAL		46629	319799	22304	22307	61435	22034	82418
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		46629	319799	22304	22307	61435	22034	82418

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	0	0	900	600	900	0	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		178-	674	216	277	470	701	360
FEBRUARY		55	253-	1266	410	186	1331	499
MARCH		55	735	1541	721	399	583	672
APRIL		172	738	73	1565	964	476	665
MAY		4055-	7307	2872	49816	707	25169	13636
JUNE		2836	856	19086	44249	18687	2989	14784
JULY		94	504-	1963	32172	69224	6053	18167
AUGUST		3926	1125-	17621	11210	19344	1822	8800
SEPTEMBER		15342	77	427	10214	37604	603	10711
OCTOBER		43909	192	928	1236	4482	224	8495
NOVEMBER		1975	133	2728	1568	492	1137	1339
DECEMBER		771	198	73	234	509	300	348
ANNUAL TOTAL		64902	9028	48794	153672	153068	41388	78475
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		64902	9028	48794	153672	153068	41388	78475

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	0	0	0	0	0		
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		386	492	507	410	435	315	446
FEBRUARY		319	283	388	387	381	341	352
MARCH		117	346	450	310	534	566	351
APRIL		1877	342	1642	20439	364	3649	4933
MAY		932	214	25039	26317	17405	25467	13981
JUNE		575	303	756-	10938	105-	22125	2191
JULY		4683	11972	21384	5767	2977	1938	9357
AUGUST		6716	9352	5843	7196	12	51205	5824
SEPTEMBER		1559	217	228-	4120	252	5781	1184
OCTOBER		296	5074	13402	1928	258		4192
NOVEMBER		287	77	504	353	312		307
DECEMBER		364	492	306	389	391		388
ANNUAL TOTAL		18111	29164	68481	78554	23216	111587	43505
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		18111	29164	68481	78554	23216	111387	43505

MINIMUM MONTHLY RUNOFF	32874-	4/42	(DURING FLOOD) LOW WATER 1125- 8/47
MINIMUM CALENDAR YEAR RUNOFF	9028	1947	
AVERAGE ANNUAL RUNOFF	69581	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	4/42	4/42	5/48	6/53	8/46	7/53
TOTAL ACRE FEET	29353-	23688-	5795	30230	164667	588548

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 1 CANADIAN RIVER - SUBBASIN C CANADIAN RIVER FROM GAGE NEAR AMARILLO TO OKLAHOMA STATE LINE, AREA 3,142 SQ. MI. (CONTRIBUTING)

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)	131	1	11	8	7	12	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	395-	6143	16165	1491	15560	15185	9025
FEBRUARY	11083	12600	7876	3795	6821	4376	7759
MARCH	382	13154	19879	3392	1294	5791	7315
APRIL	66	9235	695-	727	1759	5222	2719
MAY	24699-	93709	67365	9522	2156	1084	24856
JUNE	3837	246044	94721	798	939	1652-	57448
JULY	2577-	85249	11669-	17814-	8328	1050-	10078
AUGUST	10494-	60339	17041-	9105-	21167-	8084-	925-
SEPTEMBER	2741-	41173-	7817	134-	1762	3209	5210-
OCTOBER	26	313649	27850	224-	6520	2257	58346
NOVEMBER	6443	38941	1608-	293-	1042	98-	7408
DECEMBER	4506	13374	683	1278	20886	210	6823
ANNUAL TOTAL	14563-	851284	211343	6567-	45900	26450	185641
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	14563-	851284	211343	6567-	45900	26450	185641

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)	10	41	113	110	71	192	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	2998	14393	611	1402	3431	9196	5339
FEBRUARY	1820	1545	4869	12930	2683	13196	6174
MARCH	44-	12861	13479	4005	410-	5126	5836
APRIL	58-	22499	196-	2305-	2200-	1113	3142
MAY	425	47777	4603-	138750	3243	136701	53716
JUNE	12490	5392	42442	49231	13706-	61508	26226
JULY	928	2401-	4048-	18465-	45975	7348	4890
AUGUST	2129-	6146-	22592	6358-	39676	2797-	7473
SEPTEMBER	28943	202-	264	6980-	29213	4204	9240
OCTOBER	133027	223-	1547-	1005	3164-	1087	21698
NOVEMBER	2775	8-	4160	1955-	230	5594	1799
DECEMBER	9217	265	796	888	5712	2413	3215
ANNUAL TOTAL	190392	95752	78819	172148	110683	244689	148747
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	190392	95752	78819	172148	110683	244689	148747

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)	190	174	179	162	245		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	3083	7115	8391	1303	160	417-	4010
FEBRUARY	1294	1883	5401	1037	3301	1051	2583
MARCH	1670	1081	3168	266-	426-	7335	1045
APRIL	967-	344-	4144	36018-	366-	17919	6710-
MAY	389-	45	33607	100567	15631	78561	29892
JUNE	1290-	5844	685-	42033	15732	1971	12327
JULY	14309-	20534	16630-	1205	13896-	1563-	4619-
AUGUST	16648-	10568	6075-	8598-	2973-	18416-	4745-
SEPTEMBER	1852-	1722-	1510-	7306-	410-	468	2560-
OCTOBER	492-	18445	30261-	8025	272-		911-
NOVEMBER	436-	3240	782-	278-	388-		271
DECEMBER	1245	1236	299-	380-	494-		262
ANNUAL TOTAL	29091-	67925	1531-	101324	15599	86909	30845
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	29091-	67925	1531-	101324	15599	86909	30845

MINIMUM MONTHLY RUNOFF	41173-	9/41	(DURING FLOOD) LOW WATER 6980- 9/49
MINIMUM CALENDAR YEAR RUNOFF	29091-	1952	
AVERAGE ANNUAL RUNOFF	127091	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/54	11/54	4/55	6/53	2/57	4/57
TOTAL ACRE FEET	37846-	55943-	56579-	4382	150483	830907

NOTES: 1) NO MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 1 CANADIAN RIVER - SUBBASIN D NORTH CANADIAN AND WOLF CREEK DRAINAGE AREA (TEXAS AREA ONLY), AREA 3,131 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL							
	1)	110	0	10	7	6	11	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		0	1775	4117	4296	5874	4277	3390
FEBRUARY		1198	2859	3034	2854	3789	4551	3048
MARCH		436	2796	4191	2806	5303	4589	3354
APRIL		2047	3522	44632	5476	24917	5891	14414
MAY		41848	43002	4558	5821	13792	2629	18608
JUNE		29773	16242	58761	3010	3520	12487	20629
JULY		0	32560	1711	1154	15508	5712	9441
AUGUST		3408	7109	821	64	1475	951	2305
SEPTEMBER		7216	69996	90	481	1262	13343	15398
OCTOBER		3	53086	18748	0	14354	4474	15111
NOVEMBER		417	8531	3721	314	2156	1353	2749
DECEMBER		737	4449	5381	1319	4077	1665	2938
ANNUAL TOTAL		87083	245907	149765	27595	96027	61922	111383
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		87083	245907	149765	27595	96027	61922	111383

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL							
	1)	9	40	4	2	0	5	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		2678	5072	2117	2363	3519	5462	3535
FEBRUARY		2843	3145	4402	6449	3473	6491	4467
MARCH		2842	5683	6947	5457	2744	5408	4847
APRIL		1973	10889	4816	5470	2094	5056	5050
MAY		2779	32649	2017	60948	14600	167184	46696
JUNE		709	36110	11014	42539	7056	36287	22286
JULY		5892	7082	2923	10310	129971	4086	26711
AUGUST		6050	456	8525	2251	68822	2827	14822
SEPTEMBER		9910	18	754	1828	52561	859	10988
OCTOBER		162964	490	272	6136	8391	1269	29920
NOVEMBER		10142	740	3489	2340	4426	2982	4020
DECEMBER		4672	2155	2375	3204	5447	2933	3464
ANNUAL TOTAL		213454	104489	49651	149295	303104	240844	176806
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		213454	104489	49651	149295	303104	240844	176806

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL							
	1)	5	20	33	45	135		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		3801	2089	2941	740	1439	331	2202
FEBRUARY		3907	1895	2141	891	1945	326	2156
MARCH		5092	2131	1811	1013	1744	3015	2358
APRIL		10738	1327	1644	10087	978	11703	4955
MAY		4203	2165	8504	75278	4047	31327	18839
JUNE		702	4849	17909	52015	798	52552	15255
JULY		1222	31467	2811	9544	4688	10078	9946
AUGUST		1398	8503	1490	4204	4244	3689	3968
SEPTEMBER		0	193	11	1694	0	2468	380
OCTOBER		0	9394	6302	440	0		3227
NOVEMBER		325	2150	159	431	7		614
DECEMBER		844	2456	441	931	91		953
ANNUAL TOTAL		32232	68619	46164	157268	19981	115489	64853
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		32232	68619	46164	157268	19981	115489	64853

MINIMUM MONTHLY RUNOFF	0	AT TIMES				
MINIMUM CALENDAR YEAR RUNOFF	19981	1956				
AVERAGE ANNUAL RUNOFF	120788	1940-1956				
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/56	2/57	5/53	6/53	3/57	6/50
TOTAL ACRE FEET	7	755	14098	61644	315136	1143372

NOTES: 1) NO MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN V WASHITA RIVER ABOVE OKLAHOMA STATE LINE, AREA 443 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	0	0	1049	1786	1043	865	791
FEBRUARY	0	76	1066	1350	977	887	726
MARCH	0	143	1216	1239	1233	1406	873
APRIL	464	2634	4386	2204	1440	2098	2204
MAY	388	17839	1495	3091	2310	536	4277
JUNE	55	14229	11913	1283	1367	1261	5018
JULY	83	3203	1763	341	1127	57	1096
AUGUST	413	1423	625	0	107	2344	819
SEPTEMBER	597	281	859	50	555	386	455
OCTOBER	62	8526	7801	84	1049	17	2923
NOVEMBER	359	1685	2048	18	625	45	797
DECEMBER	0	1501	2215	614	1094	293	953
ANNUAL TOTAL	2421	51540	36436	12060	12927	10195	20930
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	2421	51540	36436	12060	12927	10195	20930

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	527	526	93	364	597	882	498
FEBRUARY	636	465	486	971	670	915	691
MARCH	647	619	1177	3125	653	971	1199
APRIL	361	3320	254	2372	521	804	1272
MAY	3984	12008	89	24848	3376	12354	9443
JUNE	338	3320	1066	14608	382	15351	5844
JULY	1540	686	406	1518	4453	937	1590
AUGUST	792	0	3772	104	2377	17	1177
SEPTEMBER	11	0	35	302	2913	831	682
OCTOBER	4492	0	1	237	725	311	961
NOVEMBER	410	0	692	402	625	703	472
DECEMBER	0	0	324	0	692	698	286
ANNUAL TOTAL	13738	20944	8395	48851	17984	34774	24114
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	13738	20944	8395	48851	17984	34774	24114

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	1016	0	3	0	172	0	238
FEBRUARY	937	0	70	0	352	0	272
MARCH	1088	135	129	0	272	0	325
APRIL	1256	213	10139	8	117	3822	2347
MAY	770	389	9553	1322	1027	10228	2612
JUNE	215	2154	1641	5295	7	2757	1862
JULY	0	87	3	407	776	36	255
AUGUST	0	16	35	355	0	56	81
SEPTEMBER	0	0	0	89	0	0	18
OCTOBER	0	484	0	117	104		141
NOVEMBER	0	0	0	0	0		
DECEMBER	0	0	0	0	0		
ANNUAL TOTAL	5282	3478	21573	7593	2827	16899	8151
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	5282	3478	21573	7593	2827	16899	8151

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	2421	1940	
AVERAGE ANNUAL RUNOFF	18295	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	3/40	12/52	5/53	3/54	3/57	7/57
TOTAL ACRE FEET	0		952	5921	37712	167600

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN A NORTH FORK ABOVE OKLAHOMA STATE LINE, AREA 1,512 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1)	383	368	0	0	886	771	
	IRRIGATION		0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			9	188	5486	9153	2932	5725	3916
FEBRUARY			200	893	4642	5118	1926	4817	2933
MARCH			0	1116	5415	4338	10226	6037	4522
APRIL			2287	11578	51271	5019	31833	6107	18016
MAY			1623	97055	20471	13763	5643	873	23238
JUNE			733	100772	43040	4200	20772	6628	29358
JULY			1900	10687	4309	2859	10298	1748	5300
AUGUST			0	12212	9328	0	1680	1997	4203
SEPTEMBER			1587	7007	13751	0	1950	0	4049
OCTOBER			31	54965	36289	1328	2410	0	15837
NOVEMBER			2654	8930	7472	394	2555	0	3668
DECEMBER			444	8666	8674	3667	6646	149	4708
ANNUAL TOTAL			11468	314069	210148	49839	98871	34081	119746
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			11468	314069	210148	49839	98871	34081	119746

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1)	292	725	0	0	619	0	
	IRRIGATION		0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			1911	4610	187	4173	2590	4454	2988
FEBRUARY			2501	1385	5137	14372	3062	5262	5287
MARCH			1661	3517	11317	5670	1092	3346	4434
APRIL			371	9469	649	5491	967	2418	3228
MAY			2308	52197	6232	50544	26925	78608	36136
JUNE			981	24451	12283	19178	10864	57788	20924
JULY			0	3058	827	2692	39601	3175	8226
AUGUST			0	0	2239	0	20483	0	3787
SEPTEMBER			0	0	434	13	13376	1076	2483
OCTOBER			19367	0	0	1833	3252	53	4084
NOVEMBER			3585	0	5449	410	2360	909	2119
DECEMBER			2886	94	1108	1927	4376	1537	1988
ANNUAL TOTAL			35571	98781	45862	106303	128948	158626	95682
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			35571	98781	45862	106303	128948	158626	95682

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	1)	0	0	0	0	1		
	IRRIGATION		8	100	138	549	471		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			2738	0	435	0	238	0	682
FEBRUARY			2454	0	277	0	1498	0	846
MARCH			2332	122	210	0	356	461	604
APRIL			5780	1063	8976	96	7	22698	3184
MAY			1606	0	50485	26216	24664	63804	20594
JUNE			258	2313	9124	16871	1755	6895	6064
JULY			0	5890	0	1030	0	62	1384
AUGUST			0	2538	0	12	0	1849	510
SEPTEMBER			0	0	0	353	0	0	71
OCTOBER			0	7569	0	10062	87		3544
NOVEMBER			0	422	0	26	0		90
DECEMBER			0	88	0	100	0		38
ANNUAL TOTAL			15168	20005	69507	54766	28605	95769	37610
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			15168	20005	69507	54766	28605	95769	37610

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	11468	1940	
AVERAGE ANNUAL RUNOFF	87095	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/45	12/52	5/53	6/53	3/57	4/55
TOTAL ACRE FEET	0	0	1443	25416	180988	690262

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN B SALT FORK ABOVE OKLAHOMA STATE LINE, AREA 1,171 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)	0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	0	618	3262	3478	5437	3694	2748
FEBRUARY	1437	2067	1886	1230	2050	2058	1788
MARCH	0	1811	3347	948	5021	4693	2637
APRIL	1438	16644	13882	2301	937	3552	6459
MAY	691	48456	2337	5573	861	495	9736
JUNE	20	82223	2655	1619	19414	5287	18536
JULY	1357	8080	354	0	6328	4274	3399
AUGUST	1070	6636	241	0	578	78	1434
SEPTEMBER	866	4085	1048	0	733	0	1122
OCTOBER	0	24059	18587	0	1181	0	7305
NOVEMBER	1376	3577	1825	0	1238	0	1336
DECEMBER	354	3909	5290	1450	4436	12	2575
ANNUAL TOTAL	8609	202165	54714	16599	48214	24143	59074
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	8609	202165	54714	16599	48214	24143	59074

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)	0	0	0	0	0	70	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	2382	2589	365	2071	2235	2132	1962
FEBRUARY	1963	642	3845	9402	2274	1430	3259
MARCH	1034	2208	5987	2492	734	1252	2285
APRIL	3233	5425	116	1705	799	1143	2070
MAY	1716	61323	4641	31860	948	18132	19770
JUNE	552	18154	14512	6745	3181	4747	7982
JULY	164	2919	102	222	9236	6233	3146
AUGUST	507	0	0	252	4099	0	810
SEPTEMBER	2748	0	0	1867	8245	0	2143
OCTOBER	16654	488	0	1017	755	924	3306
NOVEMBER	1981	121	141	591	582	559	663
DECEMBER	1890	281	283	1597	1924	746	1120
ANNUAL TOTAL	34824	94150	29992	59821	35012	37298	48516
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	34824	94150	29992	59821	35012	37298	48516

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)	196	263	460	646	636		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	1709	299	1281	529	1138	179	991
FEBRUARY	1182	471	703	662	1301	521	864
MARCH	1221	632	408	214	233	2115	542
APRIL	3624	2775	1657	136	136	25692	1666
MAY	810	272	33560	25367	41419	78476	20286
JUNE	0	1453	37234	36973	911	8683	15314
JULY	0	32172	254	1704	2889	241	7404
AUGUST	0	2243	1723	335	44	6656	869
SEPTEMBER	11	172	123	575	48	685	186
OCTOBER	122	5840	168	9607	1153		3378
NOVEMBER	608	1162	190	276	79		463
DECEMBER	360	1061	216	942	109		538
ANNUAL TOTAL	9647	48552	77517	77320	49460	123248	52499
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	9647	48552	77517	77320	49460	123248	52499

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	8609	1940	
AVERAGE ANNUAL RUNOFF	53414	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/43	12/48	5/53	6/53	6/53	6/53
TOTAL ACRE FEET	0	526	5550	24011	148206	380453

NOTES: 1) NO MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN C PRAIRIE DOG TOWN FORK ABOVE MOUTH (JUNCTION WITH NORTH FORK) (IN TEXAS), AREA 4,154 SQ. MI. (CONTRIBUTING)

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND	1)	3712	0	0	0	0	0	
	IRRIGATION		0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			147	4176	10185	8683	4227	10025	6241
FEBRUARY			847	25063	4503	3095	4817	11347	8279
MARCH			0	4969	8136	5201	7251	75793	16892
APRIL			4703	17043	141675	40060	0	64058	44590
MAY			18070	214149	28624	118733	4058	13190	66137
JUNE			14902	392378	14515	42121	33709	23805	86898
JULY			22114	53515	3555	19031	9237	34329	23630
AUGUST			23426	18849	12426	29	2533	10957	11370
SEPTEMBER			17688	18640	25590	546	8432	40698	18599
OCTOBER			0	218676	78021	0	25099	65526	64554
NOVEMBER			29896	83693	27515	78	7491	3558	25372
DECEMBER			9088	20991	12145	1406	11662	3266	9760
ANNUAL TOTAL			140881	1072102	366890	238983	118516	356552	382321
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			140881	1072102	366890	238983	118516	356552	382321

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1)	501	567	729	3530	2062	1208	
	IRRIGATION		0	0	40	60	0	95	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			10988	421 1	2680	4198	2528	4000	4768
FEBRUARY			12218	1936	10246	36568	14070	7360	13733
MARCH			5556	2339	22425	9307	2078	5148	7809
APRIL			3814	68337	5763	4008	4871	4420	15202
MAY			9555	211233	24503	97220	63640	207020	102195
JUNE			27386	32313	34467	64860	32575	103934	49256
JULY			8669	6679	17081	3792	88510	38030	27127
AUGUST			8147	1148	2998	1923	66984	7401	14767
SEPTEMBER			23859	167	0	23826	70886	5812	20758
OCTOBER			110995	2699	0	12295	10083	3050	23187
NOVEMBER			12618	4007	102	2491	3057	6012	4715
DECEMBER			32123	15944	454	837	3892	2288	9256
ANNUAL TOTAL			265928	351013	120719	261325	363174	394475	292772
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			265928	351013	120719	261325	363174	394475	292772

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND	1)	1476	2876	2202	6138	4819		
	IRRIGATION		100	172	109	302	361		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			3498	1843	3471	2115	4780	753	3141
FEBRUARY			2425	3753	1386	3955	7843	2041	3872
MARCH			4304	1548	1038	1579	2276	7027	2149
APRIL			13428	5884	12050	477	1025	117747	6573
MAY			54865	1261	165986	110294	50061	406890	76493
JUNE			18989	0	92697	134680	11830	130963	51639
JULY			6898	45143	1848	15449	1742	8151	14216
AUGUST			0	12628	4068	5394	663	17376	4551
SEPTEMBER			0	1202	92	8623	0	3983	1983
OCTOBER			0	51698	59	96178	17941		33173
NOVEMBER			266	15454	0	8517	5414		5930
DECEMBER			1256	7289	384	3943	659		2706
ANNUAL TOTAL			105929	147693	283079	391204	104234	694931	206428
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			105929	147693	283079	391204	104234	694931	206428

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	104234	1956	
AVERAGE ANNUAL RUNOFF	298982	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/52	1/53	6/53	6/53	9/56	6/53
TOTAL ACRE FEET	0	3365	22709	182811	1019475	2373010

NOTES: 1) SOME REPORTED USES MODIFIED

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN C_o PRAIRIE DOG TOWN FORK TRIBUTARIES (JUNCTION WITH NORTH FORK) IN OKLAHOMA, AREA 4,148 SQ. MI.

ESTIMATED HISTORICAL RUNOFF IN ACRE FEET FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
	MONTHLY RUNOFF						
JANUARY	283	3915	16153	20885	7354	4869	8910
FEBRUARY	1132	20914	10973	10701	6859	6712	9552
MARCH	122	5328	14386	11155	21401	72569	20827
APRIL	5142	23890	170504	32554	46328	116328	65791
MAY	14066	280275	53890	104149	11107	22392	80980
JUNE	10795	323016	76636	33758	51024	57737	92161
JULY	20497	35610	8617	6849	18109	38392	21346
AUGUST	7190	22672	21779	565	4991	9023	11037
SEPTEMBER	8560	20779	40319	809	8022	33461	18658
OCTOBER	354-	189870	87938	2270	18136	52660	58420
NOVEMBER	15962	75175	32882	1088	4845	3668	22270
DECEMBER	7869	26957	21811	6477	2071	3830	11503
ANNUAL TOTAL	91264	1028421	555888	231260	200247	421641	421454
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	91264	1028421	555888	231260	200247	421641	421454

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
	MONTHLY RUNOFF						
JANUARY	8906	632	2390	1496-	947	22	1900
FEBRUARY	8606	1684	3779	21102	6264	1295	7122
MARCH	4080	143-	6599	1617	1616	5121	3148
APRIL	4383	52764	2822	769-	2809	1929	10656
MAY	22388	288989	5711	78359	28686	240818	110825
JUNE	24636	96679	33860	76003	19722	169860	70127
JULY	9684	14380	8660	11311	115055	32187	31880
AUGUST	3517	1787	12969	4125	52063	4542	13167
SEPTEMBER	12354	525	115	16213	46130	3829	13194
OCTOBER	14266-	1767	234	8253	8817	9978	2464
NOVEMBER	7665	2695	2412	2673	1136	2989	3262
DECEMBER	20381	8972	580-	837	59-	688	5040
ANNUAL TOTAL	112334	470731	78971	218228	283186	473258	272785
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	112334	470731	78971	218228	283186	473258	272785

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
	MONTHLY RUNOFF						
JANUARY	435	111-	1112	61	3379	508	975
FEBRUARY	30-	376-	709	120-	2006	1225	438
MARCH	845	512-	531	1247	1353	2681	693
APRIL	16561	12971	5683-	510	1118	114299	5095
MAY	31601	457	62085	118223	80003	397995	58474
JUNE	7052	29294	3998-	43835	15609	134514	18358
JULY	2781	14676	1377	14360	14227	12868	9484
AUGUST	128	16746	615-	4988	581	916	4366
SEPTEMBER	11	653	225	7213	59-	2278	1609
OCTOBER	43-	54545	92	159887	5816		44059
NOVEMBER	396-	10383	42-	6990	4975		4382
DECEMBER	215	5493	134	3941	780		2113
ANNUAL TOTAL	59160	144219	55927	361135	129788	667284	150046
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	59160	144219	55927	361135	129788	667284	150046

MINIMUM MONTHLY RUNOFF		14266-		10/46	(DURING FLOOD)	LOW WATER 580-	12/48
MINIMUM CALENDAR YEAR RUNOFF		55927		1954			
AVERAGE ANNUAL RUNOFF		289157		1940-1956			
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120	
FINAL MONTH	4/54	11/54	5/53	7/53	10/56	4/55	
TOTAL ACRE FEET	4443-	2961-	22177	137585	748151	2118875	

ALLRED-FLEMING, HOUSTON

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WATERSHED NO. 2 RED RIVER - SUBBASIN D PEASE RIVER ABOVE MOUTH, AREA 3,016 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1) 4060	3981	614	1059	166	1370	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		274	1861	5462	4132	1882	4157	2961
FEBRUARY		894	9424	2624	1643	2396	4524	3584
MARCH		57	3378	3572	2383	2758	25894	6340
APRIL		8649	45730	107105	14707	0	21137	32888
MAY		18052	304990	13194	57690	6578	4527	67505
JUNE		5842	396125	5125	39353	40425	11840	83118
JULY		8238	16085	2029	1697	3093	71209	17059
AUGUST		53991	54378	5296	223	4280	18794	22827
SEPTEMBER		8941	38000	41243	703	6142	16780	18635
OCTOBER		2224	168039	32480	624	9125	24317	39468
NOVEMBER		11872	33044	10698	461	3003	1762	10140
DECEMBER		3173	10808	5061	1373	3371	1584	4228
ANNUAL TOTAL		122207	1081862	233889	124989	83053	206525	308754
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		122207	1081862	233889	124989	83053	206525	308754

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1) 1030	1210	162	547	219	225	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		4468	2123	2997	3636	2996	4652	3479
FEBRUARY		4404	1006	8680	29956	16066	8443	11426
MARCH		2054	1252	18713	7944	2896	6264	6521
APRIL		1252	23777	5769	3616	6012	5568	7666
MAY		6369	195049	20864	74239	70878	138186	84264
JUNE		26020	13161	26757	53323	31306	101312	41980
JULY		5780	5666	15589	3763	72084	41066	23991
AUGUST		1235	1739	3158	2138	70140	6906	14219
SEPTEMBER		54832	797	799	20716	63911	5654	24452
OCTOBER		48936	2903	524	13388	11864	2905	13420
NOVEMBER		5332	4264	144	3216	4067	5498	3754
DECEMBER		10738	14664	1072	1094	4557	2321	5741
ANNUAL TOTAL		171420	266401	105066	217029	356777	328775	240911
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		171420	266401	105066	217029	356777	328775	240911

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1) 127	127	127	215	294		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		3033	681	3457	975	4517	1325	2533
FEBRUARY		2257	17	2178	73	4556	2570	1816
MARCH		3858	0	1710	3020	2734	3593	2264
APRIL		10832	6973	6955	1204	2233	126420	5639
MAY		46565	2157	123714	135235	13631	454409	64260
JUNE		16472	0	5374	69569	21754	214844	22634
JULY		5953	0	3471	23545	469	15419	6688
AUGUST		629	16574	2005	8996	1391	3614	5919
SEPTEMBER		440	1993	1045	16109	150	4880	3935
OCTOBER		496	77382	924	148802	8952		47311
NOVEMBER		882	23169	680	15039	10410		10036
DECEMBER		1674	9964	1149	6354	1547		4138
ANNUAL TOTAL		93091	138850	152662	428921	72344	827074	177174
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		93091	138850	152662	428921	72344	827074	177174

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	72344	1956	
AVERAGE ANNUAL RUNOFF	246109	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	3/53	3/53	7/53	7/53	4/47	7/53
TOTAL ACRE FEET	698	3750	13949	126203	729271	1841349

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN E WICHITA RIVER ABOVE MOUTH, AREA 3,483 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1)	4449	4570	13619	3024	125768	7772	
	IRRIGATION	1)	25000	15000	240	16635	17158	13957	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			2744	5513	8026	4449	4361	5873	5161
FEBRUARY			2719	28980	20451	3213	5456	6325	11191
MARCH			3299	5377	7107	7429	5760	47020	12665
APRIL			11194	23723	85887	34835	2969	32174	31797
MAY			22760	286234	27794	38335	5333	8482	64823
JUNE			15249	308855	14450	18156	8578	20168	64243
JULY			16512	50222	7672	14651	7048	24690	20133
AUGUST			19824	17451	7984	10532	11546	7233	12428
SEPTEMBER			8463	16274	10384	5480	5627	36854	13847
OCTOBER			7593	274898	28555	4653	26256	38773	63455
NOVEMBER			47388	84011	15542	3439	4933	3602	26486
DECEMBER			7627	19854	7069	4561	4385	3246	7790
ANNUAL TOTAL			165372	1121392	240921	149733	92252	234440	334018
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			165372	1121392	240921	149733	92252	234440	334018

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1)	12419	2461	2188	5100	4878	4658	
	IRRIGATION	1)	31817	27534	16204	17592	20576	20342	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			5114	3599	2949	5531	24389	5020	7767
FEBRUARY			5394	2624	6099	20047	12100	5377	8607
MARCH			3838	2988	6758	6356	5028	6843	5302
APRIL			3291	24848	4754	3233	12468	5958	9092
MAY			6145	154783	32678	27074	69465	68613	59793
JUNE			8771	40722	35416	21133	18387	23856	24714
JULY			6429	9758	15179	7960	58891	14412	18772
AUGUST			8567	8432	11636	8135	179567	15862	38700
SEPTEMBER			24754	5967	4753	16140	163016	11962	37765
OCTOBER			7242	4948	8533	15888	90330	11464	23068
NOVEMBER			10273	5290	2856	10261	12480	6995	8026
DECEMBER			37057	10531	3891	25568	7130	3661	14640
ANNUAL TOTAL			126875	274490	135502	167326	653251	180023	256245
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			126875	274490	135502	167326	653251	180023	256245

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN & IND	1)	4592	10688	4948	5829	9073		
	IRRIGATION	1)	22667	16989	23336	20735	35421		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			3401	2407	3247	4205	5956	2177	3843
FEBRUARY			4025	1915	2582	4844	3994	6161	3472
MARCH			4240	6203	3789	6909	4280	9931	5084
APRIL			7412	3986	9647	4074	6368	42211	6297
MAY			17632	6255	101744	68069	22465	272449	43233
JUNE			7325	5702	40285	64671	8423	155021	25281
JULY			12270	7017	6840	14415	8201	19055	9749
AUGUST			10857	12213	7622	11836	7231	10922	9952
SEPTEMBER			9483	4445	6026	59336	6207	10711	17099
OCTOBER			5137	55655	6134	223251	14816		60999
NOVEMBER			4702	11985	4972	27418	4828		10781
DECEMBER			3725	4203	4534	8549	8161		5842
ANNUAL TOTAL			90209	122026	197422	497577	100930	528638	201633
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			90209	122026	197422	497577	100930	528638	201633

MINIMUM MONTHLY RUNOFF		1915		2/53	
MINIMUM CALENDAR YEAR RUNOFF		90209		1952	
AVERAGE ANNUAL RUNOFF		267632		1940-1956	
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	2/53	4/53	9/53	9/53	4/47	7/53
TOTAL ACRE FEET	8047	22938	63707	162472	756809	2016518

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN F LITTLE WICHITA RIVER ABOVE MOUTH, AREA 1,477 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	322	112	0	740	748	767	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		0	1461	4312	3651	1116	4752	2549
FEBRUARY		440	27046	1349	682	5417	8977	7319
MARCH		0	1694	3021	5641	3551	65797	13284
APRIL		6913	14078	133335	30254	0	51927	40251
MAY		23212	142374	16593	66920	1578	6778	42909
JUNE		23965	169803	9079	23253	15460	12625	42364
JULY		19998	18084	0	1332	0	30626	11673
AUGUST		9105	10772	4442	0	990	4327	4939
SEPTEMBER		3275	14148	14576	0	2800	29416	10706
OCTOBER		0	167238	37524	0	20456	48632	45642
NOVEMBER		13958	71211	23768	0	3925	1145	19001
DECEMBER		6078	13669	7311	0	2060	954	5012
ANNUAL TOTAL		106944	651598	260310	131733	57353	265956	245649
STORAGE ADJUSTMENT		21600-	29200-	18700-	1200	700	28700-	16050-
ADJUSTED ANNUAL TOTAL		85344	622398	241610	132933	58053	237256	229599

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	950	3049	9850	8996	9718	12821	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		5458	1012	1506	959	544	1031	1752
FEBRUARY		6190	200	2757	10218	4550	2332	4375
MARCH		2419	379	5752	2246	176	1574	2091
APRIL		965	38777	1345	504	4276	1633	7917
MAY		3822	99378	7942	35724	32007	52257	38522
JUNE		10470	16857	14653	26184	11461	37085	19452
JULY		4323	2536	6778	472	40391	13948	11408
AUGUST		0	0	1170	239	104669	2028	18018
SEPTEMBER		11567	0	0	8996	31501	2094	9026
OCTOBER		0	3097	0	7073	3269	683	2354
NOVEMBER		10993	1798	0	243	596	1592	2537
DECEMBER		25651	5535	0	0	740	259	5364
ANNUAL TOTAL		81858	169569	41903	92858	234180	116516	122814
STORAGE ADJUSTMENT		14400	12000	5200	6000	6700		7383
ADJUSTED ANNUAL TOTAL		96258	181569	47103	98858	240880	116516	130197

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	14847	13562	12871	12950	17651		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		716	0	66	106	987	151	375
FEBRUARY		444	0	0	1164	643	2749	450
MARCH		1157	1655	0	964	365	4633	828
APRIL		3341	641	7628	2673	285	68782	2914
MAY		16920	880	73303	36072	12683	268874	27972
JUNE		5229	0	16559	29482	6080	72305	11470
JULY		1687	0	383	3879	41	2662	1198
AUGUST		278	3076	0	908	315	382	915
SEPTEMBER		310	0	0	40976	43	1098	8266
OCTOBER		0	75687	0	61565	6085		28667
NOVEMBER		63	6488	0	1885	3513		2390
DECEMBER		517	1425	22	502	1963		886
ANNUAL TOTAL		30662	89852	97961	180176	33003	421636	86331
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		30662	89852	97961	180176	33003	421636	* 86331

MINIMUM MONTHLY RUNOFF		0	AT TIMES
MINIMUM CALENDAR YEAR RUNOFF	2)	30662	1952
AVERAGE ANNUAL RUNOFF	2)	152378	1940-1956

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/43	1/55	7/53	9/53	9/56	1/57
TOTAL ACRE FEET	0	128	4344	39448	422627	1085819

ALLRED-FLEMING, HOUSTON

NOTES: 1) NO IRRIGATION USES
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

WATERSHED NO. 2 RED RIVER - SUBBASIN G RED RIVER FROM JUNCTION OF PRAIRIE DOG TOWN FORK AND NORTH FORK TO GAGE AT TERRAL, OKLAHOMA, EXCLUD. 2 D, 2 E and 2 F, AREA 478 SQ. MI. (IN TEXAS)

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1)	428	413	370	0	886	1264	
	IRRIGATION		0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			104	1363	2765	2393	756	2637	1670
FEBRUARY			200	7396	1326	976	1345	3331	2429
MARCH			8	1238	2077	1618	1814	22086	4807
APRIL			385	1153	34268	9291	1302-	17255	10175
MAY			4378	47336	8414	31628	827	3795	16063
JUNE			3641	59511	3671	10344	6037	6416	14937
JULY			6345	6527	381	589	107	6747	3449
AUGUST			2275	563	2330	178-	387	2231	1268
SEPTEMBER			2114	3404	7112	152	1699	11972	4409
OCTOBER			198-	39024	11131	41	6220	19724	12657
NOVEMBER			4468	23457	8102	156	2110	1199	6582
DECEMBER			2753	5002	2926	225	1477	1129	2252
ANNUAL TOTAL			26473	195974	84503	57235	21477	98522	80697
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			26473	195974	84503	57235	21477	98522	80697

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1)	892	725	529	645	619	0	
	IRRIGATION		0	0	0	0	0	70	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			3267	1063	428	530	408	689	1064
FEBRUARY			3540	655	1318	4758	2496	1283	2342
MARCH			1700	635	2936	1188	372	915	1291
APRIL			969	17372	767	405	803	721	3506
MAY			2438	40544	3292	11888	11309	22022	15249
JUNE			5579	8576	4215	8510	4894	16145	7987
JULY			2463	616	2218	293	11198	6307	3849
AUGUST			1037-	130-	92	83-	10826	702	1728
SEPTEMBER			2506	48-	113-	3142	9863	700	2675
OCTOBER			3936-	393	1-	2059	1812	384	119
NOVEMBER			2895	608	58-	442	569	805	877
DECEMBER			7989	2315	115	109	675	316	1920
ANNUAL TOTAL			28373	72599	15209	33241	55225	50989	42606
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			28373	72599	15209	33241	55225	50989	42606

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	1)	0	0	728	1133	1		
	IRRIGATION		204	363	598	835	1107		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			426	54	505	104	668	164	351
FEBRUARY			291	60-	295	41-	480	367	233
MARCH			532	201-	211	429	393	529	273
APRIL			1570	996	1025	118	310	20293	804
MAY			7328	300	19807	21627	2105	73094	10233
JUNE			2535	1076-	798	10689	3445	33624	3278
JULY			685	3669-	399	3631	85	2442	226
AUGUST			245-	2343	53	1304	199	413	791
SEPTEMBER			87-	179	70	2513	5-	756	594
OCTOBER			9	12502	87	23762	1407		7553
NOVEMBER			68	3678	49	2358	1626		1956
DECEMBER			213	1574	132	967	197		617
ANNUAL TOTAL			13325	16620	23431	67461	11110	131678	26389
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			13325	16620	23431	67461	11110	131678	26389

MINIMUM MONTHLY RUNOFF	3936-	10/46	(DURING FLOOD) LOW WATER 1076- 6/53	
MINIMUM CALENDAR YEAR RUNOFF	11110	1956		
AVERAGE ANNUAL RUNOFF	51280	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	7/53	7/53	7/53	7/53	9/56	3/57
TOTAL ACRE FEET	4445-	3710-	3698-	12576	130222	357913

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN Go RED RIVER FROM JUNCTION OF PRAIRIE DOG TOWN FORK AND NORTH FORK TO GAGE AT TERRAL OKLAHOMA IN OKLAHOMA, AREA 3,308 SQ. MI.

ESTIMATED HISTORICAL RUNOFF IN ACRE FEET FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
	MONTHLY RUNOFF						
JANUARY	729	9534	19357	16750	5302	18459	11689
FEBRUARY	1556	51923	9425	6987	9568	23466	17154
MARCH	289	8892	14769	11559	12931	154836	33879
APRIL	3475	8844	240649	65809	8337-	121564	72001
MAY	30877	331581	59134	221625	6018	26789	112671
JUNE	25960	417045	26170	72876	42716	45369	105023
JULY	46278	47561	4535	5983	2622	49089	26011
AUGUST	18557	6578	18951	1390	5353	18252	11514
SEPTEMBER	15810	24830	50797	2070	12897	84811	31869
OCTOBER	1154-	273396	78148	524	43774	138305	88832
NOVEMBER	31430	164353	56859	1250	14928	8548	46228
DECEMBER	19267	35016	20478	1575	10341	7912	15765
ANNUAL TOTAL	193074	1379553	599272	408398	158113	697400	572635
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	193074	1379553	599272	408398	158113	697400	572635

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
	MONTHLY RUNOFF						
JANUARY	22868	7441	7387	6439	4303	5624	9010
FEBRUARY	24937	4746	25180	69274	36635	17711	29747
MARCH	12136	4668	104817	14934	4862	8059	24913
APRIL	7558	122375	44143	7130	8994	13778	33996
MAY	17294	284035	27844	130625	259651	624630	224013
JUNE	39513	60491	45132	103038	108696	285477	107058
JULY	19106	10193	21228	6306	77189	82194	36036
AUGUST	4625-	35?2	4593	3976	73549	12586	15609
SEPTEMBER	18556	2325	1058	19796	87171	7000	22651
OCTOBER	27329-	6943	1153	12717	11570	13766	3137
NOVEMBER	20422	6288	1151	3615	5012	14030	8420
DECEMBER	55931	42614	1776	2502	5399	3895	18686
ANNUAL TOTAL	206367	555691	285462	380352	683031	1088750	533276
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	206367	555691	285462	380352	683031	1088750	533276

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
	MONTHLY RUNOFF						
JANUARY	4394	2211	7117	1693	5927	1989	4268
FEBRUARY	3495	3302	6698	2349	6945	3127	4558
MARCH	7496	49126	5578	8631	4410	14861	15048
APRIL	11525	23694	18458	1677	4364	325537	11944
MAY	234150	24700	476885	545696	28125	1138023	261911
JUNE	42913	69765	29553	104139	22802	326396	53834
JULY	15006	25780	3204	20684	24833	27295	17901
AUGUST	1673	16498	1161	6707	1204	4726	5449
SEPTEMBER	1055	3456	693	113022	296	26858	23704
OCTOBER	950	265484	742	322429	32422		124405
NOVEMBER	1700	70798	709	8765	15228		19440
DECEMBER	2163	50911	1382	6634	3384		12895
ANNUAL TOTAL	326520	605725	552180	1142426	149940	1868812	555358
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	326520	605725	552180	1142426	149940	1868812	555358

MINIMUM MONTHLY RUNOFF	27329-	10/46	(DURING FLOOD)	LOW WATER	693	9/54
MINIMUM CALENDAR YEAR RUNOFF	149940	1956				
AVERAGE ANNUAL RUNOFF	553662	1940-1956				

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/46	1/55	7/44	4/50	4/50	6/53
TOTAL ACRE FEET	13398-	6380	77629	539081	1861741	4567276

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN H RED RIVER FROM GAGE AT TERRAL, OKLAHOMA TO GAGE AT COLBERT, OKLAHOMA (IN TEXAS), AREA 1,187 SQ MI

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL	1)	26	110	55	97	123	115	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		79	21256	12247	14180	13620-	24207-	1656
FEBRUARY		1738	43652	11058	7007	26821-	33121-	586
MARCH		1165	23744	20064	11227	43820-	161566-	24864-
APRIL		33510	71867	282720	46332	42508-	116805	84788
MAY		56953	10935-	128381	94503	48867-	326365	91063
JUNE		64776	101743	46114	85910	121241-	87060-	15040
JULY		48236	40225	21359	10906	28120-	204954	49593
AUGUST		20799	9219	2701	3779	7629-	27192	9344
SEPTEMBER		206	22017	13466	4675	21156-	107789-	14764-
OCTOBER		2658	149082	16072-	6317	62491-	263444	57156
NOVEMBER		14036	174492	44174	1556	22151-	19542	38608
DECEMBER		32377	20246	2547	4946-	17639-	1825-	5127
ANNUAL TOTAL		276533	666588	568759	281446	456063-	542734	313333
STORAGE ADJUSTMENT		135900	341000-	5300-	144200	390000	143700	77917
ADJUSTED ANNUAL TOTAL		412433	325588	563459	425646	66063-	686434	391250

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL	1)	411	118	556	511	453	607	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		8160-	75502	31748	34118	23204	36627	32173
FEBRUARY		89035	59849	2937	62911-	9590	25708	20701
MARCH		37061	25858	34911-	15213	20799	13284	12884
APRIL		40051	105140-	35720	20073	20739	17343	4798
MAY		6596	181308-	21850-	119398-	44898-	239880-	100123-
JUNE		56339	281216	5527-	48122	64873	131414	96073
JULY		13859	39609	166423	13765	83059-	165187	52631
AUGUST		16860	31797	26829	31562	245577	37261	64981
SEPTEMBER		20141-	34433	32884	5900-	8417	27612	12884
OCTOBER		1897	28092	29083	20271	89846	17011	31033
NOVEMBER		46470	8274	30026	36940	36792	12979	28580
DECEMBER		77744	6079	30633	39656	39818	24698	36438
ANNUAL TOTAL		357611	304260	323995	71511	431698	269244	293053
STORAGE ADJUSTMENT		86400	52500-	56500-	93000	11000	4500-	12817
ADJUSTED ANNUAL TOTAL		444011	251760	267495	164511	442698	264744	305870

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL	1,4)	3399	6660	38728	11965	54546		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		38865	24033	30020	835-	56453	35867	29707
FEBRUARY		22048	16837	31762	8584	56875	13317	27221
MARCH		17186	7999-	42216	838	34126	7297	17273
APRIL		12793	4412-	20431	12970	12049	305043-	10766
MAY		104866-	162	163553-	268810-	47925-	561484-	116998-
JUNE		10650	7964	84107	30536	11774-	782751	24297
JULY		28818	9858-	81590	31391	16043	194634	29597
AUGUST		53385	23554	57148	47167	22356	27140	40722
SEPTEMBER		26734	43189	44190	45078-	24078	39744	18623
OCTOBER		42750	168105-	14561	53117-	23728-		37528-
NOVEMBER		23696	30599-	35816	60575	16009-		14696
DECEMBER		19899	7699	37022	62986	512		25624
ANNUAL TOTAL		191958	97535-	315310	112793-	123056	234223	83999
STORAGE ADJUSTMENT		69000-	184900	105800-	174700	73000-		22360
ADJUSTED ANNUAL TOTAL		122958	87365	209510	61907	50056		106359

MINIMUM MONTHLY RUNOFF	3)		561484-		5/57		
MINIMUM CALENDAR YEAR RUNOFF	2,3)		66063-		1944		
AVERAGE ANNUAL RUNOFF	2)		277324		1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	5/57	5/57	5/57	5/57	5/57	5/57
TOTAL ACRE FEET	859230-	809534-	798568-	552530-	376076-	1135897

NOTES: 1) NO IRRIGATION USES 2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION
3) RESULTING FROM STORAGE OF INFLOW BY LAKE TEXOMA
4) LARGE USES 1954-56 RESULTED FROM TEMPORARY DIVERSION BY CITY OF DALLAS

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN H_0 RED RIVER FROM GAGE AT TERRAL, OKLAHOMA TO GAGE AT COLBERT, OKLAHOMA (IN OKLAHOMA), AREA 9,424 SQ. MI.

ESTIMATED HISTORICAL RUNOFF IN ACRE FEET FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
	MONTHLY RUNOFF						
JANUARY	5809	88199	87945	89118	5106-	21882-	40681
FEBRUARY	15260	181097	88597	58217	2459-	3750-	56160
MARCH	9533	85078	111081	91898	17176-	213886	82383
APRIL	129474	326724	1315515	287688	9965-	659023	451410
MAY	264777	223541	533645	917630	10684	834315	464099
JUNE	254087	742453	395994	366131	93579-	365725	338469
JULY	251099	184597	119239	64497	21340-	751715	224968
AUGUST	68006	57183	77835	23935	13849	194040	72475
SEPTEMBER	11665	136527	143496	24319	23762-	12829	50846
OCTOBER	12598	957817	76992	28323	84471-	1029065	336721
NOVEMBER	82223	789548	255799	18770	18297-	95109	203859
DECEMBER	114421	154378	82259	9476	6202	38878	67602
ANNUAL TOTAL	1218952	3927142	3288397	1980002	245420-	4168953	2389671
STORAGE ADJUSTMENT	135800	341000-	5300-	144100	389900	143700	77866
ADJUSTED ANNUAL TOTAL	1354752	3586142	3283097	2124102	144480	4312653	2467537

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
	MONTHLY RUNOFF						
JANUARY	200474	209898	97982	98457	91743	113198	135292
FEBRUARY	363840	162142	87850	3299	76704	111524	134227
MARCH	217253	87229	58297	113711	68862	91702	106176
APRIL	175589	113346	122039	93034	79254	72590	109309
MAY	145571	193726	67324	157509	435076	99107-	150017
JUNE	324474	957590	153824	422429	252199	706602	469520
JULY	197932	164002	463464	89456	24560	460943	233393
AUGUST	98349	94159	85902	97823	753700	106749	206114
SEPTEMBER	14619-	92983	85384	40557	132124	86034	70411
OCTOBER	27562	83924	73159	86771	261883	57585	98481
NOVEMBER	165321	45642	85725	102687	106957	49765	92683
DECEMBER	431107	50407	81986	107473	115344	70691	142835
ANNUAL TOTAL	2332853	2255048	1462936	1413206	2398406	1828276	1948454
STORAGE ADJUSTMENT	86300	52500-	56500-	93000	10900	4500-	12783
ADJUSTED ANNUAL TOTAL	2419153	2202548	1406436	1506206	2409306	1823776	1961237

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
	MONTHLY RUNOFF						
JANUARY	103939	61698	77791	11778	140935	87633	79228
FEBRUARY	66725	45994	80272	36229	147023	53003	75249
MARCH	74256	18255	102069	30365	89122	44903	62813
APRIL	94581	59420	79894	46545	38514	234679-	63791
MAY	55304-	65210	26044	375499-	78702-	14256	83650-
JUNE	72315	55733	277296	189682	11827	2228092	121371
JULY	96622	84032	186561	93825	41271	502430	100462
AUGUST	125755	75221	124921	134451	51204	79504	102310
SEPTEMBER	62266	104442	96244	9102	54102	211296	65231
OCTOBER	97500	188908-	47803	32513	46736-		11566-
NOVEMBER	58354	12970-	77338	152958	20181-		51100
DECEMBER	53021	69492	85232	156277	25688		77942
ANNUAL TOTAL	850030	437619	1261465	518226	454067	2986438	704281
STORAGE ADJUSTMENT	68900-	184900	105800-	174700	72900-		22400
ADJUSTED ANNUAL TOTAL	781130	622519	1155665	692926	381167		726681

MINIMUM MONTHLY RUNOFF	1)	375499-	5/55	
MINIMUM CALENDAR YEAR RUNOFF	1)	144480	1944	
AVERAGE ANNUAL RUNOFF		1776708	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	5/55	11/44	2/45	4/57	4/57	5/57
TOTAL ACRE FEET	298589-	227600-	263487-	798236	3132766	12078054

NOTES: 1) RESULTING FROM STORAGE OF INFLOW BY LAKE TEXOMA

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN I RED RIVER FROM GAGE AT COLBERT, GAGE AT INDEX, ARK. TO TEXAS-ARKANSAS STATE LINE, AREA 2,270 SQ. MI. (IN TEXAS)

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	44	47	3520	4488	5128	6031	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			4659	84526	34488	70274	30624	77570	50357
FEBRUARY			5518	54970	41199	24783	51435	147345	54208
MARCH			8055	129140	75310	61919	229423	636936	190131
APRIL			51523	210080	203653	119216	72303	373831	171768
MAY			143897	223231	535785	65410	231638	214630	235765
JUNE			139228	143059	105578	173554	138131	309848	168233
JULY			146097	98695	51166	20941	15866	132089	77476
AUGUST			16532	2532	15893	11188	4809	54119	17512
SEPTEMBER			12292	25474	17552	6053	11314	64907-	1296
OCTOBER			7789	91063-	19094	6249	5619	183066	21792
NOVEMBER			26458	152240	51485	10387	16641	61916	53188
DECEMBER			152362	52583	6270	2793	61433	16008	48575
ANNUAL TOTAL			714410	1085467	1157473	572767	869236	2142451	1090301
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			714410	1085467	1157473	572767	869236	2142451	1090301

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	2763	5403	3321	3758	3000	2294	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			113891	75397	84194	193528	207293	27721	117004
FEBRUARY			279643	34250	88572	180891	387498	156482	187889
MARCH			202203	123532	176112	125893	61388	51117	123374
APRIL			102024	17685	39869	80617	776-	52854	48712
MAY			235520	206103	214488	73369	286001	39687-	162632
JUNE			143716	135946	1085-	109653	46967	272904	118017
JULY			29938	57596	102061	34669	86296	125913	73079
AUGUST			30662	16887	12259	6687	125058	13024	34096
SEPTEMBER			32047	13355	9615	4515	200039	20087	46610
OCTOBER			11742	6536	4107	44601	62124	815	21654
NOVEMBER			294236	18928	7928	14666	18720	19420	62316
DECEMBER			222391	79271	10718	22599	7267	30394	62107
ANNUAL TOTAL			1698013	785486	748838	891688	1489875	731044	1057491
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			1698013	785486	748838	891688	1489875	731044	1057491

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	2295	5462	6250	6770	10037		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			34460	26594	55676	72439	9165	4160-	39667
FEBRUARY			23209	24737	54037	58828	127245	46382	57611
MARCH			63940	86186	11269	104736	33464	75640	59919
APRIL			352594	71423	18428	84543	3819	317332	106161
MAY			74925	444677	226144	34047	57570	614086	167473
JUNE			26571	18386	78363	147	17971	285993	28288
JULY			3850	5676-	9532	43899	2600	170577	10841
AUGUST			770	36290	9775	8187	5230	13343	12050
SEPTEMBER			10439	5955	1189	23144	1167	9937	8379
OCTOBER			5954-	9815	147292	53108	12601		43372
NOVEMBER			21704	16596	34067	8471	7436		17655
DECEMBER			51096	14428	10536-	10647	1332-		12861
ANNUAL TOTAL			657604	749411	635236	502196	276936	1529130	564277
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			657604	749411	635236	502196	276936	1529130	564277

MINIMUM MONTHLY RUNOFF	91063-	10/41	(DURING FLOOD) LOW WATER 1332- 12/56
MINIMUM CALENDAR YEAR RUNOFF	276936	1956	
AVERAGE ANNUAL RUNOFF	924008	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/41	1/57	2/57	3/57	4/57	3/57
TOTAL ACRE FEET	63057-	20942	182748	660991	2782374	7352997

NOTES: 1) NO IRRIGATION USES 2) SOME REPORTED USES MODIFIED

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 2 RED RIVER - SUBBASIN Ioa RED RIVER FROM GAGE AT COLBERT, GAGE AT INDEX, ARK.(TEX.-ARK. STATE LINE) IN OKLAHOMA AND ARKANSAS, AREA 5,983 SQ. MI.

ESTIMATED HISTORICAL RUNOFF IN ACRE FEET FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
	MONTHLY RUNOFF						
JANUARY	19388	394242	167069	195864	200267	244136	203494
FEBRUARY	43859	453308	245958	88255	660126	1251651	457208
MARCH	35122	391928	347847	264019	957738	2996730	832231
APRIL	448744	1141988	1857804	531022	382048	1706835	1011407
MAY	778270	758937	1558572	988128	1151443	1029036	1044064
JUNE	476539	472109	586379	487684	475340	2227518	787595
JULY	476870	255773	222491	56697	45065	542577	266579
AUGUST	67935	22736	57664	27220	15912	417047	101419
SEPTEMBER	41935	69594	79505	19405	35757	260873	84512
OCTOBER	23628	96231	51663	34789	57332	697600	160207
NOVEMBER	157709	617928	247172	42341	96270	184850	224378
DECEMBER	569805	280485	323087	65025	269118	65638	262193
ANNUAL TOTAL	3139804	4955349	5745211	2800449	4346416	11624491	5435287
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	3139804	4955349	5743211	2800449	4346416	11624491	5435287

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
	MONTHLY RUNOFF						
JANUARY	598503	235717	368546	1055949	1042021	107734	568078
FEBRUARY	1358451	99364	580468	850686	1382516	837372	851476
MARCH	646491	407882	666028	603684	182626	291837	466425
APRIL	588170	862929	138871	339060	78590	297201	384137
MAY	909574	1071511	960352	746308	1324013	18158-	832267
JUNE	547178	447668	200325	519424	185147	1417451	552866
JULY	86256	142718	352079	97408	955018	469042	350420
AUGUST	92332	42627	38081	27790	714356	38931	159020
SEPTEMBER	81047	40359	25825	66362	990875	60667	210856
OCTOBER	30452	21278	13433	205576	164390	53240	81395
NOVEMBER	1437158	60676	24412	49811	54494	233765	310053
DECEMBER	1351503	353543	43222	116178	26547	130061	336842
ANNUAL TOTAL	7727115	3786272	3411642	4678236	7100593	3919143	5103834
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	7727115	3786272	3411642	4678236	7100593	3919143	5103834

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
	MONTHLY RUNOFF						
JANUARY	119295	85585	389608	261189	23735	81260	175882
FEBRUARY	113346	134772	168947	388300	461655	378998	253404
MARCH	380914	545133	41715	640782	108836	486280	343476
APRIL	1532461	985196	183556	293505	56071	2337168	610158
MAY	247930	1548152	1246140	226581	284330	2624914	710627
JUNE	93584	57233	198821	20081	85029	1349007	90950
JULY	12404	516295	24052	103229	6630	382123	132522
AUGUST	3885	107929	23009	33141	11080	40357	35809
SEPTEMBER	27216	33864	5195	344084	2483	756163	82568
OCTOBER	11891-	38304	461282	147120	27349		132433
NOVEMBER	78321	54763	91817	21757	26044		54540
DECEMBER	159029	87691	121020	26881	33872		85699
ANNUAL TOTAL	2756494	4194917	2955162	2506650	1127114	8436270	2708067
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	2756494	4194917	2955162	2506650	1127114	8436270	2708067

MINIMUM MONTHLY RUNOFF		18158-		5/51 (DURING FLOOD)	LOW WATER 2483	9/56
MINIMUM CALENDAR YEAR RUNOFF		1127114		1956		
AVERAGE ANNUAL RUNOFF		4516180		1940-1956		
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/52	12/56	2/57	3/57	1/57	1/57
TOTAL ACRE FEET	19210	107458	1101982	3290031	13502302	36281766

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 3 SULPHUR RIVER ABOVE ARKANSAS STATE LINE, AREA 3,558 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL	1)	527	674	962	1568	871	704	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		263	268804	29728	146223	100798	395310	156854
FEBRUARY		13628	196058	77456	22760	232511	572877	185882
MARCH		13179	444062	206987	352658	691568	1470207	529777
APRIL		363989	324229	1260330	157000	213394	1412472	621902
MAY		330503	977790	595736	36090	968183	134732	507172
JUNE		337431	610082	252021	314681	274978	662815	408668
JULY		303047	215559	11740	11983	4355	169758	119407
AUGUST		1170	19427	6467	691	2661	8755	6529
SEPTEMBER		4788	6315	28406	1321	28822	3853	12251
OCTOBER		410	31192	1733	9840	487	457535	83533
NOVEMBER		236203	82512	25699	7415	64605	35698	75355
DECEMBER		567858	187333	78097	31523	267280	5675	189628
ANNUAL TOTAL		2172469	3363343	2574400	1092185	2849642	5329687	2896958
STORAGE ADJUSTMENT		75000-	51200	23100-	44100-	2900-	1300-	15867-
ADJUSTED ANNUAL TOTAL		2097469	3414563	2551300	1048085	2846742	5328387	2881091

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL	1)	599	867	802	689	257	392	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		498967	135131	329628	465232	602990	43690	345940
FEBRUARY		918251	17827	386850	559918	1294399	543727	620162
MARCH		202594	222760	451770	493586	188325	66476	270919
APRIL		265718	272925	94493	193621	26166	27524	146741
MAY		924538	488854	743139	139222	852919	63051	535287
JUNE		583645	21855	32357	75123	98091	445064	209356
JULY		10029	3649	18526	19916	42345	58342	25468
AUGUST		11722	3649	4926	11435	79513	3417	19110
SEPTEMBER		24142	12541	465	6932	618130	9101	111885
OCTOBER		2626	633	723	504749	16723	13360	89802
NOVEMBER		954560	103274	1886	78485	2495	23534	194039
DECEMBER		344750	538891	5234	61895	1751	50041	167094
ANNUAL TOTAL		4741542	1821989	2069997	2610114	3823847	1347327	2735803
STORAGE ADJUSTMENT		173600-	28400	46500	4200-	16800-	31500-	25200-
ADJUSTED ANNUAL TOTAL		4567942	1850389	2116497	2605914	3807047	1315827	2710603

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL	1)	680	2035	2035	1569	2035		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		160134	145236	313052	65328	2250	0	137200
FEBRUARY		68168	180262	158835	96715	112628	144407	123322
MARCH		124736	206306	17872	48708	150608	23844	109646
APRIL		1038732	224012	76146	334455	55055	318701	345680
MAY		283943	1114157	604550	100187	133311	657763	447230
JUNE		81511	5940	40864	62831	62021	222276	50633
JULY		11703	55066	431	27343	14087	568683	21726
AUGUST		2774	6864	38	32065	0	201656	8348
SEPTEMBER		0	11149	0	0	0	0	2230
OCTOBER		0	1006	21879	57275	11504		18333
NOVEMBER		58007	25095	172106	0	13890		53820
DECEMBER		346297	131123	1180	12992	414		98401
ANNUAL TOTAL		2176005	2106216	1406953	837899	555768	2137330	1416568
STORAGE ADJUSTMENT		27300-	20400-	54400-	25500-	12000-	12000-	27920-
ADJUSTED ANNUAL TOTAL		2148705	2085816	1352553	812399	543768	2125330	1388648

MINIMUM MONTHLY RUNOFF		0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	2)	543768	1956	
AVERAGE ANNUAL RUNOFF	2)	2381965	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/54	1/57	3/57	1/57	4/57	3/57
TOTAL ACRE FEET	469	25808	458533	1328339	6178023	18548648

NOTES: 1) ONLY MINOR IRRIGATION USES 2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 4 CYPRESS CREEK ABOVE LOUISIANA STATE LINE, AREA 2,812 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	70	63	7	382	1322	1740	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			10945	240089	144814	148654	109738	625774	213336
FEBRUARY			34664	113856	87883	73969	285543	257380	142216
MARCH			26328	313064	160626	81604	490893	818775	315215
APRIL			148591	165759	618983	98206	445609	1032889	418340
MAY			86930	282697	417195	31039	868500	151520	306314
JUNE			98541	230066	61486	78097	301243	224385	165636
JULY			90900	90237	11336	5724	5563	129241	55500
AUGUST			2510	14616	40744	2231	2116	12531	12458
SEPTEMBER			1848	8893	150922	958	0	0	27104
OCTOBER			0	10018	11465	201	0	80490	17029
NOVEMBER			61062	39228	23579	0	0	117862	40289
DECEMBER			230828	147234	60588	0	126638	156931	120370
ANNUAL TOTAL			793147	1655757	1789621	520683	2635843	3607778	1833805
STORAGE ADJUSTMENT			40000-	20400-	24500-	12300	24100-	23100-	19967-
ADJUSTED ANNUAL TOTAL			753147	1635357	1765121	532983	2611743	3584678	1813838

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	1111	1173	3307	5212	7119	5865	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			491242	260842	244458	125264	458639	112822	282211
FEBRUARY			499455	169975	424128	267668	572887	240263	362396
MARCH			396878	276834	526745	195620	346916	245636	331438
APRIL			215804	327620	183761	194470	123858	131890	196234
MAY			480332	213394	332715	133380	552191	136155	308028
JUNE			713485	50300	89257	25248	136803	35406	175083
JULY			71172	2059	4472	40545	32608	8706	26594
AUGUST			2850	0	0	21829	29609	0	9048
SEPTEMBER			22449	0	0	2958	314832	3017	57209
OCTOBER			9987	0	0	125950	179766	1604	52885
NOVEMBER			339160	11913	0	218005	32633	13694	102568
DECEMBER			310982	247372	10904	76062	31136	52825	121547
ANNUAL TOTAL			3553796	1560309	1816440	1426999	2811878	982018	2025240
STORAGE ADJUSTMENT			16900-	22600-	5800-	29200-	22600-	16100-	18867-
ADJUSTED ANNUAL TOTAL			3536896	1537709	1810640	1397799	2789278	965918	2006373

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	4398	6362	8461	12285	19179		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			71605	119744	122164	51342	17053	274	76382
FEBRUARY			134191	164822	114279	146118	145497	21902	140981
MARCH			173843	225988	55381	188158	69579	91009	142590
APRIL			301267	136886	56172	276889	30859	0	160415
MAY			219962	627050	156218	128022	100629	886188	246376
JUNE			100507	183489	105128	27739	2127	354497	83798
JULY			56	13300	0	1240	486	53780	3016
AUGUST			0	13907	0	19622	404	3142	6787
SEPTEMBER			0	0	0	1033	150	158	237
OCTOBER			0	0	0	6009	95		1221
NOVEMBER			0	0	0	356	924		256
DECEMBER			44066	57665	12369	2697	588		23477
ANNUAL TOTAL			1045497	1542851	621711	849225	368391	1410950	885535
STORAGE ADJUSTMENT			36100-	24400-	54500-	7700-	2560-	2560-	25052-
ADJUSTED ANNUAL TOTAL			1009397	1518451	567211	841525	365831	1408390	860483

MINIMUM MONTHLY RUNOFF	3)	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	4)	365831	1956	
AVERAGE ANNUAL RUNOFF	4)	1601393	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/44	1/57	4/57	4/57	4/57	4/57
TOTAL ACRE FEET	0	2435	218588	668294	3859954	12103233

ALLRED-FLEMING, HOUSTON

NOTES: 1) NO IRRIGATION USES 2) SOME REPORTED USES MODIFIED
3) SOME LOW RUNOFF VALUES MAY BE INACCURATE BECAUSE OF SUBTRACTING USES FROM ENTIRE WATERSHED RATHER THAN FROM PORTION WHERE USES OCCUR
4) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

WATERSHED NO. 5 SABINE RIVER - SUBBASIN A SABINE RIVER ABOVE GAGE NEAR MINEOLA, AREA 1,445 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)	200	222	2044	1934	2161	2156	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	644	54170	7230	31310	49590	129900	45474
FEBRUARY	8720	56720	34730	6380	93150	189900	64933
MARCH	10060	109600	25090	69100	195200	558600	161275
APRIL	86360	48670	621600	33510	50390	412300	208805
MAY	64500	194200	217900	64020	408900	17830	161225
JUNE	80580	267100	90190	483400	90220	362200	228948
JULY	51310	30830	615	1850	3950	129800	36393
AUGUST	7500	19250	9720	86	181	5140	6980
SEPTEMBER	18360	7220	12880	182	2980	1400	7170
OCTOBER	2120	8500	9310	21360	1220	63360	17645
NOVEMBER	104000	19470	19810	940	17820	24390	31072
DECEMBER	196900	53050	41010	10510	93870	13680	68170
ANNUAL TOTAL	631054	868780	1090085	722648	1007471	1908500	1038090
STORAGE ADJUSTMENT	210300-	138000-	131900-	187300-	136300-	116300-	153350-
ADJUSTED ANNUAL TOTAL	420754	730780	958185	535348	871171	1792200	884740

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)	2041	3738	2188	2514	2395	2090	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	130000	69710	99720	72880	123600	8190	84017
FEBRUARY	245000	8890	94290	171500	402000	75830	166252
MARCH	78450	37730	146300	85830	38090	10430	66138
APRIL	47230	101500	11630	31970	44400	3780	40085
MAY	193400	33470	168700	56090	229000	17810	116412
JUNE	278600	30400	4810	35770	55640	133500	89787
JULY	3990	2970	6140	19710	20480	11990	10880
AUGUST	7620	3190	2370	9660	42320	223	10897
SEPTEMBER	8740	23310	345	2020	25710	106	10039
OCTOBER	3710	801	235	98830	1050	747	17576
NOVEMBER	399500	51210	1920	14700	1830	1280	78407
DECEMBER	87890	199500	3080	3860	1230	1940	49583
ANNUAL TOTAL	1484130	562761	539540	602820	985350	265826	740071
STORAGE ADJUSTMENT	109100-	155000-	181900-	119000-	134100-	122100-	136867-
ADJUSTED ANNUAL TOTAL	1375030	407761	357640	483820	851250	143726	603205

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)	2001	394	2984	2322	2585		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	3980	28510	88110	6140	1620	6880	25672
FEBRUARY	6340	5570	22540	43400	24940	29270	20558
MARCH	18370	39340	2800	50660	1800	96230	22594
APRIL	202200	48000	26590	56340	1050	563400	66836
MAY	115300	453500	41830	5130	56770	465000	134506
JUNE	41940	545	8740	2120	286	160300	10726
JULY	787	18210	30	1610	0	1320	4127
AUGUST	17	892	0	3470	0	532	876
SEPTEMBER	0	2640	0	3690	0	14800	1266
OCTOBER	19	218	52900	253	9		10680
NOVEMBER	8910	5740	47780	215	7010		13931
DECEMBER	80810	32310	4710	825	1420		24015
ANNUAL TOTAL	478673	635475	296030	173853	94905	1337732	335787
STORAGE ADJUSTMENT	218900-	184400-	128000-	86900-	47500-	47500-	133140-
ADJUSTED ANNUAL TOTAL	259773	451075	168030	86953	47405	1290232	202647

MINIMUM MONTHLY RUNOFF		0	AT TIMES
MINIMUM CALENDAR YEAR RUNOFF 2)		47405	1956
AVERAGE ANNUAL RUNOFF 2)		584759	1940-1956

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/56	11/56	4/56	2/57	10/56	1/57
TOTAL ACRE FEET	0	7305	46723	255368	1673726	4572403

NOTES: 1) NO USE ADJUSTMENT MADE; STORAGE ADJUSTMENT INCLUDES DIVERSION OF 112,000 AC FT/YR TO CITY OF DALLAS
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 5 SABINE RIVER - SUBBASIN B FROM GAGE NEAR MINEOLA TO GAGE NEAR GLADEWATER, AREA 1401 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	31	31	1237	123	2035	1929	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		8336	204830	40060	101390	92210	185800	105438
FEBRUARY		18450	66380	48200	26290	120250	15700	49212
MARCH		11860	192100	61920	2110-	120300	222000	101012
APRIL		61940	59430	183600	95990	121610	979700	250378
MAY		23100	136500	343100	31600	338900	62540	155957
JUNE		86320	192700	79810	369600	113780	184000	171035
JULY		45750	93070	9925	9830	8400	109300	46046
AUGUST		3080	12010	56160	2514	3999	12560	15054
SEPTEMBER		18420	27700	20740	1878	8060	5610	13735
OCTOBER		2140	21150	11000	38840	3230	95440	28633
NOVEMBER		29600	29060	15880	9110	7220	43780	22442
DECEMBER		204800	65050	25510	26390	61730	52130	72602
ANNUAL TOTAL		513796	1099980	895905	711322	999689	1968560	1031542
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		513796	1099980	895905	711322	999689	1968560	1031542

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	1698	1636	2278	2269	2389	1703	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		223500	117990	102680	5600-	182700	33000	109045
FEBRUARY		187400	55820	157810	61600	373600	78370	152433
MARCH		114850	100270	176600	205870	85510	94270	129562
APRIL		137070	143800	68420	90030	49240	27760	86053
MAY		164300	81230	227200	93210	232100	32950	138498
JUNE		493200	11670	19060	26610	92660	5200	108067
JULY		21120	22060	7880	37990	16230	8370	18942
AUGUST		5070	790	5940	25740	50960	2177	15113
SEPTEMBER		13780	9760	3015	10090	25170	3624	10907
OCTOBER		14600	6779	3365	36270	11400	3413	12638
NOVEMBER		247900	13500	7410	134900	14240	10770	71453
DECEMBER		116610	208300	11860	31140	14560	15070	66257
ANNUAL TOTAL		1739400	771969	791240	747850	1148370	314974	918967
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1739400	771969	791240	747850	1148370	314974	918967

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	70	330	877	798	1474		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		24870	57280	64690	33410	12650	6170	38580
FEBRUARY		36830	31800	63470	53790	45470	34220	46272
MARCH		61540	80360	27120	85340	13970	14270	53666
APRIL		130500	45560	27090	110060	9410	57300	64524
MAY		104100	364700	65270	20860	29080	531300	116802
JUNE		137760	12985	13830	8060	2624	365900	35052
JULY		5183	43780	1810	5820	1030	6870	11525
AUGUST		1573	11538	776	7540	530	7538	4391
SEPTEMBER		1080	21800	701	16820	558	5030	8192
OCTOBER		1351	3942	28080-	3837	880		3614-
NOVEMBER		6310	11700	74120	3005	2710		19569
DECEMBER		66690	57650	22990	7605	2920		31571
ANNUAL TOTAL		577787	743095	333787	356147	121832	1028598	426530
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		577787	743095	333787	356147	121832	1028598	426530

MINIMUM MONTHLY RUNOFF	28080-		10/54	(DURING FLOOD) LOW WATER 530 8/56
MINIMUM CALENDAR YEAR RUNOFF	121832		1956	
AVERAGE ANNUAL RUNOFF	813865		1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/54	11/56	2/57	4/57	4/57	4/57
TOTAL ACRE FEET	26603-	8332	104102	307339	1990868	5601131

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 5 SABINE RIVER - SUBBASIN C SABINE RIV.FM.GAGE NEAR GLADEWATER TO GAGE AT LOGANSPORT, LOUISIANA, AREA 1,944 SQ.MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	812	913	1061	2510	842	347	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			36782	496307	115822	113808	236061	561466	260041
FEBRUARY			203726	174049	78303	43087	184477	123770	134569
MARCH			32299	258672	193275	25912	314210	515097	223244
APRIL			56189	148933	75552-	51404	378836	631597	198568
MAY			55995	193853	441354	1977-	788323	88348	260983
JUNE			79663	31758	253660	107889-	205825	241087-	36988
JULY			40868	275577	41739	78259	8510	329432	129064
AUGUST			14603	11472	47728	3336	1748	36387	19212
SEPTEMBER			29528	22745	107292	815	8819	8845	29674
OCTOBER			7087	74214	7930	1262-	1980	107735	32947
NOVEMBER			278272	247147	16053	8311	6520	44588	100149
DECEMBER			553582	148161	4065	28742	64209	136416	155863
ANNUAL TOTAL			1388594	2082888	1231669	242546	2199518	2342594	1581302
STORAGE ADJUSTMENT			2900-	2300-	7100-	6900-	500	500-	3200-
ADJUSTED ANNUAL TOTAL			1385694	2080588	1224569	235646	2200018	2342094	1578102

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	1192	455	476	272	250	3089	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			385723	277374	209659	118084	336186	49529	229426
FEBRUARY			418375	197476	315242	115842	211862	78694	222915
MARCH			507922	309348	250037	140379	336089	125545	278220
APRIL			143644	230909	115425	139220	35529	83871	124766
MAY			167601	203089	20323	66383	228284	21313	117832
JUNE			398088	35506	127288	36167	254269	24862-	137743
JULY			38012	18534	9542	59815	57553	18743	33700
AUGUST			6481	2479	771	50715	8925	2042	11902
SEPTEMBER			27067	518	403	18142	12364	5606	10683
OCTOBER			14258	2469	109-	121348	17184	268-	25814
NOVEMBER			17774	1735	9599	59911	13416	1047	17247
DECEMBER			208366	75796-	16033	66673	12026	31794	43183
ANNUAL TOTAL			2333311	1203641	1074213	992679	1523687	393054	1253431
STORAGE ADJUSTMENT			2900-	4600-	19200	38900			8433
ADJUSTED ANNUAL TOTAL			2330411	1199041	1093413	1031579	1523687	393054	1261864

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	7443	5585	22683	7078	25539		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			57225	53988	16763	70767	10268	348	41802
FEBRUARY			289963	166933	76163	153514	119485	45605	161212
MARCH			178545	298280	41078	82794	62925	23764	132724
APRIL			47662	58847	32760	251168	70316	68006-	92151
MAY			169668	533308	188132	150424	223677	790864	253042
JUNE			54810	266470	26926	27635	6453	306609	76459
JULY			6210	13871	2921	16111	2318	34186	8286
AUGUST			3013	18759	1060	103553	1343	8066	25546
SEPTEMBER			204-	3235	360	10517	929	6521-	2967
OCTOBER			629-	75	15752-	8199	706		1480-
NOVEMBER			9381-	2771	31061	635	1680		5353
DECEMBER			12520-	34504	35736	4249	1981		12790
ANNUAL TOTAL			784362	1451041	437208	879566	502081	1134915	810852
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			784362	1451041	437208	879566	502081	1134915	810852

MINIMUM MONTHLY RUNOFF		241087-		6/45	(DURING FLOOD) LOW WATER 629- 10/52
MINIMUM CALENDAR YEAR RUNOFF	3)	235646		1943	
AVERAGE ANNUAL RUNOFF	3)	1240827		1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	12/47	12/47	11/43	4/57	4/57	4/57
TOTAL ACRE FEET	71592-	50061-	217869	825115	3482574	8228136

NOTES: 1) ONLY MINOR MUN. & IND. USES 2) SOME REPORTED USES MODIFIED
3) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 5 SABINE RIVER - SUBBASIN D IN TEXAS FROM GAGE AT LOGANSPORT, LOUISIANA TO GAGE NEAR MILAM, AREA 759 SQ. MI.

ESTIMATED RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	0	0	166	168	224	193	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		42619	198945	56880	6705	38835	189855	88973
FEBRUARY		189135	85590	52920	9693	30375	91935	76608
MARCH		21424	103770	88200	15345	92070	51300-	44918
APRIL		48060	24615	14445-	5535	86940	242100	65468
MAY		57375	126315	45000	4338	203400	49455	80981
JUNE		57600	144540	42030	81945-	144945	39510-	44610
JULY		17370	85275	11349	74304	4639	50580	40586
AUGUST		19597	9702	6840-	2282	2790	23112	8441
SEPTEMBER		9365	6912	9405	1102	15314	3825	7654
OCTOBER		1143	22950	1053	2938-	1143	26055	8234
NOVEMBER		66825	205740	1242	2696	15647	14760	51152
DECEMBER		310995	80280	2065-	4734-	68400	31815	80782
ANNUAL TOTAL		841508	1094634	284729	32383	704498	632682	598406
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		841508	1094634	284729	32383	704498	632682	598406

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	224	249	282	203	226	238	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		166995	243900	20025	91890	216225	16425	125910
FEBRUARY		190080	58140	125685	82575	61155	20700	89723
MARCH		143910	95335	53415	106830	201915	51255	108780
APRIL		99045	78930	81720	63405	26190	45855	65858
MAY		87525	25380	7695-	12150	116010	19638	42168
JUNE		74250	6948	22140	15030	244395	1485-	60213
JULY		29133	4023	4091	2430-	8833	7587	8540
AUGUST		8024	1417	1413	12654	3015	1318	4640
SEPTEMBER		3263	153	716	3820	909	1818	1780
OCTOBER		3361	977	508	47745	4914	981	9748
NOVEMBER		27495-	2479	4009	16380	1269	621	456-
DECEMBER		102105	11790	5481	74520	4595	17352	35974
ANNUAL TOTAL		880196	529492	311508	524569	889425	182065	552876
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		880196	529492	311508	524569	889425	182065	552876

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	274	663	921	0	10		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		6997	15120	18450	1845-	1868	2614	8118
FEBRUARY		39105	60390	17820	8595	32940	20070	31770
MARCH		52155	203085	7713	21285	11560	29880	59160
APRIL		65610	27990	31887	56835	52132	34515	46891
MAY		29025	412200	63090	27585	18720	229050	110124
JUNE		11970	127405	4050	10296	3523	87930	31465
JULY		6183	4455	1152	7461	1696	27909	4189
AUGUST		2704	10836	761	35505	540	2831	10069
SEPTEMBER		733	2052	392	374-	297	567	620
OCTOBER		495	1197	1831-	2641	158		532
NOVEMBER		846	527-	4320-	1147	347		501-
DECEMBER		6615-	9900	567-	1733	513		993
ANNUAL TOTAL		209208	874183	138597	170864	124294	435366	303429
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		209208	874183	138597	170864	124294	435366	303429

MINIMUM MONTHLY RUNOFF	81945-	6/43	(DURING FLOOD) LOW WATER 158 10/56
MINIMUM CALENDAR YEAR RUNOFF	32383	1943	
AVERAGE ANNUAL RUNOFF	495579	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/43	6/43	6/43	2/44	4/57	4/57
TOTAL ACRE FEET	72072-	40329-	26185-	276522	1440358	3564959

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 5 SABINE RIVER - SUBBASIN DL IN LOUISIANA FROM GAGE AT LOGANSPORT, LOUISIANA TO GAGE NEAR MILAM, AREA 994 SQ. MI.

ESTIMATED HISTORICAL RUNOFF FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
	MONTHLY RUNOFF						
JANUARY	55879	260839	74576	8791	50917	248921	116654
FEBRUARY	247977	112218	69384	12709	39825	120537	100442
MARCH	28090	136054	115640	20119	120714	67260-	58893
APRIL	63012	32273	18939-	7257	113988	317420	85835
MAY	75225	165613	59000	5688	266680	64841	106175
JUNE	75520	189508	55106	107439-	190039	51882-	58489
JULY	22774	111805	14880	97421	6083	66316	53213
AUGUST	25694	12721	8968-	2991	3658	30302	11066
SEPTEMBER	12278	9063	12331	1446	20078	5015	10035
OCTOBER	1498	30090	1380	3852-	1498	34161	10796
NOVEMBER	87615	269748	1628	3534	20514	19352	67065
DECEMBER	407749	105256	2708-	6207-	89680	41713	105914
ANNUAL TOTAL	1103311	1435188	373310	42458	923674	829516	784576
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1103311	1435188	373310	42458	923674	829516	784576

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
	MONTHLY RUNOFF						
JANUARY	218949	319780	26255	120478	283495	21535	165082
FEBRUARY	249216	76228	164787	108265	80181	27140	117636
MARCH	188682	125021	70033	140066	264733	67201	142623
APRIL	129859	103486	107144	83131	34338	60121	86347
MAY	114755	33276	10089-	15930	152102	25748	55287
JUNE	97350	9110	29028	19706	320429	1947-	78946
JULY	38197	5275	5364	3186-	11582	9947	11197
AUGUST	10520	1858	1853	16591	3953	1728	6084
SEPTEMBER	4277	201	938	5009	1192	2384	2334
OCTOBER	4408	1281	666	62599	6443	1286	12781
NOVEMBER	36049-	3251	5257	21476	1663	815	598-
DECEMBER	133871	15458	7186	97704	6024	22751	47166
ANNUAL TOTAL	1154035	694225	408422	687769	1166135	238709	724883
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1154035	694225	408422	687769	1166135	238709	724883

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
	MONTHLY RUNOFF						
JANUARY	9174	19824	24190	2419-	2449	3428	10644
FEBRUARY	51271	79178	23364	11269	43188	26314	41654
MARCH	68381	266267	10113	27907	15157	39176	77565
APRIL	86022	36698	41807	74517	68351	45253	61479
MAY	38055	540440	82718	36167	24544	300310	144385
JUNE	15694	167147	5310	13499	4620	115286	41254
JULY	8107	5841	1510	9782	2224	36592	5493
AUGUST	3546	14208	997	46551	708	3711	13202
SEPTEMBER	961	2690	513	490-	389	744	813
OCTOBER	649	1570	2401-	3464	206		698
NOVEMBER	1110	691-	5664-	1505	455		657-
DECEMBER	8673-	12900	744-	2271	673		1301
ANNUAL TOTAL	274297	1146152	181713	224023	162964	570814	397830
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	274297	1146152	181713	224023	162964	570814	397830

MINIMUM MONTHLY RUNOFF	107439-	6/43	(DURING FLOOD) LOW WATER 201 9/47		
MINIMUM CALENDAR YEAR RUNOFF	42485	1943			
AVERAGE ANNUAL RUNOFF	649759	1940-1956			

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/43	6/43	6/43	2/44	4/57	4/57
TOTAL ACRE FEET	94494-	52875-	34332-	362550	1888472	4874065

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 5 SABINE RIVER - SUBBASIN E IN TEXAS FROM GAGE NEAR MILAM TO GAGE NEAR RULIFF, AREA 1514 SQ.MI.

ESTIMATED NET RUNOFF FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1,2)	26919	19629	28849	32935	41735	29705	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		224890	404802	153082	128554	187705	398003	249506
FEBRUARY		185403	139955	132005	71233	174944	413588	186188
MARCH		80752	281269	234722	82058	154023	100416	155540
APRIL		69507	165425	234304	87027	265945	406894	204850
MAY		148166	177715	76358	41317	437751	335400	202785
JUNE		76462	287650	180540	113282-	399415	42781	145594
JULY		88858	293508	132486	161764	56118	84360	136182
AUGUST		398745	76870	51567	47378	34869	116524	120992
SEPTEMBER		45767	78581	107581	29293	66039	46526	62298
OCTOBER		28174	57268	35842	16396	34727	95186	44599
NOVEMBER		27562	168040	32698	37787	39910	78293	64048
DECEMBER		650089	105751	54836	47948	150885	172904	197069
ANNUAL TOTAL		2024375	2236834	1426021	637473	2002331	2290875	1769652
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		2024375	2236834	1426021	637473	2002331	2290875	1769652

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1,2)	30591	38728	53719	39168	49948	60462	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		341519	616617	187653	183782	223321	170132	287171
FEBRUARY		493189	211239	212390	308727	370284	68147	277329
MARCH		379175	282263	194242	284198	433881	97225	278497
APRIL		225831	143982	217202	415157	102352	224733	221543
MAY		141786	108470	22907	200152	189117	120552	130497
JUNE		320599	111592	93408	84465	749564	20606	230039
JULY		333569	37228	28483	60877	98115	48764	101173
AUGUST		73099	20172	14890	61557	44926	19508	39025
SEPTEMBER		43781	15961	13713	27112	33378	36233	28363
OCTOBER		52174	19586	11156	68618	35491	25585	35435
NOVEMBER		93774	55553	119903	80385	35742	22604	67994
DECEMBER		343506	207527	68105	249994	36647	52185	159661
ANNUAL TOTAL		2842002	1830190	1184052	2025024	2352818	906274	1856727
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		2842002	1830190	1184052	2025024	2352818	906274	1856727

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1,2)	40450	34716	45363	31110	34851		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		32373	86295	85040	52718	82556	42614	67796
FEBRUARY		158940	141001	60145	205801	240162	62185	161210
MARCH		138176	232996	53697	42049	125991	249000	118582
APRIL		249262	124370	106169	207056	74685	139432	152308
MAY		268195	926756	272378	75521	46913	80542	317953
JUNE		129652	340787	83058	80824	37849	182004	134434
JULY		93199	91123	21402	50585	18336	288330	54929
AUGUST		32437	85903	14544	223844	10062	37907	73358
SEPTEMBER		12950	43372	9692	80406	9006	61641	31085
OCTOBER		10392	27463	10141	31584	8128		17542
NOVEMBER		15632	25261	12134	25617	16083		18945
DECEMBER		62028	81536	20459	53676	114888		66517
ANNUAL TOTAL		1203236	2206863	748859	1129681	784659	1143655	1214660
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1203236	2206863	748859	1129681	784659	1143655	1214660

MINIMUM MONTHLY RUNOFF	113282-	6/43	(DURING FLOOD) LOW WATER 8128	10/56	
MINIMUM CALENDAR YEAR RUNOFF	637473	1943			
AVERAGE ANNUAL RUNOFF	1637151	1940-1956			

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/43	12/54	2/57	7/55	5/57	5/57
TOTAL ACRE FEET	15062	88372	566740	1726948	5800125	13582858

NOTES: 1) ONLY MINOR MUN. & IND. USES
2) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 5 SABINE RIVER - SUBBASIN EL IN LOUISIANA FROM GAGE NEAR MILAM TO GAGE NEAR RULIFF, AREA 1383 SQ.MI.

ESTIMATED HISTORICAL RUNOFF FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
1) MONTHLY RUNOFF							
JANUARY	205110	369198	139618	117246	171196	362997	227561
FEBRUARY	169096	127645	120395	64967	159557	377212	169812
MARCH	73649	256531	214078	74842	140476	91584	141860
APRIL	63393	150875	213696	79373	242554	371106	186833
MAY	135135	162085	69642	37683	399249	305900	184949
JUNE	69737	262350	164660	103318-	364285	39019	132789
JULY	81042	267692	120834	147536	51182	76940	124204
AUGUST	363675	70110	47033	43212	31801	106276	110351
SEPTEMBER	41743	71669	98119	26717	60231	42434	56819
OCTOBER	25696	52232	32689	14954	31673	86814	40676
NOVEMBER	25138	153260	29822	34463	36400	71407	58415
DECEMBER	592911	96449	50014	43732	137615	157697	179736
ANNUAL TOTAL	1846325	2040096	1300600	581407	1826219	2089386	1614006
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1846325	2040096	1300600	581407	1826219	2089386	1614006

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
1) MONTHLY RUNOFF							
JANUARY	311481	562383	171147	167618	203679	155168	261913
FEBRUARY	449811	192660	193710	281573	337716	62153	252937
MARCH	345825	257437	177158	259202	395719	88674	254003
APRIL	205969	131318	198098	378643	93349	204967	202057
MAY	129314	98929	20893	182548	172483	109948	119019
JUNE	292401	101778	85192	77035	683636	18794	209806
JULY	304231	33953	25977	55523	89485	44476	92274
AUGUST	66671	18398	13580	56143	40974	17792	35593
SEPTEMBER	39929	14559	12507	24728	30442	33047	25869
OCTOBER	47586	17864	10174	62582	32369	23335	32318
NOVEMBER	85526	50667	109357	73315	32598	20616	62013
DECEMBER	313294	189274	62115	228006	33423	47595	145618
ANNUAL TOTAL	2592038	1669220	1079908	1846916	2145873	826565	1693420
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	2592038	1669220	1079908	1846916	2145873	826565	1693420

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
1) MONTHLY RUNOFF							
JANUARY	29527	78705	77560	48082	75294	38866	61834
FEBRUARY	144960	128599	54855	187699	219039	56715	147030
MARCH	126024	212503	48974	38351	114910	227099	108152
APRIL	227338	113430	96831	188844	68115	127168	138912
MAY	244605	845244	248422	68879	42787	73458	289987
JUNE	118249	310813	75753	73716	34521	165996	122610
JULY	85001	83107	19518	46135	16724	262970	50097
AUGUST	29583	78347	13266	204156	9178	34573	66906
SEPTEMBER	11810	39558	8838	73334	8214	56219	28351
OCTOBER	9478	25047	9249	28806	7412		15998
NOVEMBER	14258	23039	11066	23363	14667		17279
DECEMBER	56572	74364	18661	48954	104782		60667
ANNUAL TOTAL	1097405	2012756	682993	1030319	715643	1043064	1107823
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1097405	2012756	682993	1030319	715643	1043064	1107823

MINIMUM MONTHLY RUNOFF		103318-		6/43	(DURING FLOOD) LOW WATER 7412	10/56
MINIMUM CALENDAR YEAR RUNOFF		581407		1943		
AVERAGE ANNUAL RUNOFF		1493157		1940-1956		
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/43	12/54	2/57	7/55	5/57	5/57
TOTAL ACRE FEET	13738	80598	516891	1575054	5289968	12388177

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 5 SABINE RIVER - SUBBASIN F FROM GAGE NEAR RULIFF TO MOUTH
AREA 320 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	0	518,129	167,740	350,389		
41	0	508,508		340,768		
42	0	359,513		191,773		
43	0	224,724		56,984		
44	0	626,732		458,992		
45	0	678,075		510,335		
					318,207	6 Yr.Av. 1940-45
1946	7,850	767,753		600,013		
47	56,989	464,801		297,061		
48	106,033	323,941		156,201		
49	120,394	551,577		383,837		
50	120,036	532,083		364,343		
51	129,971	210,605		42,865		
					307,386	6 Yr.Av. 1946-51
1952	144,402	362,602		194,862		
53	167,716	408,991		241,251		
54	146,845	228,674		60,934		
55	160,190	346,452		178,712		
56	167,740	262,903	167,740	95,163		
					154,184	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 42,865 1951

Average Annual Runoff 266,146 1940-56

WATERSHED NO. 5 SABINE RIVER - SUBBASIN FL FROM GAGE NEAR RULIFF TO MOUTH IN LOUISIANA AREA 108 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN

Year	Reported Consump-tive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	*	175,729	0			
41		172,466				
42		121,933				
43		76,218				
44		212,563				
45		229,976				
					164,814	6 Yr.Av. 1940-45
1946		260,392				
47		157,642				
48		109,868				
49		187,073				
50		180,462				
51		71,429				
					161,144	6 Yr.Av. 1946-51
1952		122,980				
53		138,714				
54		77,557				
55		117,503				
56	*	89,166	0			
					109,184	5 Yr.Av. 1952-56

Same as historic runoff

Min. Cal. Yr. Runoff 71,429 1951

Average Annual Runoff 147,157 1940-56

* - No use included

WATERSHED NO. 6 NECHES RIVER - SUBBASIN A NECHES RIVER ABOVE GAGE NEAR ALTO, AREA 1,903 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL	1,2)	1085	1357	2516	2193	3076	5103	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		16033	237104	86832	99629	154340	308400	150390
FEBRUARY		93418	139570	79882	39213	198200	129700	113331
MARCH		20369	214859	80874	38293	252400	300500	151216
APRIL		41469	100991	250050	52650	143700	619800	201443
MAY		58139	95609	199110	67025	624600	84050	188089
JUNE		52648	171665	125634	103464	104500	47640	100925
JULY		48797	106858	34732	14292	12710	141000	59732
AUGUST		5304	9304	12359	3340	5870	20420	9433
SEPTEMBER		7021	11663	34956	1726	11310	13290	13328
OCTOBER		2767	36391	10751	28043	5660	114800	33069
NOVEMBER		178536	151060	18722	20030	32360	52600	75551
DECEMBER		334204	105672	29488	31570	109400	94620	117492
ANNUAL TOTAL		858705	1380746	963390	499275	1655050	1926820	1213998
STORAGE ADJUSTMENT		1000-	300-	1700-	2400-	200	1300-	1083-
ADJUSTED ANNUAL TOTAL		857705	1380446	961690	496875	1655250	1925520	1212914

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL	1,2)	4546	4287	5546	5202	5306	2151	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		231500	183100	85200	62930	137800	24060	120765
FEBRUARY		252700	109400	165400	94490	254600	41990	153097
MARCH		245400	256200	144800	97810	88980	64700	149648
APRIL		159000	200800	78360	136100	73060	51700	116503
MAY		242800	184000	115400	37590	188600	30310	133117
JUNE		202200	80710	22100	19360	113800	23250	76903
JULY		49410	22060	12740	8770	20860	7160	20167
AUGUST		12940	7240	2320	8920	8690	1240	6892
SEPTEMBER		79480	8480	1980	5790	9160	3390	18047
OCTOBER		40850	7140	2380	43200	7220	2990	17297
NOVEMBER		286100	20520	10250	44600	11170	8370	63502
DECEMBER		178900	71330	20570	36760	15090	20860	57252
ANNUAL TOTAL		1981280	1150980	661500	596320	929030	280020	933188
STORAGE ADJUSTMENT		800-	1700-	2000-	900	100-	1200-	817-
ADJUSTED ANNUAL TOTAL		1980480	1149280	659500	597220	928930	278820	932372

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL	1,2)	589	900	922	1083	1697		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		24400	51980	54014	53730	14340	6010	39693
FEBRUARY		63340	37400	36930	99890	42750	21130	56062
MARCH		91850	178100	32530	76530	22980	30220	80398
APRIL		114100	49090	33080	137500	19100	238400	70574
MAY		119200	395000	99870	52730	97800	411500	152920
JUNE		47310	32310	14440	31000	5110	215400	26034
JULY		5630	8980	1680	7650	1150	11740	5018
AUGUST		1560	5290	395	5880	279	13720	2681
SEPTEMBER		449	4360	65	5550	137	4490	2112
OCTOBER		510	2210	5010	5900	108		2748
NOVEMBER		4400	8930	52110	2830	1720		13998
DECEMBER		28390	48870	47190	8760	2790		27200
ANNUAL TOTAL		501139	822520	377314	487950	208264	952610	479437
STORAGE ADJUSTMENT		2200-	100-	2300-	300-	2500-	2500-	1480-
ADJUSTED ANNUAL TOTAL		498939	822420	375014	487650	205764	950110	477957

MINIMUM MONTHLY RUNOFF		65		9/54	
MINIMUM CALENDAR YEAR RUNOFF	3)	205764		1956	
AVERAGE ANNUAL RUNOFF	3)	897735		1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/56	12/56	2/57	3/57	3/57	3/57
TOTAL ACRE FEET	524	6184	178314	523424	2274957	5523697

NOTES: 1) NO USE ADJUSTMENT MADE 2) NO IRRIGATION USES

3) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO.6 NECHES RIVER - SUBBASIN B NECHES RIVER FROM GAGE NEAR ALTO TO GAGE NEAR ROCKLAND, AREA 1,636 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)							
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		64747	273796	83568	102271	83460	380000	164640
FEBRUARY		210982	173430	75518	35987	143300	262400	150270
MARCH		24921	266341	118726	28577	172500	131200	123711
APRIL		90831	109809	128350	21340	153100	473200	162772
MAY		73161	191591	161890	1055-	846400	135250	234540
JUNE		101352	149235	91966	7436	193100	14560	92942
JULY		46123	110742	47928	25878	10550	32400-	34804
AUGUST		8616	14026	72301	13710	2260	46000	26152
SEPTEMBER		7319	32847	18614	1694	27110	3460	15174
OCTOBER		2563	74109	8109	11663-	2910	1300	12888
NOVEMBER		89664	347940	13578	14560	7940	30970	84109
DECEMBER		561196	103928	12402	7800	164300	40980	148434
ANNUAL TOTAL		1281475	1847794	832950	246535	1806930	1486920	1250434
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1281475	1847794	832950	246535	1806930	1486920	1250434

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)							
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		211200	465600	21500	51970	372800	5680	188125
FEBRUARY		530100	116000	155000	103510	291000	4610	200037
MARCH		286500	260200	120300	229190	231020	29900	192852
APRIL		177900	41600	125140	123500	32540	46850	91255
MAY		178300	191300	9900	102610	153400	8020	107255
JUNE		256700	131690	55870	29370	383600	930	143027
JULY		67690	25170	5140	4660	18570	5790	21170
AUGUST		12860	2800	1790	7620	5180	1280	5255
SEPTEMBER		2960	60	1580	7070	2080	1110	2477
OCTOBER		18660	1370	70-	97500	4260	2390	20685
NOVEMBER		278800	5040	6050	45300	530	460-	55877
DECEMBER		165800	20460	2430	171340	3800	1970	60967
ANNUAL TOTAL		2187470	1261290	504630	973640	1498780	108070	1088980
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		2187470	1261290	504630	973640	1498780	108070	1088980

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)							
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		4950	29820	23926	12470	1150	450	14463
FEBRUARY		17320	78500	15160	82310	36140	2200-	45886
MARCH		69550	87400	7340	43270	14030	36780	44318
APRIL		85100	133210	22720	179900	52440	102100-	94674
MAY		164600	685000	69730	41380	6130-	463800	190916
JUNE		44350	160390	45370	36030	10170	24400	59262
JULY		3700	30240	1920	2780	1740	27830	8076
AUGUST		1990	7350	1125	5000	394	5750	3172
SEPTEMBER		471	5390	417	220	161	3160	1332
OCTOBER		84	870	3880-	2530	100		59-
NOVEMBER		3130	240-	4460-	160-	30-		352-
DECEMBER		18480	16800	2150	290	900		7724
ANNUAL TOTAL		413725	1234730	181518	406020	111065	457870	469412
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		413725	1234730	181518	406020	111065	457870	469412

MINIMUM MONTHLY RUNOFF	102100-	4/57	(DURING FLOOD) LOW WATER 30- 11/56
MINIMUM CALENDAR YEAR RUNOFF	108070	1951	
AVERAGE ANNUAL RUNOFF	963738	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	4/57	4/57	4/57	4/57	4/57	4/57
TOTAL ACRE FEET	67520-	66200-	59765-	132065	2103068	5742998

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 6 NECHES RIVER - SUBBASIN C ANGELINA RIVER ABOVE GAGE NEAR LUFKIN, AREA 1,630 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1)	0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			35619	263169	103769	73629	167369	419969	177254
FEBRUARY			134369	141369	74579	40679	198669	141369	121839
MARCH			39299	217269	93599	33199	220769	272869	146167
APRIL			47059	107369	165369	35879	151069	346369	142186
MAY			56389	89289	144969	14439	636169	85719	171162
JUNE			67279	75399	120269	19709	145269	45129	78842
JULY			27979	60009	24429	6439	10349	161169	48396
AUGUST			15829	13519	15939	1949	4009	16319	11261
SEPTEMBER			32799	16579	49299	579	18059	9159	21079
OCTOBER			2799	87359	11119	3329	5089	130769	40077
NOVEMBER			302969	177869	20049	11869	24089	61689	99756
DECEMBER			376569	154069	30189	21399	144969	92429	136604
ANNUAL TOTAL			1138958	1403268	853578	263098	1725878	1782958	1194623
STORAGE ADJUSTMENT				1300-	3200-	7500-	900-	4400-	2883-
ADJUSTED ANNUAL TOTAL			1138958	1401968	850378	255598	1724978	1778558	1191740

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1)	0	0	0	0	0	358	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			277569	223569	71719	73019	194269	30519	145111
FEBRUARY			318369	151969	228669	106669	249869	50299	184307
MARCH			228669	260669	139469	99369	90099	55949	145704
APRIL			115769	208369	94629	103869	66119	74889	110607
MAY			202169	210669	88349	38749	185769	23839	124924
JUNE			181469	74669	15979	15989	164369	13699	77696
JULY			45589	17799	8179	11119	29349	3649	19281
AUGUST			9859	5509	1269	11319	7889	609	6076
SEPTEMBER			38359	6719	1429	8579	10519	1499	11184
OCTOBER			25349	5389	1219	50919	7999	1879	15459
NOVEMBER			214469	15909	10989	36339	11469	4439	48936
DECEMBER			179069	73149	24639	41149	17009	18619	58939
ANNUAL TOTAL			1836708	1254388	686538	597088	1034728	279888	948223
STORAGE ADJUSTMENT			3300-	8800-	8600-	18500	19900	1360	3177
ADJUSTED ANNUAL TOTAL			1833408	1245588	677938	615588	1054628	281248	951400

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1)	5765	5136	5762	5761	8768		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			20370	26587	47930	45289	11320	4350	30299
FEBRUARY			86680	57727	42450	84019	49720	13380	64119
MARCH			144050	255097	33500	69569	25670	25810	105577
APRIL			111950	59277	28630	128049	36330	165100	72847
MAY			66830	522097	98990	66969	156600	376700	182297
JUNE			24380	28757	13390	34959	6110	164800	21519
JULY			4280	26677	1180	12289	1410	20470	9167
AUGUST			1160	9797	158	13909	385	9450	5082
SEPTEMBER			29	8807	0	3539	241	5160	2523
OCTOBER			0	2127	534	3179	86		1185
NOVEMBER			2050	7757	14800	1689	1020		5463
DECEMBER			16080	42357	24990	6549	2410		18477
ANNUAL TOTAL			477859	1047064	306552	470008	291302	785220	518557
STORAGE ADJUSTMENT			3900-	900-	2900-	500	4200-	4200-	2280-
ADJUSTED ANNUAL TOTAL			473959	1046164	303652	470508	287102	781020	516277

MINIMUM MONTHLY RUNOFF		0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	2)	255598	1943	
AVERAGE ANNUAL RUNOFF	2)	908249	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/54	12/56	2/57	3/57	3/57	4/57
TOTAL ACRE FEET	692	5552	247992	605973	2385225	5809479

NOTES: 1) ONLY MINOR IRRIGATION USES
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 6 NECHES RIVER - SUBBASIN D ANGELINA RIVER FROM GAGE NEAR LUFKIN TO MOUTH, AREA 1889 SQ.MI.

ESTIMATED RUNOFF IN ACRE-FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	37	36	46	41	46	82	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		162179	400313	160786	91476	78123	473172	227675
FEBRUARY		378538	219094	124862	54655	146544	402171	220977
MARCH		90166	367082	196771	50423	203923	208671	186173
APRIL		155739	104955	248403	29154	254491	484731	212912
MAY		127122	271911	156348	23633	939223	138443	276113
JUNE		88639	257350	96286	8576	266566	32559	124996
JULY		22508	73850	51167	9825	12611	26729	32782
AUGUST		17513	29329	123871	6037	8607	52652	39668
SEPTEMBER		12436	25036	38948	4530	27555	9887	19732
OCTOBER		6316	39226	14489	4458	7142	35294	17821
NOVEMBER		29220	542892	17090	5542	25780	23293	106293
DECEMBER		809810	191642	15563	5883	186586	87761	216208
ANNUAL TOTAL		1894186	2522620	1244584	294192	2157151	1975963	1681349
STORAGE ADJUSTMENT		1463090-	973990	99460	339340	487240	155430-	40918
ADJUSTED ANNUAL TOTAL		431096	3496610	1344044	633532	2644391	1819933	1720268

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	41	55	53	44	51	32	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		422913	521779	68577	132767	582770	47266	296012
FEBRUARY		584525	127659	242417	182973	412387	57689	267942
MARCH		350570	285967	176060	257587	290993	106967	244691
APRIL		236534	115584	178267	212076	72498	138524	158914
MAY		173582	97214	62972	118185	292262	32174	129398
JUNE		218372	129000	30000	66399	478435	33120	159221
JULY		49227	20299	9453	22776	43787	41834	31229
AUGUST		23839	7657	4025	16604	16078	12530	13456
SEPTEMBER		20960	3117	4087	8710	17224	22901	12833
OCTOBER		19639	5511	3561	124407	14294	3536	28491
NOVEMBER		180291	34387	21806	64707	15573	5923	59781
DECEMBER		156348	78143	19763	240786	20506	29600	90858
ANNUAL TOTAL		2436800	1426317	820988	1447977	2256807	532064	1486826
STORAGE ADJUSTMENT		1420	283440	148550	535380-	434210	176030	84712
ADJUSTED ANNUAL TOTAL		2438220	1709757	969538	912597	2691017	708094	1571537

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	7	3	10	12	18		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		34556	45768	55862	12133	14339	6286	32532
FEBRUARY		52387	112676	48563	94785	73495	33076	76381
MARCH		134933	348709	25219	57539	39664	62873	121219
APRIL		133270	110787	33227	123147	95344	62707	99155
MAY		189510	970969	88937	53157	48352	556390	270185
JUNE		56783	117163	29812	62420	13342	87336	55904
JULY		10939	39860	5923	6074	4200	33167	13399
AUGUST		5394	24403	2557	23148	2924	10109	11685
SEPTEMBER		2766	10668	2077	6331	3262	7721	5021
OCTOBER		2672	5530	3665	7222	2408		4299
NOVEMBER		8704	9126	11619	4851	3959		7652
DECEMBER		21864	34119	6285	9942	4472		15336
ANNUAL TOTAL		653778	1829808	313746	460749	305761	859625	712768
STORAGE ADJUSTMENT		160300-	227700-	256690	50160-	362710	1147500-	36248
ADJUSTED ANNUAL TOTAL		493478	1602108	570436	410589	668471	287875-	749016

MINIMUM MONTHLY RUNOFF			2077		9/54		
MINIMUM CALENDAR YEAR RUNOFF	2)		410589		1955		
AVERAGE ANNUAL RUNOFF	2)		1384936		1940-1956		
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120	
FINAL MONTH	10/54	12/56	4/57	4/57	4/57	4/57	
TOTAL ACRE FEET	8299	21225	247861	643848	3373638	9161948	

NOTES: 1) NO USE ADJUSTMENT MADE
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 6 NECHES RIVER - SUBBASIN E NECHES RIVER FROM GAGE NEAR ROCKLAND TO GAGE NEAR EVEDALE EXCLUD. ANGELINA RIVER, AREA 850 SQ MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	13	15	16	23	24	34	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		216891	260887	109814	39364	25877	6272-	107760
FEBRUARY		6738-	48106	43726	46335	77956	258629	78003
MARCH		77014	77718	98899	34077	72777	23829	64052
APRIL		22471	141045	30303-	54746	93309	72169	58906
MAY		48658	155869	58152	31927	17877	93307	67632
JUNE		104651	106520	75014	13384	398834	76381	129131
JULY		80562	105110	91613	46535	43819	23529-	57352
AUGUST		78107	42191	12699	31123	15393	91178	45115
SEPTEMBER		18074	40544	81552	13670	25735	35173	35791
OCTOBER		13334	22284	23001	3362	14748	16506	15539
NOVEMBER		283220-	82568	18590	16698	2320-	73217	15745-
DECEMBER		656490	76958	22827	20747	42114	101679	153469
ANNUAL TOTAL		1026294	1159800	605586	351968	826119	812267	797006
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1026294	1159800	605586	351968	826119	812267	797006

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	44	49	38	31	37	34	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		19087	74221	49573	43483	237630	42374	77728
FEBRUARY		121575	167641	67883	158927	91413	18411	104308
MARCH		159130	15233	153040	83513	426177	11917-	137529
APRIL		219366	121416	75573	254724	54152	62235	131244
MAY		9682-	41414-	45748	173535	105438	14456	48014
JUNE		172528	146000	57820	62651	317065	14880	128491
JULY		129653	45341	16887	36114	63503	18794	51715
AUGUST		29841	18393	10165	21476	25872	5630	18563
SEPTEMBER		26210	10463	8743	10300	22836	10289	14807
OCTOBER		39871	11579	7019	83443	22666	20854	30905
NOVEMBER		51091-	13883	23054	64723	20747	2077	12232
DECEMBER		186152	77587	16137	143834	22264	12490	76411
ANNUAL TOTAL		1042640	660343	531642	1136723	1409763	210573	831947
STORAGE ADJUSTMENT							5900-	983-
ADJUSTED ANNUAL TOTAL		1042640	660343	531642	1136723	1409763	204673	830964

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	11	11	0	0	0		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		17274	95442	45118	28027	2059-	7316-	36760
FEBRUARY		103223	89494	2847	136745	56495	43496-	77761
MARCH		10133-	21939-	7461	7041	39456	78617	4377
APRIL		99830	89033	67093	155053	2614-	26107-	81679
MAY		163410	303631	83223	11587-	33222-	24650	101091
JUNE		114327	327477	46738	15140	31908	55864	107118
JULY		56921	33540	59087	23986	45940	74393	43895
AUGUST		56926	72957	25665	40942	29908	23931	45480
SEPTEMBER		17015	37272	11826	28119	7749	23199	20396
OCTOBER		7572	17900	4841	14638	8218		10634
NOVEMBER		1424-	406-	57659-	23189	149-		7290-
DECEMBER		20836	37549-	24935-	5528	1752-		7574-
ANNUAL TOTAL		645777	1006852	272305	466821	179878	203735	514327
STORAGE ADJUSTMENT		24400-	69600	2900	63400-	1400-	1400-	3340-
ADJUSTED ANNUAL TOTAL		621377	1076452	275205	403421	178478	202335	510987

MINIMUM MONTHLY RUNOFF		283220-	11/40	(DURING FLOOD) LOW WATER FLOW
MINIMUM CALENDAR YEAR RUNOFF	2)	178478	1956	CONTROLLED BY OPERATION OF DAM B
AVERAGE ANNUAL RUNOFF	2)	724868	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/40	2/57	2/57	4/57	8/57	6/57
TOTAL ACRE FEET	251812-	36746-	74630	321531	2150391	6119792

NOTES: 1) NO USE ADJUSTMENT MADE 2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 6 NECHES RIVER - SUBBASIN F VILLAGE CREEK ABOVE GAGE NEAR KOUNTZE, AREA 837 SQ. MI.

ESTIMATED NET RUNOFF FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	16640	98880	59020	84660	124900	164500	91433
FEBRUARY	38840	81860	56120	27990	84980	107000	66132
MARCH	12690	118400	73710	40480	71860	72460	64933
APRIL	37280	46950	178700	35670	27990	191000	86265
MAY	34060	104200	56420	49580	195500	52200	81993
JUNE	30300	151800	45700	21050	27810	31920	51430
JULY	66130	53920	43300	48290	8350	24750	40790
AUGUST	36440	13040	81700	38370	7140	18170	32477
SEPTEMBER	6160	34110	51950	15330	15330	22170	24175
OCTOBER	4460	46250	11990	10490	7160	32300	18775
NOVEMBER	382600	170200	17130	13160	18260	17520	103145
DECEMBER	358800	41950	30090	37000	77630	103600	108178
ANNUAL TOTAL	1024400	961560	705830	422070	666910	837590	769727
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1024400	961560	705830	422070	666910	837590	769727

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	199700	226500	45870	50920	219000	24050	127673
FEBRUARY	199400	54640	83250	87570	165500	22220	102097
MARCH	116200	149400	53530	157700	135200	27190	106537
APRIL	48350	33120	30890	143200	53600	38390	57925
MAY	103300	70510	16850	31490	127500	12930	60430
JUNE	121600	32420	7240	27520	396800	6750	98722
JULY	78600	13420	9820	15900	35290	5200	26372
AUGUST	16970	8950	3740	10000	12120	3400	9197
SEPTEMBER	13090	6880	3760	11480	12230	24540	11997
OCTOBER	28680	5440	3060	254500	8030	7380	51182
NOVEMBER	216900	13870	8870	23950	8980	6590	46527
DECEMBER	81150	51190	9030	191500	10370	19750	60498
ANNUAL TOTAL	1223940	666340	275910	1005730	1184620	198390	759155
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1223940	666340	275910	1005730	1184620	198390	759155

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	11750	45760	43040	23010	20610	6940	28834
FEBRUARY	25410	79180	20730	84600	73640	13310	56712
MARCH	26200	62020	15860	16240	41050	49130	32274
APRIL	100000	48050	32650	99640	17200	55240	59508
MAY	110200	426300	39530	12170	6720	114300	118984
JUNE	20280	19660	6390	5360	4130	37710	11164
JULY	21300	30870	3880	9910	2360	13250	13664
AUGUST	5160	13610	7080	11440	1770	5500	7812
SEPTEMBER	2740	11800	2780	8200	1580	22170	5436
OCTOBER	2280	5710	5080	5280	1610		3992
NOVEMBER	5590	9110	8220	4210	3650		6156
DECEMBER	20880	36760	7090	8530	8970		16446
ANNUAL TOTAL	351790	788910	192330	288590	183290	317550	360982
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	351790	788910	192330	288590	183290	317550	360982

MINIMUM MONTHLY RUNOFF		1580		9/56			
MINIMUM CALENDAR YEAR RUNOFF		183290		1956			
AVERAGE ANNUAL RUNOFF		645777		1940-1956			
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120	
FINAL MONTH	10/56	11/56	2/57	4/57	4/57	3/57	
TOTAL ACRE FEET	4960	15100	109290	373010	1766170	4774740	

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 6 NECHES RIVER - SUBBASIN G FROM GAGE AT EVADALE TO MOUTH EXCLUD. 6 F
AREA 1,250 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	274,688	1,405,800	538,000-	867,800		
41	257,946	1,319,300		781,300		
42	257,763	968,400		430,400		
43	319,844	579,100		41,100		
44	376,949	915,000		377,000		
45	382,122	1,149,200		611,200		
					518,133	6 Yr.Av. 1940-45
1946	379,922	1,679,200		1,141,200		
47	409,868	914,200		376,200		
48	422,595	378,500		159,500-		
49	412,986	1,379,900		841,900		
50	447,232	1,625,300		1,087,300		
51	537,929	272,200		265,800-		
					503,550	6 Yr.Av. 1946-51
1952	480,550	482,700		56,300-		
53	518,979	1,082,400		544,400		
54	538,722	263,900		274,100-		
55	302,264	395,900		142,100-		
56	302,159	251,500	538,000-	286,500-		
					42,920	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 286,500- 1956

Average Annual Runoff 347,970 1940-56

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN A WEST FORK ABOVE FORT WORTH GAGE, AREA 2,627 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	14860	14951	17698	24133	27698	27857	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			0	19794	40693	539	0	9680	11784
FEBRUARY			0	89744	15453	0	20026	115130	40059
MARCH			0	40524	16593	18469	40106	188130	50637
APRIL			0	56994	329383	35849	14236	161130	99599
MAY			3127	116754	301983	45649	68186	48240	97323
JUNE			4457	318854	141983	43149	10076	10180	88117
JULY			44957	182554	58633	0	2436	60750	58222
AUGUST			5897	40294	17693	0	5776	15220	14147
SEPTEMBER			0	27934	43513	2489	9196	8990	15354
OCTOBER			0	87094	47743	0	4946	57180	32827
NOVEMBER			12327	60564	46843	0	3266	21620	24103
DECEMBER			98347	25424	2813	0	6946	13920	24575
ANNUAL TOTAL			169112	1066528	1063326	146144	185196	710170	556746
STORAGE ADJUSTMENT			18118-	15944-	10123-	3627-	8847-	6956-	10603-
ADJUSTED ANNUAL TOTAL			150994	1050584	1053203	142517	176349	703214	546144

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	28576	31004	41006	39612	39711	48907	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			50550	29372	22255	2619	10678	6984	20410
FEBRUARY			56580	12972	44385	9189	38958	4464	27758
MARCH			31790	13872	45715	22539	11798	9954	22611
APRIL			14270	27242	4565	11039	39478	3714	16718
MAY			32110	20852	6555	179709	99618	5504	57391
JUNE			28690	9462	6795	59709	22008	34874	26923
JULY			1410	4372	9585	8329	62708	8034	15740
AUGUST			25830	14652	5285	3949	87318	4484	23586
SEPTEMBER			7230	14242	3945	9119	75038	2814	18731
OCTOBER			1230	14042	1185	26749	37208	2664	13846
NOVEMBER			48100	612	755	14879	37038	1674	17176
DECEMBER			51730	10932	905	5829	7908	1894	13200
ANNUAL TOTAL			349520	172624	151930	353658	529756	87058	274091
STORAGE ADJUSTMENT			13160-	3547-	4055-	24742-	4389-	2663-	8759-
ADJUSTED ANNUAL TOTAL			336360	169077	147875	328916	525367	84395	265332

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	53840	54177	61067	57311	59901		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			2485	2233	1048	437	549	762	1350
FEBRUARY			2965	1773	877	894	1320	1790	1566
MARCH			2655	2203	1022	1304	439	2340	1525
APRIL			7705	3863	798	494	1450	33660	2862
MAY			10895	3993	2007	3164	5210	364000	5054
JUNE			2355	185	438	3884	1080	382600	1578
JULY			1815	2093	206	360	82	17770	911
AUGUST			1365	873	409	30	0	5810	535
SEPTEMBER			2025	220	558	444	0	3180	649
OCTOBER			1895	2683	543	326	1660		1421
NOVEMBER			3855	1013	544	1	600		1203
DECEMBER			2575	348	581	213	1580		1059
ANNUAL TOTAL			42590	21430	9031	11551	13970	811912	19714
STORAGE ADJUSTMENT			3200-	7100	9700	2500	5700-		2080
ADJUSTED ANNUAL TOTAL			39390	28530	18731	14051	8270	811912	21794

MINIMUM MONTHLY RUNOFF		0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	3)	8270	1956	
AVERAGE ANNUAL RUNOFF	3)	292813	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	3/40	12/55	4/55	3/56	3/57	3/57
TOTAL ACRE FEET	0	1374	8415	19943	95359	1342274

NOTES: 1) ONLY MINOR IRRIGATION USES 2) SOME REPORTED USES MODIFIED
3) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN B ELM FORK ABOVE GAGE NEAR CARROLLTON, AREA 2,457 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	29072	25685	28721	36265	43342	42647	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			0	45963	10444	8170	2759	16246	13930
FEBRUARY			0	54624	5948	14025	52833	305944	72229
MARCH			0	65936	6346	94608	81760	502086	125123
APRIL			34981	142276	954577	40281	52047	289146	252218
MAY			46517	80025	210111	89909	189579	26578	107120
JUNE			90328	565632	154473	61643	32568	94461	166521
JULY			98184	20843	14891	7267	12857	110288	44055
AUGUST			10085	8230	13542	6102	14285	11090	10556
SEPTEMBER			2569	6161	21766	6393	13314	25053	12543
OCTOBER			2657	61033	30592	3111	8595	109026	35836
NOVEMBER			63198	49915	9026	0	10362	17849	25058
DECEMBER			187127	16376	12590	528	31083	12537	43374
ANNUAL TOTAL			535646	1117014	1444306	332037	502062	1520304	908562
STORAGE ADJUSTMENT			169226-	6293-	93907-	2019	39833-	41301-	58090-
ADJUSTED ANNUAL TOTAL			366420	1110721	1350399	334056	462229	1479003	850471

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	47089	56066	57500	58680	58913	70930	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			48358	37037	44089	17204	84678	3466	39139
FEBRUARY			166005	15257	173378	41576	174078	6806	96183
MARCH			73235	34027	115118	34371	24971	4369	47682
APRIL			43843	41746	8337	9232	25369	4893	22237
MAY			146973	36658	55770	152017	278072	8476	112994
JUNE			317287	49679	27184	89854	76745	84398	107525
JULY			12936	19209	32932	7737	71676	32858	29558
AUGUST			12606	21258	23504	5183	60355	16681	23265
SEPTEMBER			14063	16607	21533	9368	263896	13952	56570
OCTOBER			10489	10492	10813	74580	23622	10030	23328
NOVEMBER			155421	8742	4229	25729	9824	2640	34431
DECEMBER			190571	64604	2841	3357	6377	3475	45204
ANNUAL TOTAL			1191787	355256	519728	470208	1099663	192044	638114
STORAGE ADJUSTMENT			14604-	44102-	198871-	34774	33437-	16160	40013-
ADJUSTED ANNUAL TOTAL			1177183	311154	320857	504982	1066226	208204	598101

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	86502	62938	81601	97391	103455		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			3656	251	737	3174	1570	4y	1878
FEBRUARY			3044	0	0	3529	2810	115	1877
MARCH			27y1	1444	0	1922	4970	203	2225
APRIL			32527	22964	2362	1044	5570	37270	128y3
MAY			12287	26956	1y661	0	8410	261400	13463
JUNE			4437	380	4418	4166	8470	351100	4374
JULY			5015	2122	6869	69y4	9100	300100	6020
AUGUST			64y7	2830	6239	7165	3720	215400	64y0
SEPTEMBER			5087	8y3	4699	3551	6160	1y180	4078
OCTOBER			3127	1858	5685	2745	2y70		3281
NOVEMBER			4683	0	1815	1795	250		170y
DECEMBER			3844	0	0	1175	2y1		942
ANNUAL TOTAL			86395	59698	52485	37260	60311	1184817	59230
STORAGE ADJUSTMENT			2900	76700	10480	2880	9590		20510
ADJUSTED ANNUAL TOTAL			89295	136398	62965	40140	69901	1184817	79740

MINIMUM MONTHLY RUNOFF		0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	3)	40140	1955	
AVERAGE ANNUAL RUNOFF	3)	534714	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	3/40	3/57	2/56	3/57	3/57	4/57
TOTAL ACRE FEET	0	3898	34937	89313	283550	2842618

NOTES: 1) ONLY MINOR IRRIGATION USES 2) SOME REPORTED USES MODIFIED
3) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN C TRINITY RIVER ABOVE DALLAS GAGE, EXCLUD. 7 A AND 7 B, AREA 1,036 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	8900-	9000-	10600-	14500-	16600-	16700-	
			MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY			427-	37254	2363	3051	2237	16683	10194
FEBRUARY			371	76543	929	4476	4323	82785	28238
MARCH			808-	27851	6211	33723	34746	218443	53361
APRIL			12296	56941	316300	21870	5729	142283	92570
MAY			35370	46832	147166	24442	135747	18441	68000
JUNE			95809	140425	77004	28808	15488	33818	65225
JULY			61953	45014	13446	318-	299	31421	25303
AUGUST			2788-	19427	255-	3211-	6129-	1251-	966
SEPTEMBER			403-	1686	6211	6118	2622	1724-	2418
OCTOBER			339-	15784	55125	400	941	8253	13361
NOVEMBER			41469	21232	7151	422-	1534	3630	12432
DECEMBER			78620	6021	11057	663	16493	1352	19034
ANNUAL TOTAL			321123	495010	642708	119600	214030	554134	391101
STORAGE ADJUSTMENT			900-	500-	1300-	7100-	2400-	3000-	2533-
ADJUSTED ANNUAL TOTAL			320223	494510	641408	112500	211630	551134	388568

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	17200-	18500-	24500-	23700-	27800-	26600-	
			MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY			8240	12870	19807	41008	20421	155-	17032
FEBRUARY			54463	3850	60478	93726	134241	395	57859
MARCH			24023	8800	44408	34521	12048	1288-	20419
APRIL			17135	29201	1879	10950	36130	2732-	15427
MAY			111665	131-	12666	194565	109287	3395	71908
JUNE			52971	65548	16952	48628	1876-	36473	36449
JULY			1978-	4472-	9964	4565-	4007-	8287-	2224-
AUGUST			1898-	28899	7268-	5441-	6096-	8720-	87-
SEPTEMBER			495	9740	6337-	3446-	8443	4181-	786
OCTOBER			701-	1375-	3897-	22762	727	3219-	2383
NOVEMBER			101627	2605	3533-	547-	945	1309-	16631
DECEMBER			58647	54253	1545-	1375-	808-	2274-	17816
ANNUAL TOTAL			424689	209788	143574	430786	309455	8098	254398
STORAGE ADJUSTMENT			2200-	5600-	9300-	1100-	1300-	900-	3400-
ADJUSTED ANNUAL TOTAL			422489	204188	134274	429686	308155	7198	250998

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	33700-	31060-	28180-	29460-	10655-		
			MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY			2869-	1263	4691	699-	2791	4009	1035
FEBRUARY			1007-	513-	2729	661-	2570	4945	624
MARCH			1344-	2380	2508	3386	1209-	7987	1144
APRIL			7594	19200	5966	1624	870-	289770	6703
MAY			16757	66798	14578	20545	18600	303000	27456
JUNE			2080-	2018-	790	8682	2180-	104500	639
JULY			3034-	128-	6449-	4582-	5992-	27130	4037-
AUGUST			6270-	4086-	4512-	4193-	6630-	2190	5138-
SEPTEMBER			5050-	1116-	2301-	463-	3040-	2340	2394-
OCTOBER			3780-	2696	758	589-	400		103-
NOVEMBER			5024	1641	593-	624-	6830		2456
DECEMBER			2063	2207	2608	624	5249		2550
ANNUAL TOTAL			6004	88324	20773	23050	16519	745871	30934
STORAGE ADJUSTMENT			2800	400-	4200	3800	5600		3200
ADJUSTED ANNUAL TOTAL			8804	87924	24973	26850	22119	745871	34134

MINIMUM MONTHLY RUNOFF		8720-		8/51		
MINIMUM CALENDAR YEAR RUNOFF	3)	7198		1951		
AVERAGE ANNUAL RUNOFF	3)	235769		1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/51	12/51	6/52	10/52	6/56	1/57
TOTAL ACRE FEET	21188-	27990-	10939-	7152	129863	1247510

NOTES: 1) NEGATIVE USES RESULT FROM RETURN FLOWS FROM FORT WORTH SEWAGE
2) SOME REPORTED USES MODIFIED
3) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN D EAST FORK ABOVE MOUTH, AREA 1,309 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1)	32	35	122	40	163	147	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			570	75113	11638	18201	3298	43896	25453
FEBRUARY			2884	40523	12584	18034	10632	179584	44040
MARCH			2739	75048	14822	88696	82594	264083	87997
APRIL			113485	80346	504589	74677	25997	205224	167386
MAY			112049	129034	163694	70045	182026	22254	113184
JUNE			74514	297639	114801	135315	44205	165462	138656
JULY			73610	67304	6572	4876	2714	83730	39801
AUGUST			3662	16031	1002	537	0	3484	4119
SEPTEMBER			1008	2735	12928	858	2978	1664	3695
OCTOBER			308	9962	7364	1697	2506	58781	13436
NOVEMBER			20480	13084	28811	819	7410	17015	14603
DECEMBER			132756	27980	31014	1601	34908	8279	39423
ANNUAL TOTAL			538065	834799	909819	415356	399268	1053456	691794
STORAGE ADJUSTMENT			121734-	50804	18429-	13625	39991-	26694-	23737-
ADJUSTED ANNUAL TOTAL			416331	885603	891390	428981	359277	1026762	668057

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1)	147	189	217	254	189	201	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			36888	50661	74671	103011	88615	2752	59433
FEBRUARY			156137	15045	13619	132250	298515	47411	110496
MARCH			52730	37982	159098	104084	42163	10643	67783
APRIL			26945	61623	17463	39951	46639	8643	33544
MAY			117030	51064	108308	64780	288533	20059	108296
JUNE			268757	38166	12074	160510	68713	255135	133893
JULY			5202	3790	20542	3222	52853	15545	16859
AUGUST			2167	14531	1345	619	33721	497	8813
SEPTEMBER			2757	13001	1251	52	127679	583	24221
OCTOBER			1446	4191	2016	43021	6895	172	9624
NOVEMBER			293621	15108	1426	4520	2442	207	52887
DECEMBER			154165	116542	1770	2402	2497	199	46263
ANNUAL TOTAL			1117845	421704	413583	658422	1059265	361846	672111
STORAGE ADJUSTMENT			226385-	190853	7340	22910	6516-	9042-	3473-
ADJUSTED ANNUAL TOTAL			891460	612557	420923	681332	1052749	352804	668638

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1)	187	279	10318	376	2570		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			260	6000	10197	788	1218	772	3693
FEBRUARY			1346	3011	2883	4013	3866	1643	3024
MARCH			1356	21848	1709	2322	983	4516	5644
APRIL			52455	41694	13564	5291	844	155428	22770
MAY			72230	205842	27884	6984	36266	596212	69841
JUNE			16882	2721	1985	6180	1467	132668	5847
JULY			274	209	10228	735	517	64649	2393
AUGUST			86	588	2063	889	269	58131	779
SEPTEMBER			64	290	772	1443	261	5135	566
OCTOBER			38	314	2492	1656	332		966
NOVEMBER			6207	1671	1922	315	936		2210
DECEMBER			10954	1514	1140	522	589		2944
ANNUAL TOTAL			162152	285702	76839	31138	47548	1019154	120676
STORAGE ADJUSTMENT			22817-	15400	24200	30800			9517
ADJUSTED ANNUAL TOTAL			139335	301102	101039	61938	47548	1019154	130192

MINIMUM MONTHLY RUNOFF		0		8/44	
MINIMUM CALENDAR YEAR RUNOFF	2)	47548		1956	
AVERAGE ANNUAL RUNOFF	2)	510066		1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/52	1/52	4/56	2/57	9/56	3/57
TOTAL ACRE FEET	188	1918	25635	76300	602100	3421442

NOTES: 1) ONLY MINOR IRRIGATION USES 2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN E RICHLAND CREEK ABOVE MOUTH, AREA 1,990 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1)	1399	1228	1277	1464	1545	1320	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			0	83381	6040	22063	83268	147802	57092
FEBRUARY			7099	279786	13519	7419	197776	245266	125145
MARCH			522	160783	16909	61744	74379	556601	145156
APRIL			135178	95555	706765	66217	35025	302863	223601
MAY			47082	173786	146737	250066	604967	19396	207006
JUNE			76719	226944	94277	75386	66178	214836	125723
JULY			137439	169171	5237	2773	6965	133565	75858
AUGUST			1202	16638	26032	0	0	10658	9088
SEPTEMBER			0	852	172589	80797	0	4114	43059
OCTOBER			0	28976	82511	63689	420	78589	42364
NOVEMBER			346790	6782	54411	149	11690	22785	73768
DECEMBER			198777	18024	74787	8549	100568	31301	72001
ANNUAL TOTAL			950808	1260679	1399814	638852	1181236	1767776	1199861
STORAGE ADJUSTMENT			300-	300	400-	1800-	700-	900-	633-
ADJUSTED ANNUAL TOTAL			950508	1260979	1399414	637052	1180536	1766876	1199228

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1)	1465	1617	2413	2340	1871	1946	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			70318	187355	30158	19725	8024	569	52692
FEBRUARY			178523	21797	41086	74608	199119	8287	87237
MARCH			71040	118969	76664	45728	11403	39	53974
APRIL			33259	120437	26814	38400	93128	312	52058
MAY			305158	26550	291770	54279	84669	9102	128588
JUNE			80709	84614	10120	21985	7814	81716	47826
JULY			2992	777	21677	6572	6789	0	6468
AUGUST			14083	5318	0	1100	0	0	3417
SEPTEMBER			1965	12309	0	0	903	10838	4336
OCTOBER			824	349	0	8378	0	0	1592
NOVEMBER			82119	3623	0	0	0	0	14290
DECEMBER			39165	45473	0	0	0	0	14106
ANNUAL TOTAL			880155	627571	498289	270775	411849	110863	466584
STORAGE ADJUSTMENT			700-	1700-	2700-	300-	400-	400-	1033-
ADJUSTED ANNUAL TOTAL			879455	625871	495589	270475	411449	110463	465550

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1)	2282	5111	4337	4208	7358		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			0	19606	14858	918	2896	2300	7656
FEBRUARY			5717	3402	319	16700	26352	28053	10498
MARCH			9480	109008	0	20079	38	28880	27721
APRIL			172207	28263	1199	12472	574	755270	42943
MAY			121657	390021	42050	18250	90766	412410	120549
JUNE			3014	1149	0	19717	10159	81142	6808
JULY			0	2283	0	403	24	993	542
AUGUST			0	0	0	8405	647	169	1810
SEPTEMBER			0	3733	0	11913	143	818	3158
OCTOBER			0	8620	2302	534	414		2374
NOVEMBER			18881	1897	4525	0	28263		10713
DECEMBER			71399	25082	0	0	2032		19703
ANNUAL TOTAL			402355	533064	65253	109391	162308	1310035	254474
STORAGE ADJUSTMENT			5600-	3400-	600	200-	100	100	1700-
ADJUSTED ANNUAL TOTAL			396755	529664	65853	109191	162408	1310135	252774

MINIMUM MONTHLY RUNOFF		0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	2)	65853	1954	
AVERAGE ANNUAL RUNOFF	2)	661914	1940-1955	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/48	1/51	5/51	1/56	5/55	3/57
TOTAL ACRE FEET	0	1472	33815	162682	1195460	2922830

NOTES: 1) No IRRIGATION USES
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN F TRINITY RIVER FROM DALLAS GAGE TO OAKWOOD GAGE, EXCLUDING 7 D and 7 E, AREA 3,493 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	16700-	15200-	17300-	20800-	25800-	24900-	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			7646	460892	19584	153416	171814	348946	193716
FEBRUARY			20142	11975	63649	33727	187362	402655-	14300-
MARCH			15224	414955	48801	79800-	437967	750111	264543
APRIL			60122	85715-	245032-	349946	56218	1611808	291225
MAY			165224	339867	1495891	129229	869947	124045	520701
JUNE			68142	163903	394244	390539	310517	152497	246640
JULY			217926	443711	40803	18631	12111	247800	163497
AUGUST			12901	20177	878	4611	2234	26173	11162
SEPTEMBER			9587	20799	1175	50915-	8652	6527	696-
OCTOBER			4657	6448	1653-	129803	7654	91725	39772
NOVEMBER			151405	37820	96340	11032	29109	50755	62744
DECEMBER			416942	68872	72021	25190	61454	99264	123957
ANNUAL TOTAL			1149918	1903704	1986701	1115409	2155039	3106996	1902961
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			1149918	1903704	1986701	1115409	2155039	3106996	1902961

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	28100-	30600-	35000-	36700-	36300-	32400-	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			189234	121243	159211	49770-	117056	30975	94658
FEBRUARY			140380	72417	11255-	11248	633061	58109	150660
MARCH			353470	172088	404988	429154	74689	32385	244462
APRIL			85336	283989	69833	184025	137428	31202	131969
MAY			43552	80245	232121	170753-	230793	62836	79799
JUNE			578174	5831-	9526	254711	38068	98076	162121
JULY			21546	67212	48691	44212	42247-	20789	26701
AUGUST			22460	34680-	10051	10317	34271	7721	8357
SEPTEMBER			93178	76139	6551	4492	51687-	9576	23042
OCTOBER			25980	7259	9746	20793-	28768	5876	9473
NOVEMBER			500700	46918	9500	89140	13030	12381	111945
DECEMBER			102610	224734	13076	18188	14625	12579	64302
ANNUAL TOTAL			2156620	1111733	962039	804171	1227855	382505	1107487
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			2156620	1111733	962039	804171	1227855	382505	1107487

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	33300-	35100-	23300-	51800-	41700-		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			16221	92966	80612	44367	16486	16708	50130
FEBRUARY			23945	21939	27465	92350	58512	52684	44842
MARCH			43732	212236	15178	97012	12369	72574	76105
APRIL			52536	31335-	26094	108500	11352	28398-	33429
MAY			212211	682009	89463	62819	102848	649978	229870
JUNE			177602	18942	11027	17516	6844	943990	46386
JULY			9072	7360	1231	8875	4039	66258	6115
AUGUST			5665	8080	8237	3919	2204	117900	5621
SEPTEMBER			6067	12149	3367	11337	3396	31967	7263
OCTOBER			3593	3558	119763	9273	2264		27690
NOVEMBER			14830	19804	84120	5040	33771		31513
DECEMBER			122905	72136	26792	8633	7139		47521
ANNUAL TOTAL			688379	1119844	493349	469641	261224	1923661	606487
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			688379	1119844	493349	469641	261224	1923661	606487

MINIMUM MONTHLY RUNOFF	402655-	2/45	(DURING FLOODS) LOW WATER 878 8/42
MINIMUM CALENDAR YEAR RUNOFF	261224	1956	
AVERAGE ANNUAL RUNOFF	1240890	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	4/42	4/42	4/56	4/57	4/57	4/57
TOTAL ACRE FEET	132582-	6306-	226131	502204	3009571	6984571

NOTES: 1) NEGATIVE USES INDICATE ALLOWANCE FOR RETURN SEWAGE FLOW FROM DALLAS
2) ONLY MINOR IRRIGATION USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN G FROM OAKWOOD GAGE TO RIVERSIDE GAGE, AREA 2707 SQ. MI.

ESTIMATED NET RUNOFF FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	0	0	0	0	0	0	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		25780	430000	49020	182700	366600	571200	270883
FEBRUARY		213902	209082	47182	24212	239082	26182	126607
MARCH		14643	319263	61763	26737-	272863	55963	116293
APRIL		82227	18127	1066073-	125427	92427	680927	11156-
MAY		114382	138082	1037982	15082	614982	304782	370882
JUNE		119217	438183-	495617	104717	186517	117	78000
JULY		193824	660324	127824	38984	9104	157024	197847
AUGUST		13369	33659	15259	9189	13329	144139	38157
SEPTEMBER		9752	44592	57662	8822	45762	73392	39997
OCTOBER		6450	113390	12990	24790	5060	93990	42778
NOVEMBER		84863	379863	30463	17913	137143	36663	114485
DECEMBER		1055000	69600	3400	74020	342700	101200	274320
ANNUAL TOTAL		1933409	1977799	873089	599119	2325569	2245579	1659094
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1933409	1977799	873089	599119	2325569	2245579	1659094

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	0	0	0	0	500	1823	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		295900	364300	39800	39700	189000	13800	157083
FEBRUARY		361482	63682	158282	98282	20013-	7500	111536
MARCH		532263	418363	43063	185163	267873	53670	250066
APRIL		134127	47227	114227	243227	123047	20040	113649
MAY		455082	402282	43782	107818-	25013-	6700	129169
JUNE		253817	12217	37057	134817	235067	46801-	104362
JULY		68204	80474	24024	36814	13354	27158	41671
AUGUST		27331-	3471-	3589	10039	4066-	2248	3165-
SEPTEMBER		55062	30562	5792	11322	67573-	10019	7531
OCTOBER		17820	16520	5700	220890	46520	3350	51800
NOVEMBER		149963	38393	9073	52263	7553	7740	44164
DECEMBER		106100	83500	17580	159010	13640	16790	66103
ANNUAL TOTAL		2402489	1554049	501969	1083709	779389	122214	1073970
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		2402489	1554049	501969	1083709	779389	122214	1073970

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	1665	0	0	50	1830		
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		23110	63700	23800	50140	6710	6570	33492
FEBRUARY		61428	104212	25282	201082	51370	23170	88675
MARCH		57367	139663	14423	27164	16690	73800	51061
APRIL		74593	73897	14237	280729	60100	413500-	100711
MAY		153398	379982	124682	29282	60600	964000	149589
JUNE		111583	138927	6397	18732	10260	460000	57180
JULY		6057	5714	1066-	6127	1320	75000	3630
AUGUST		4112	4199	109	3367	590	95600	2475
SEPTEMBER		1729	6522	362	2741-	2810	21470	1736
OCTOBER		3070	17190	10590	7443	2150		8089
NOVEMBER		953-	30923	69073	1424	6540		21401
DECEMBER		86600	123800	19300	4570	6040		48062
ANNUAL TOTAL		582094	1088729	307189	627319	225180	1306110	566102
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		582094	1088729	307189	627319	225180	1306110	566102

MINIMUM MONTHLY RUNOFF	1066073-	4/42	(DURING FLOOD) LOW WATER 109	8/54		
MINIMUM CALENDAR YEAR RUNOFF	122214	1951				
AVERAGE ANNUAL RUNOFF	1131111	1940-1956				
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	4/42	4/42	4/57	4/57	4/57	4/57
TOTAL ACRE FEET	957128-	458645-	219650-	16576-	2304053	5668309

NOTES: 1) ONLY MINOR IRRIGATION USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN H FROM RIVERSIDE GAGE TO LIBERTY GAGE, AREA 1920 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE-FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	25	25	25	25	28	31	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		22354	425000	56832	250876	90300	355000	200060
FEBRUARY		144302	175500	42055	35795	214700	162400	129125
MARCH		14072	363000	96006	3290	186000	41000	117228
APRIL		5937	90500	31976	76000	122344	659000	164293
MAY		82636	290000	567000	6762-	305652	274300	252138
JUNE		179867	39000	251000	7400	185806	99970-	93851
JULY		101862	277000	189338	83577	19794	106036	129601
AUGUST		16326	31157	175318	75004	11964	25799-	47328
SEPTEMBER		14720	100754	117280	3288	35736	128942	66787
OCTOBER		9904	18627	36864-	17780-	9044	13974	516-
NOVEMBER		28536-	461100	82349	11642-	10682	41626	92597
DECEMBER		827000	527407	34459	9770	89025	183820	278595
ANNUAL TOTAL		1390444	2799135	1606749	508816	1281047	1840329	1571087
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1390444	2799135	1606749	508816	1281047	1840329	1571087

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	28	32	29	18	12	15	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		161414	457400	69100	8836	383900	11302	181992
FEBRUARY		160000	113700	145600	110714	130000	6408-	108934
MARCH		257000	194100	89300	301700	503600	56539	233707
APRIL		78039	15400	147405	293100	12415	46311	98778
MAY		106000	237800	6821	9983-	281000	11686	105554
JUNE		218000	1586	73388	104800	498400	12933-	147207
JULY		202120	101348	294-	64472	96041	71070	89126
AUGUST		4976	5466	9162	21346	32040	5922	13152
SEPTEMBER		37256-	6856-	5382	21772	6956-	6740	2862-
OCTOBER		34534	5182	5918	494916	71069	5302	102820
NOVEMBER		397736	17864-	8508	114272	3418	6434	85417
DECEMBER		127900	28747	1668	313138	6998	12114	81761
ANNUAL TOTAL		1710463	1136009	561958	1839083	2011925	214079	1245586
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1710463	1136009	561958	1839083	2011925	214079	1245586

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	14	2	50	88	56		
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		5578	67603	44076	48450	10176	1292-	35189
FEBRUARY		38578	91232	12610	170747	58809	7191	74395
MARCH		60611	62880	11434	26725	31396	59913	38609
APRIL		98864	12989	13294	240821	38577	99314-	80909
MAY		100848	507900-	96700	31146	12733-	212000	58388-
JUNE		126178	316592	24568	32124	13244	288000	102541
JULY		11472	20386	13214	13938	4366	155300	12675
AUGUST		4004	13642	38442	5920	1344	201500	12670
SEPTEMBER		1022	9394	4910	1470	250	82701	3409
OCTOBER		3194	10776-	45213-	16084	846		7173-
NOVEMBER		3928-	15510	92549	6190	4424		22949
DECEMBER		523	75311	26638	7466	6932		23374
ANNUAL TOTAL		446944	166923	333222	601081	157631	905999	341160
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		446944	166923	333222	601081	157631	905999	341160

MINIMUM MONTHLY RUNOFF	507900-	5/53 (DURING FLOOD) LOW WATER 250	9/56
MINIMUM CALENDAR YEAR RUNOFF	157631	1956	
AVERAGE ANNUAL RUNOFF	1094461	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	5/53	5/53	5/53	4/57	4/57	5/57
TOTAL ACRE FEET	432031-	272613-	130671-	238467	1468668	6628953

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 7 TRINITY RIVER - SUBBASIN I FROM GAGE ABOVE LIBERTY TO MOUTH
AREA 306 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	195,125	498,977	300,000-	198,977		
41	147,497	1,079,687		779,687		
42	160,911	726,555		426,555		
43	287,942	94,344		205,656-		
44	195,514	170,664		129,336-		
45	191,388	542,191		242,191		
					218,736	6 Yr.Av. 1940-45
1946	185,754	404,832		104,832		
47	189,610	339,481		39,481		
48	251,633	28,963		271,037-		
49	276,041	607,216		307,216		
50	241,729	486,727		186,727		
51	298,820	26,962		273,038-		
					15,697	6 Yr.Av. 1946-51
1952	271,495	137,587		162,413-		
53	247,893	483,483-		783,483-		
54	256,827	86,464		213,536-		
55	222,707	150,400		149,600-		
56	216,100	24,177	300,000-	275,823-		
					316,971-	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 783,483- 1953

Average Annual Runoff 10,486- 1940-56

WATERSHED NO. 8 SAN JACINTO RIVER - SUBBASIN A EAST FORK ABOVE MOUTH, AREA 931 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1,2)	0	0	1100	1600	1800	1800	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			5163	39236	24601	89200	85533	134318	63009
FEBRUARY			24088	95879	29898	16054	57989	107596	55251
MARCH			5812	140275	45780	32993	70709	52799	58062
APRIL			20556	223655	201020	21221	15699	324774	134488
MAY			13731	93595	60557	21856	99260	37091	54348
JUNE			24784	212301	62339	14702	16570	34533	60872
JULY			17634	16183	46683	48314	5900	23348	27010
AUGUST			3824	9138	43621	38091	5344	23646	20611
SEPTEMBER			2436	105885	54263	6647	10505	76760	42749
OCTOBER			2109	63455	8399	4128	4142	16810	16507
NOVEMBER			556073	220254	17023	9514	20683	8944	138749
DECEMBER			348762	25080	40146	19318	74012	71792	96518
ANNUAL TOTAL			1024972	1246936	636330	322040	466346	912411	768173
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			1024972	1246936	636330	322040	466346	912411	768173

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1,2)	1633	1600	1600	1800	1800	1800	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			133801	225341	18489	12484	192882	6613	98268
FEBRUARY			150848	18793	50634	63564	140766	5880	71748
MARCH			98130	84222	36071	155890	46528	18499	73223
APRIL			17258	17748	28981	113400	36266	9447	37183
MAY			132765	35512	13342	15073	79062	4946	46783
JUNE			99963	8992	4289	11152	141405	4801	45100
JULY			113387	6558	5087	13560	7276	2824	24782
AUGUST			8310	5396	2857	7142	4917	2330	5159
SEPTEMBER			8167	3911	3349	4559	2067	5442	4583
OCTOBER			18694	3925	2737	399996	3988	2930	71045
NOVEMBER			575181	6559	3805	11584	3811	3253	100699
DECEMBER			59481	26232	4067	157893	4775	5796	43041
ANNUAL TOTAL			1415985	443189	173708	960297	663743	72761	621614
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			1415985	443189	173708	960297	663743	72761	621614

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1,2)	1800	1800	1712	1078	800		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			4893	18386	19245	15711	6608	2942	12969
FEBRUARY			24959	49629	9256	82200	22481	6673	37705
MARCH			7371	18949	5616	11065	4532	46896	9507
APRIL			98431	19554	8002	24180	11261	60751	32286
MAY			64864	241392	10430	6718	3431	66802	65367
JUNE			10671	12869	2324	2822	3722	58257	6482
JULY			5765	6500	56197	2518	1441	51998	14484
AUGUST			2262	5170	60392	4568	1065	51887	14691
SEPTEMBER			2897	5415	1732	2671	901	53146	2723
OCTOBER			1770	3303	8400	2322	881		3335
NOVEMBER			3800	7244	8857	1862	581		4469
DECEMBER			12535	24612	6528	3234	0		9396
ANNUAL TOTAL			240218	413093	196979	159871	56904	399352	213413
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			240218	413093	196979	159871	56904	399352	213413

MINIMUM MONTHLY RUNOFF		0		12/56			
MINIMUM CALENDAR YEAR RUNOFF		56904		1956			
AVERAGE ANNUAL RUNOFF		553282		1940-1956			
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120	
FINAL MONTH	12/56	12/56	2/57	2/57	2/57	3/57	
TOTAL ACRE FEET	1462	4869	37430	128479	1046828	3108918	

NOTES: 1) ONLY MINOR MUN. & IND. USES 2) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 8 SAN JACINTO RIVER - SUBBASIN B WEST FORK ABOVE MOUTH, AREA 1,856 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	7847	130764	23224	148949	214452	232840	126346
FEBRUARY	58363	137511	29598	15930	178159	158204	96294
MARCH	8645	234311	33516	38387	184267	59635	93127
APRIL	16800	343798	263413	16051	23081	433486	182772
MAY	25489	115305	62890	32351	188711	132379	92854
JUNE	111267	272640	70917	43223	38033	37133	95536
JULY	35487	56887	76936	97045	5850	13252	47576
AUGUST	3076	8627	14991	53588	8023	141275	38263
SEPTEMBER	2552	106385	33688	4758	16651	144288	51387
OCTOBER	2763	103750	7842	4764	5512	27614	25374
NOVEMBER	745517	219494	36724	11097	66950	9664	181574
DECEMBER	509619	22677	68080	28468	198694	80958	151416
ANNUAL TOTAL	1527425	1752149	721819	494611	1128383	1470728	1182519
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1527425	1752149	721819	494611	1128383	1470728	1182519

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	228222	324658	22849	18417	201914	6925	133831
FEBRUARY	243135	27382	63194	91109	226061	10364	110208
MARCH	189398	123306	85258	171540	51017	21320	106973
APRIL	28799	15503	36225	163733	71418	15565	55207
MAY	286968	131036	18186	26403	98975	4912	94414
JUNE	159259	19520	4559	8103	313061	4941	84907
JULY	98483	8039	4366	14957	29620	2656	26357
AUGUST	7053	6429	2367	10168	5641	1648	5551
SEPTEMBER	13536	5543	2964	8075	9663	13536	8886
OCTOBER	66047	4011	2188	284324	5753	3520	60974
NOVEMBER	601925	6770	3964	12301	3983	3760	105451
DECEMBER	60069	45454	3821	160831	4375	5999	46758
ANNUAL TOTAL	1982894	717671	249943	969961	1021481	95146	839516
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	1982694	717671	249943	969961	1021481	95146	839516

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	5011	19706	34513	27523	7816	2827	18930
FEBRUARY	36936	41534	11598	148159	32298	3734	54105
MARCH	21956	20762	7251	13043	5612	33488	13725
APRIL	158532	44130	7823	33411	22404	36833	53260
MAY	62989	411101	14239	8083	3994	31346	100081
JUNE	16489	8637	2711	3698	3905	40101	7088
JULY	5571	5707	45077	3576	1869	47651	12364
AUGUST	2660	5010	15067	7946	984	47825	6333
SEPTEMBER	2346	11793	1463	3716	1087	46163	4081
OCTOBER	1501	5769	17045	2085	921		5464
NOVEMBER	4956	23159	18905	1618	512		9830
DECEMBER	16803	76464	11525	2945	1180		21783
ANNUAL TOTAL	335750	673852	187217	255803	82602	289968	307045
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	335750	673852	187217	255803	82602	289968	307045

MINIMUM MONTHLY RUNOFF	512	11/56		
MINIMUM CALENDAR YEAR RUNOFF	82602	1956		
AVERAGE ANNUAL RUNOFF	803967	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/56	12/56	2/57	2/57	5/57	5/57
TOTAL ACRE FEET	2520	6573	49049	169284	1358029	4075769

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 8 SAN JACINTO RIVER - SUBBASIN C FROM CONFLUENCE OF EAST AND WEST FORKS TO MOUTH AREA 101 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments Use	Adjustments Stor.	Adjusted Runoff	Averages
1940	0	44,000	108,000-	9,600-	73,600-	
41	0	148,000		9,400	49,400	
42	6	61,000		5,700-	52,700-	
43	6	81,000		5,100-	32,100-	
44	6	108,000		900-	900-	
45	32,804	93,000		100-	15,000-	
						6 Yr.Av.
						20,833- 1940-45
1946	41,808	152,000		13,500	57,500	
47	51,357	44,000		11,600-	75,600-	
48	58,568	12,000		19,700-	115,700-	
49	49,666	87,000		5,100	15,900-	
50	59,270	52,000		18,500-	74,500-	
51	63,358	9,000		9,400	89,600-	
						6 Yr.Av.
						52,300- 1946-51
1952	58,665	22,000		59,500-	145,500-	
53	53,614	44,000		18,000-	82,000-	
54	40,890	25,000		141,000	58,000	
55	89,323	19,000		0	89,000-	
56	108,052	10,000	108,000-	0	98,000-	
						5 Yr.Av.
						71,300- 1952-56

Min. Cal. Yr. Runoff 145,500- 1952

Average Annual Runoff 46,782- 1940-56

WATERSHED NO. 8 SAN JACINTO RIVER - SUBBASIN D BUFFALO BAYOU ABOVE GAGE NEAR ADDICKS, AREA 310 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	578	24379	2893	17385	70098	61041	29396
FEBRUARY	8012	12686	3227	2303	31646	22521	13399
MARCH	366	43382	4306	9810	72503	1352	21953
APRIL	1233	40506	21468	1310	2131	50495	19524
MAY	532	35396	2072	1370	46917	2602	14815
JUNE	5264	83203	3955	2054	11094	2902	18079
JULY	5555	16538	69661	17753	716	678	18484
AUGUST	238	3989	7387	18498	907	66500	16253
SEPTEMBER	882	63926	19226	2260	8029	50690	24169
OCTOBER	2893	46164	1190	798	2320	19370	12123
NOVEMBER	51839	36200	7071	41876	12908	426	25053
DECEMBER	74737	3404	9288	20535	40720	49950	33119
ANNUAL TOTAL	152129	409853	151744	135952	299989	328527	246366
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	152129	409853	151744	135952	299989	328527	246366

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	44050	49990	5230	4500	10230	430	19072
FEBRUARY	31010	800	7850	15430	26430	213	13622
MARCH	9860	8040	5760	14570	1700	6120	7675
APRIL	301	684	1930	39940	4230	779	7977
MAY	75230	31720	3260	2330	5000	279	19637
JUNE	43490	1200	371	545	36480	391	13746
JULY	11140	1640	147	7020	3680	128	3959
AUGUST	1570	12290	99	3850	599	352	3127
SEPTEMBER	7470	2850	720	8970	3270	7100	5063
OCTOBER	15400	770	359	51900	879	944	11709
NOVEMBER	106500	3080	2160	473	66	448	18788
DECEMBER	8280	28050	83	45080	165	611	13712
ANNUAL TOTAL	354301	141114	27969	194608	92729	17795	138086
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	354301	141114	27969	194608	92729	17795	138086

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	133	3040	10170	6660	5290	123	5059
FEBRUARY	4260	5810	318	26020	4890	426	8260
MARCH	842	533	114	145	56	34850	338
APRIL	32620	4910	6460	156	3760	14120	9581
MAY	5020	82560	352	1210	1270	13490	18082
JUNE	2380	863	263	1110	2190	4160	1361
JULY	2890	1310	14130	1750	110	450	4038
AUGUST	1010	8750	24700	5460	971	333	8178
SEPTEMBER	2450	0	2570	5780	1310	5150	2422
OCTOBER	908	1140	3540	802	126		1303
NOVEMBER	5200	14530	3220	29	166		4629
DECEMBER	19040	18530	1300	196	1110		8035
ANNUAL TOTAL	76753	141976	67137	49318	21249	73102	71287
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	76753	141976	67137	49318	21249	73102	71287

MINIMUM MONTHLY RUNOFF		0		9/53		
MINIMUM CALENDAR YEAR RUNOFF		17795		1951		
AVERAGE ANNUAL RUNOFF		156656		1940-1956		
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	8/48	2/57	2/57	2/57	7/55	2/57
TOTAL ACRE FEET	617	3261	11618	38436	345691	780407

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 8 SAN JACINTO RIVER - SUBBASIN E BUFFALO BAYOU FROM GAGE NEAR ADDICKS TO MOUTH OF SHIPCHANNEL, EXCLUD. 8 A, 8 B AND 8 C
AREA 734 SQ. MI.
ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	0	324,000	0			
41	0	1,032,000	0			
42	0	431,000	0			
43	0	578,000	0			
44	0	708,000	0			
45	0	890,000	0	--- Same as Historic Runoff ---		
					661,000	6 Yr.Av. 1940-45
1946	0	1,147,000	0			
47	0	390,000	0			
48	0	124,000	0			
49	0	708,000	0			
50	0	422,000	0			
51	0	90,000	0			
					480,000	6 Yr.Av. 1946-51
1952	0	196,000	0			
53	0	393,000	0			
54	0	176,000	0			
55	0	190,000	0			
56	0	97,000	0			
					175,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 90,000 1951

Average Annual Runoff 464,000 1940-56

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN A SALT FORK ABOVE MOUTH, AREA 2,269 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	0	0	0	23	56	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		11	54	1926	1276	333	917	753
FEBRUARY		148	1015	733	266	769	444	563
MARCH		5	11677	380	746	517	1445	2462
APRIL		4740	50707	9380	1905	67	579	11230
MAY		3432	147327	931	2813	1595	2	26017
JUNE		10373	82429	4938	24042	3150	17915	23808
JULY		998	16781	2173	6382	5414	38682	11738
AUGUST		45342	5223	5250	10	349	355	9422
SEPTEMBER		3157	35521	23990	10	11198	8979	13809
OCTOBER		132	145535	23891	16	623	9351	29925
NOVEMBER		10809	10451	2158	41	519	150	4021
DECEMBER		789	4817	3283	238	4570	80	2296
ANNUAL TOTAL		79936	511537	79033	37745	29104	78899	136042
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		79936	511537	79033	37745	29104	78899	136042

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	0	0	56	56	31	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		91	1058	149	804	639	492	539
FEBRUARY		101	254	4322	761	424	755	1103
MARCH		26	452	1111	450	72	607	453
APRIL		1047	1390	87	871	1036	328	793
MAY		6188	104214	1089	49585	48867	19660	38267
JUNE		30589	5343	36315	37637	9973	9174	21505
JULY		3392	477	19966	5535	16895	3122	8231
AUGUST		42523	19	1284	2503	4266	10866	10244
SEPTEMBER		21884	0	98	15084	43856	1004	13654
OCTOBER		21425	117	3784	4236	3046	31	5440
NOVEMBER		950	702	3722	632	672	47	1121
DECEMBER		4923	3742	80	416	598	28	1631
ANNUAL TOTAL		133139	117768	72007	118514	130344	46114	102981
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		133139	117768	72007	118514	130344	46114	102981

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	37	75	65	61	33		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		72	6	533	133	1110	31	371
FEBRUARY		102	175	274	1048	1137	785	547
MARCH		67	432	69	6038	273	642	1376
APRIL		1704	255	24022	1106	89	28745	5435
MAY		1483	753	103142	42911	10025	107539	31663
JUNE		277	0	3767	17447	2017	77741	4702
JULY		7422	13898	76	14749	0	3164	7229
AUGUST		0	13683	23	2474	390	1381	3314
SEPTEMBER		0	187	5	92173	10	683	18475
OCTOBER		4	70329	4	105089	601		35205
NOVEMBER		246	4298	123	2126	58		1370
DECEMBER		159	913	213	1352	149		557
ANNUAL TOTAL		11536	104929	132251	286646	15859	220711	110244
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		11536	104929	132251	286646	15859	220711	110244

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	11536	1952	
AVERAGE ANNUAL RUNOFF	116786	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/52	3/52	6/53	6/53	7/53	6/53
TOTAL ACRE FEET	4	347	9452	28255	330995	745743

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN B DOUBLE MOUNTAIN FORK ABOVE MOUTH, AREA 1,779 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	0	55	48	49	47	58	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		10	64	2032	1357	376	972	802
FEBRUARY		179	990	795	292	872	481	602
MARCH		5	11803	420	808	612	1731	2573
APRIL		4690	51133	10321	2297	62	652	11526
MAY		3383	151284	954	3074	1726	0	26737
JUNE		10555	85013	5108	24351	3425	17619	24345
JULY		1239	17188	2292	6282	5464	38449	11819
AUGUST		45532	5574	5477	8	294	372	9543
SEPTEMBER		3482	35495	24350	9	10932	8839	13851
OCTOBER		126	148332	24821	17	725	9403	30571
NOVEMBER		10858	10793	2372	41	582	184	4138
DECEMBER		868	5050	3362	267	4540	99	2364
ANNUAL TOTAL		80927	522779	82304	38803	29610	78801	138871
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		80927	522779	82304	38803	29610	78801	138871

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	37	49	34	26	21	12	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		113	1111	177	857	669	534	577
FEBRUARY		129	281	4138	877	451	842	1120
MARCH		33	474	1307	478	82	653	505
APRIL		1028	1388	95	820	1043	345	787
MAY		6116	108322	1031	49851	49456	19960	39123
JUNE		30585	5422	36673	38982	10323	9271	21876
JULY		3660	464	20037	5473	17494	3200	8388
AUGUST		42410	20	1216	2558	4649	10824	10280
SEPTEMBER		23065	0	116	15568	44734	1175	14110
OCTOBER		21584	150	3760	4391	3198	29	5519
NOVEMBER		1067	805	3659	701	714	50	1166
DECEMBER		5354	3973	85	451	653	33	1758
ANNUAL TOTAL		135144	122410	72294	121007	133466	46916	105206
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		135144	122410	72294	121007	133466	46916	105206

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	7	4	11	34	78		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		79	6	570	156	1201	34	402
FEBRUARY		123	225	291	1014	1201	683	571
MARCH		83	550	76	6150	314	673	1435
APRIL		1671	223	23459	1088	107	28637	5310
MAY		1654	510	104202	42951	9992	108800	31862
JUNE		351	0	4141	18001	2042	78151	4907
JULY		7306	14704	92	13699	0	3129	7160
AUGUST		0	14371	18	2594	366	1332	3470
SEPTEMBER		0	209	5	91204	9	624	18285
OCTOBER		4	70309	0	107843	661		35763
NOVEMBER		253	4476	121	2303	61		1443
DECEMBER		185	970	255	1474	167		610
ANNUAL TOTAL		11709	106553	133230	288477	16121	222063	111218
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		11709	106553	133230	288477	16121	222063	111218

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	11709	1952	
AVERAGE ANNUAL RUNOFF	118856	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/52	3/52	6/53	6/53	7/53	6/53
TOTAL ACRE FEET	4	397	9262	28534	338152	759495

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO . 9 BRAZOS RIVER - SUBBASIN C CLEAR FORK ABOVE NUGENT GAGE, AREA 2,220 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES
END WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)		1	1	0	8311	8095	7060	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		0	0	352	875	0	0	205
FEBRUARY		112	0	3652	775	1857	0	1066
MARCH		0	2472	0	2965	517	3811	1628
APRIL		0	19682	5742	1105	193	6201	5487
MAY		2192	46992	9962	8835	13867	4621	14412
JUNE		12962	31222	6782	7485	3937	9101	11915
JULY		2802	8842	0	795	9477	44141	11010
AUGUST		29332	16342	862	232	1927	5251	8991
SEPTEMBER		3492	2452	8512	0	1477	30	2661
OCTOBER		0	62162	25762	0	8377	11261	17927
NOVEMBER		702	9032	502	0	183	761	1863
DECEMBER		0	2442	1122	0	183	641	731
ANNUAL TOTAL		51594	201640	63250	23067	41995	85819	77894
STORAGE ADJUSTMENT		12500	15300					4633
ADJUSTED ANNUAL TOTAL		64094	216940	63250	23067	41995	85819	82528

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)		6189	6249	7503	6984	9305	10107	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		488	0	21	0	0	5	86
FEBRUARY		193	0	1178	0	0	0	229
MARCH		26	0	1828	0	0	1235	515
APRIL		1178	0	0	2144	2428	67	970
MAY		1038	23353	978	12304	18258	9835	10961
JUNE		378	6623	3698	4064	1178	12835	4796
JULY		868	493	8488	0	5398	3755	3167
AUGUST		0	0	1208	0	2038	360	601
SEPTEMBER		6458	0	0	6354	9548	0	3727
OCTOBER		8368	17043	11978	4154	0	0	6924
NOVEMBER		1208	1533	0	0	0	0	457
DECEMBER		6598	1843	0	0	0	1095	1589
ANNUAL TOTAL		26801	50888	29377	29020	38848	29187	34020
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		26801	50888	29377	29020	38848	29187	34020

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)		10084	8845	11359	10589	14252		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		0	0	0	0	114	2	23
FEBRUARY		0	0	0	13	165	26980	36
MARCH		0	0	0	0	21	1670	4
APRIL		269	0	487	0	5	68960	152
MAY		2363	939	12809	15325	9120	288600	8111
JUNE		179	0	316	10475	1190	82390	2432
JULY		0	2819	0	2945	709	3800	1295
AUGUST		0	2419	83	368	0	2090	574
SEPTEMBER		1513	0	0	24495	0	2550	5202
OCTOBER		0	1619	0	4035	1130		1357
NOVEMBER		627	0	849	0	299		355
DECEMBER		0	0	0	0	497		99
ANNUAL TOTAL		4951	7796	14544	57656	13250	477042	19639
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		4951	7796	14544	57656	13250	477042	19639

MINIMUM MONTHLY RUNOFF		0	AT TIMES
MINIMUM CALENDAR YEAR RUNOFF	2)	4951	1952
AVERAGE ANNUAL RUNOFF	2)	46911	1940-1956

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	2/41	1/44	6/53	7/53	5/55	8/55
TOTAL ACRE FEET	0	232	3079	10164	89978	273231

NOTES: 1) ONLY MINOR IRRIGATION USES
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN D CLEAR FORK FROM NUGENT GAGE TO MOUTH, AREA 3,544 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)		2213	1354	4317	5605	11917	4457	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1548-	255-	2631	1158	391-	660-	156
FEBRUARY		3316	22194	402-	399	6424	477-	5242
MARCH		2018-	5793	129	6577	5235	33505	8204
APRIL		8487	45957	113578	16784	1926	39514	37708
MAY		62652	448433	40954	2626-	19549	5863	95804
JUNE		101530	198245	37695	11730	6812	20406	62736
JULY		9055	20961	243-	1781-	1103	14603	7283
AUGUST		62604	49047	216	1685-	3943	480-	18941
SEPTEMBER		5316	14441	52422	1123-	4074	2236-	12149
OCTOBER		1535-	164388	101271	380-	32569	12548	51477
NOVEMBER		29519	35942	5128	1368-	488	537-	11529
DECEMBER		5489	12958	3651	1363-	792	964-	3427
ANNUAL TOTAL		282867	1018104	357030	26322	82524	121085	314655
STORAGE ADJUSTMENT		14900-	6800-	10000-	1800-	3200-	12700-	8233-
ADJUSTED ANNUAL TOTAL		267967	1011304	347030	24522	79324	108385	306422

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)		7639	10202	9062	10381	7706	7590	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		899	138	274-	157	796-	1038-	152-
FEBRUARY		889-	600-	1000-	847	84-	881-	448-
MARCH		866-	51	952	1738	697-	2240-	177-
APRIL		109-	591-	1706	2637	19647	971-	3720
MAY		12596	91455	17511	85092	42309	29889	46475
JUNE		3041	5955	39100	42404	6285	57250	25673
JULY		1391-	427-	17657	2459	64313	2477	14181
AUGUST		19474	771-	419-	7612	9509	1961-	5574
SEPTEMBER		59215	2008	870-	12673	18845	343-	15255
OCTOBER		16275	9441	4142-	18965	318-	1019-	6534
NOVEMBER		11009	1397	666-	1409	995-	896-	1876
DECEMBER		14652	7387	765-	541-	952-	2255-	2921
ANNUAL TOTAL		133906	115363	68790	175452	157066	78012	121432
STORAGE ADJUSTMENT		11500-	18400-	5900-	7500-	7700-	5500-	9417-
ADJUSTED ANNUAL TOTAL		122406	96963	62890	167952	149366	72512	112015

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)		9499	16575	10834	17212	7188		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		802-	41-	309-	3219	283	55	470
FEBRUARY		776-	224-	458-	518	116	51844	165-
MARCH		753-	83	488-	324-	91	2475	278-
APRIL		1098-	505	3727	813	84	140906	806
MAY		388-	8762	56192	10783	19-	241016	15066
JUNE		2625	7810	4000	17190	501-	54576	6225
JULY		768-	97577	286-	648	701-	4911	19294
AUGUST		642-	7808	542-	949	127-	2249	1489
SEPTEMBER		2507-	1351	552-	82003	15	1495	16062
OCTOBER		643-	19300	331-	21884	1194-		7803
NOVEMBER		1170-	1385	313	476	1301		461
DECEMBER		721-	362	578-	399	769		46
ANNUAL TOTAL		7643-	144678	60688	138558	117	499527	67280
STORAGE ADJUSTMENT		1000	200					240
ADJUSTED ANNUAL TOTAL		6643-	144878	60688	138558	117	499527	67520

MINIMUM MONTHLY RUNOFF		4142-	10/48 (DURING FLOOD)	LOW WATER 1685- 8/43
MINIMUM CALENDAR YEAR RUNOFF	2)	117	1956	
AVERAGE ANNUAL RUNOFF	2)	167542	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/48	12/43	9/52	6/53	8/55	4/53
TOTAL ACRE FEET	5678-	7700-	9279-	5255	326111	926282

NOTES: 1) ONLY MINOR IRRIGATION USES 2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN E BRAZOS RIVER FROM CONFLUENCE OF DOUBLE MOUNTAIN FORK AND SALT FORKS TO SOUTH BEND EXCL. CLEAR FORK, AREA 2,548 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	0	0	84	110	110	138	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		19	848	4666	2172	389	1881	1663
FEBRUARY		2389	11384	3929	93-	4944	1749	4050
MARCH		78-	4576	2516	6860	5415	24496	7298
APRIL		5359-	47413	154817	15527	39	14803	37879
MAY		34204	441454	18366	681	10961	1003	84445
JUNE		55141	105882	16643	8989	20082	17743-	31499
JULY		12467	35119	3632	1771-	5818	18838-	6071
AUGUST		20254	20675	13802	95	4152	501	9913
SEPTEMBER		31975	2218-	56464	94-	18995-	13614-	8920
OCTOBER		192	191576	95391	279-	8012	21934	52971
NOVEMBER		4075	39973	13167	15-	2134	1640	10162
DECEMBER		6004	17025	3699	369-	3169-	483	3946
ANNUAL TOTAL		161283	913707	388092	31703	39782	18295	258810
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		161283	913707	388092	31703	39782	18295	258810

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	126	187	203	281	0	8	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1179	3361	2487	4693	756	1130	2268
FEBRUARY		435	1219	1181	6968	1159	1185	2025
MARCH		542	1545	8961	1988	636	519	2365
APRIL		2665-	473	965	1703	17021	567	3011
MAY		7867-	160204	5310	14293	27105	1469	33419
JUNE		30853-	11817	14072	18838	5589	37224	9448
JULY		11841	4153	51311	5832-	57796	5498	20795
AUGUST		49875-	147	5910	848-	32064	4616-	2870-
SEPTEMBER		40409	722	775	27206	32613	9264	18498
OCTOBER		21807	3198	1642-	8349	6365	156	6361
NOVEMBER		22595	4503	3725	3475	726	219	5874
DECEMBER		33453	9174	600	1162	1122	23-	7581
ANNUAL TOTAL		41001	200446	93655	81995	182952	52592	108774
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		41001	200446	93655	81995	182952	52592	108774

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	11	0	123	115	173		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		63-	121	2090	1779	4662	306	1718
FEBRUARY		111	206-	709	4352	3001	93409	1593
MARCH		64	4737	467	9744	1602	5090	3323
APRIL		727-	4537	49233	4083	1003	203452	11626
MAY		14086	49672	90383	92326	4314	633044	50156
JUNE		5347	2829-	25734	82182	3842	54242	22855
JULY		5175-	116298	2370	19124	450	12865	26613
AUGUST		349	36147	2346	13419	484-	5997	10355
SEPTEMBER		99	10880	10-	138320	42	11026	29866
OCTOBER		9-	51839	1505	59744	940		22804
NOVEMBER		3525	10273	11863	8837	9379		8775
DECEMBER		1184	3981	430	5890	6917		3680
ANNUAL TOTAL		18791	285450	187120	439800	35668	1019431	193366
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		18791	285450	187120	439800	35668	1019431	193366

MINIMUM MONTHLY RUNOFF	49875-	8/46	(DURING FLOOD) LOW WATER 484- 8/56	
MINIMUM CALENDAR YEAR RUNOFF	18971	1956		
AVERAGE ANNUAL RUNOFF	186608	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	8/46	8/46	8/46	8/46	4/48	4/53
TOTAL ACRE FEET	68887-	78877-	66820-	70986-	320355	745935

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN F BRAZOS RIVER FROM SOUTH BEND GAGE TO GLEN ROSE GAGE, AREA 3,240 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1,2)	647	712	3374	4042	4862	4154	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		569	29038	27579	32385	11943	39624	23523
FEBRUARY		2038-	155338	1869	67145	25433	98504	57709
MARCH		2763	29988	4719	84195	22123	114174	42994
APRIL		14432	175982-	503559	50075	10043	85114	81207
MAY		11332	264562-	318529	37095	86533	46554	39247
JUNE		137232	270538	202029	11375-	15337-	316-	97129
JULY		40522	38402-	15199	42095	4127-	27124	13735
AUGUST		73732	11068	5561-	42773	24953	32234	29867
SEPTEMBER		22652	4308	5359	18283	32673	20144	17237
OCTOBER		9312	53938	171359	6657	30387-	13274	36692
NOVEMBER		132532	116038	37809	2878	24053	9044	53726
DECEMBER		125112	8482-	13779	5567	21553	18624	29359
ANNUAL TOTAL		564152	182826	1296228	377773	209456	504098	522422
STORAGE ADJUSTMENT		110800-	658100	35700	7900-	5300-	4900-	94150
ADJUSTED ANNUAL TOTAL		453352	840926	1331928	369873	204156	499198	616572

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1,2)	2413	2906	3275	2583	2208	3159	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		71509	69110	40641	7434	16392	34522	39935
FEBRUARY		68149	38280	63181	30374	32712	26902	43266
MARCH		22759	53400	24861	49374	20562	8872	29971
APRIL		24499	36910	22291	15424	10152	9592	19811
MAY		49929	202880-	22141	190694	111898-	40918-	15489-
JUNE		8739	61440	87029-	125694	47662	41078-	19238
JULY		17239	35450	70669-	52234	51762	60242	24376
AUGUST		6381-	39015	45181	42954	80732	49522	41837
SEPTEMBER		28821-	36390	34301	8666-	12262	29582	12508
OCTOBER		90949	2890-	3519-	60824	52122	19910	36233
NOVEMBER		131479	6230	1111	30654	18692	14671	33806
DECEMBER		99329	30690	11930	18414	22172	13117	32609
ANNUAL TOTAL		549378	201145	104421	615408	253324	184936	318102
STORAGE ADJUSTMENT		4900-	6600-	8300-	2700-	4300-	7700-	5750-
ADJUSTED ANNUAL TOTAL		544478	194545	96121	612708	249024	177236	312352

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1,2)	4054	4213	5385	5140	6261		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		16618	3438	11187	5627	20520	18863	11478
FEBRUARY		7100	723	7957	303-	30500	129860-	9195
MARCH		3613	2881-	18769	15723-	46820	7760	10120
APRIL		11876	1189	57913-	223-	31810	65400-	2652-
MAY		34386	25211-	21573-	80593-	89870	1375000	624-
JUNE		12036	3569	88497	65507	14850	201600	36892
JULY		41316	201701-	49797	2247	67737	38400	8121-
AUGUST		47093	41891-	54727	22877	37055	14520	23972
SEPTEMBER		3676	20969	7257	141193-	3423	15940	21174-
OCTOBER		272	120931-	8047	229307	7480		24835
NOVEMBER		7356	43389	7133-	12097	2160-		10710
DECEMBER		4016	15659	1811	3097	34510		11819
ANNUAL TOTAL		189358	303679-	161430	102724	382415	1476823	106450
STORAGE ADJUSTMENT		1500-	17900-	11900-	12200-	6900-	6900-	10080-
ADJUSTED ANNUAL TOTAL		187858	321579-	149530	90524	375515	1469923	96370

MINIMUM MONTHLY RUNOFF		264562-	5/41	(DURING FLOOD) LOW WATER 7133- 11/54
MINIMUM CALENDAR YEAR RUNOFF	3)	90524	1955	
AVERAGE ANNUAL RUNOFF	3)	356200	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	5/41	10/53	10/53	5/54	9/55	4/57
TOTAL ACRE FEET	410556-	365196-	351355-	229487-	183254	1525145

NOTES: 1) ONLY MINOR IRRIGATION USES
2) SOME REPORTED USES MODIFIED
3) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN G BOSQUE RIVER ABOVE MOUTH AREA 1639 SQ.MI.

ESTIMATED RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECTS OF RESERVOIR STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	5849	107	6388	7250	7573	7668	
	IRRIGATION	14	25	45	1	1	20	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		38	32752	9062	12299	10661	46076	18481
FEBRUARY		41	132725	3720	5120	34886	67743	40706
MARCH		24	77617	3266	8689	24597	136610	41800
APRIL		19798	130925	218147	13511	27780	240181	108390
MAY		368	170509	124651	24165	187370	42028	91515
JUNE		47339	93709	139918	1549	19302	49579	58566
JULY		15914	56443	9926	453	2471	86132	28556
AUGUST		332	67604	9268	38	200	4853	13716
SEPTEMBER		252	4310	102749	6461	420	2145	19389
OCTOBER		96	9649	78048	1775	2416	17946	18321
NOVEMBER		84983	4926	22769	54	1040	7234	20168
DECEMBER		93610	5880	20244	774	10506	9570	23497
ANNUAL TOTAL		262795	787049	741768	74888	321649	710497	483107
STORAGE ADJUSTMENT		55347-	10227-	6263-	15039	34300-	24956-	19342-
ADJUSTED ANNUAL TOTAL		207448	776822	735505	89927	287349	685541	463765

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	8184	9243	10853	10587	11274	12225	
	IRRIGATION	8	5	3		44	213	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		14793	23547	2645	1900	2624	174	7614
FEBRUARY		36195	14279	41740	9177	23298	912	20933
MARCH		69410	38787	10999	11809	3356	735	22516
APRIL		25420	31726	4391	34874	10170	1947	18088
MAY		70788	20162	32317	52504	6405	5233	31235
JUNE		23585	4972	12855	24546	5129	16746	14639
JULY		596	1099	14645	5238	9784	29	5232
AUGUST		184	68	187	43	69	419	162
SEPTEMBER		5661	107	3209	1895	29703	2113	7115
OCTOBER		733	78	56	5666	2339	189	1510
NOVEMBER		16378	105	58	1929	972	414	3309
DECEMBER		9160	4383	549	1212	466	13	2630
ANNUAL TOTAL		272903	139313	123651	150793	94315	28924	134983
STORAGE ADJUSTMENT		10631-	23940	33563-	11129-	34201-	17912	7945-
ADJUSTED ANNUAL TOTAL		262272	163253	90088	139664	60114	46836	127038

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	13887	14428	16515	14060	16162		
	IRRIGATION	122	203	346	698	915		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		88	4057	550	49	4	4	950
FEBRUARY		555	1591	411	1382	116	898	811
MARCH		234	14060	182	1484	10	4497	3194
APRIL		28425	9236	2686	3212	1308	350019	8973
MAY		62274	66061	9864	52015	76620	260210	53367
JUNE		2098	51	10087	7660	934	35279	4166
JULY		26	206	881	1019	0	8226	426
AUGUST		1	2092	0	0	0	81	419
SEPTEMBER		251	1974	150	3201	0	39	1115
OCTOBER		0	3549	3604	2748	0		1980
NOVEMBER		7918	56	2623	466	1903		2593
DECEMBER		12842	855	177	708	1913		3299
ANNUAL TOTAL		114712	103788	31215	73944	82808	659253	81293
STORAGE ADJUSTMENT		53065-	2990-	28393	51667-	8264-		17519-
ADJUSTED ANNUAL TOTAL		61647	100798	59608	22277	74544	659253	63774

MINIMUM MONTHLY RUNOFF		0	AT TIMES IN PAST WITHOUT EFFECT OF NEW STORAGE
MINIMUM CALENDAR YEAR RUNOFF	1)	22272	1955
AVERAGE ANNUAL RUNOFF	1)	227276	1940-1956

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/56	3/52	5/54	3/52	4/55	3/57
TOTAL ACRE FEET	0	1493	22476	94838	357545	872249

ALLRED-FLEMING, HOUSTON

NOTES: 1) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN H BRAZOS RIVER FROM GLEN ROSE GAGE TO WACO GAGE EXCLUDING BOSQUE RIVER, AREA 2,021 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1)	4	6	9	10	19	11	
	IRRIGATION								
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			2380	70809	27380	13745	15779	96634	37788
FEBRUARY			1312	184250	8930	5596	51281	145043	66069
MARCH			2725	146480	7740	7637	64269	256135	80831
APRIL			50191	168289	342672	24181	48807	496447	188431
MAY			1609	172851	165471	31988	452306	70311	149089
JUNE			74788	27705	175248	3085	51179	73798	67634
JULY			79101	92950	16730	1631	6211	70212	44473
AUGUST			27994-	33211	16203	48	11033-	14003	4073
SEPTEMBER			2611-	5948	61979	10860	10290	3246	14952
OCTOBER			4701	41231-	21887	6737	5477	20962	3089
NOVEMBER			146789	33195	21887	2936	7525	16544	38146
DECEMBER			181574	3509	23683	3742	27420	27312	44540
ANNUAL TOTAL			514565	897966	889810	112186	729511	1290647	739114
STORAGE ADJUSTMENT			61149-	17635-	24556-	25107-	69320-	10731-	34750-
ADJUSTED ANNUAL TOTAL			453416	880331	865254	87079	660191	1279916	704365

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1)	6	5	8	8	3	0	
	IRRIGATION								
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			42219	66335	7674	6380	9664	976	22208
FEBRUARY			83122	36126	21217	23209	67808	2808	39048
MARCH			125389	66084	31704	32169	10798	3672	44969
APRIL			49798	87203	12019	54114	32834	2558	39768
MAY			109051	86554	41291	53449	15806	9165	52553
JUNE			62252	25733	16495	39016	15174	87031	40950
JULY			2321-	7899	39153	22614	15549-	630	8738
AUGUST			260	4769	7007-	79-	26226	4964	4856
SEPTEMBER			7955-	1226	7038	3463	21778	8482	5672
OCTOBER			11895	298-	2739	1686-	10970	2172	4299
NOVEMBER			23432	3810	494	11344	1112	3231	7237
DECEMBER			27329	20393	2280	2223	2125	313	9111
ANNUAL TOTAL			524471	405914	175097	246216	198746	126002	279408
STORAGE ADJUSTMENT			48961-	32066-	301	76515-	35911-	22100-	35875-
ADJUSTED ANNUAL TOTAL			475510	373848	175398	169701	162835	103902	243532

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	1)	1	255	801	305	1312		
	IRRIGATION								
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			5053-	5590	9287-	8496-	6647	17056	2120-
FEBRUARY			3410	3703	5381-	521-	2284-	4902-	215-
MARCH			4148	33843	10671-	1945	16384-	31945	2576
APRIL			21027	14898	8425-	337-	3133	84996-	6059
MAY			16350-	111549	5830	47233	59340	741313-	41520
JUNE			701-	16118	13471	22030	15203	1629354	13224
JULY			5056-	16059-	21807	8136	27920	164103	7350
AUGUST			21479	1745-	5392-	2917-	7618	14936	3809
SEPTEMBER			20816	24145-	11659	102266-	31462	5888	12495-
OCTOBER			2849	88482-	12276	64064	19448		2031
NOVEMBER			5390-	58493-	1267-	335	2866-		13536-
DECEMBER			30085	14685-	364-	14098	40891-		2351-
ANNUAL TOTAL			71264	17908-	24256	43304	108346	1032071	45852
STORAGE ADJUSTMENT			173900	265700	180700-				51780
ADJUSTED ANNUAL TOTAL			245164	247792	156444-	43304	108346	1032071	97632

MINIMUM MONTHLY RUNOFF		741313-	5/57 (DURING FLOOD)	LOW WATER 298- 10/47
MINIMUM CALENDAR YEAR RUNOFF		43304	1955	
AVERAGE ANNUAL RUNOFF	2)	363267	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	5/57	5/57	5/57	5/57	5/57	5/57
TOTAL ACRE FEET	794364-	823101-	724316-	670384-	560130-	256645

ALLRED-FLEMING, HOUSTON

NOTES: 1) SOME REPORTED USES MODIFIED
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN I LEON RIVER ABOVE GAGE NEAR BELTON, AREA 3,513 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.		140	140	1029	1306	797	850	
	IRRIGATION	1)	5	1	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			547	84997	10431	22034	47362	109596	45828
FEBRUARY			1215	247035	9159	14172	117590	111094	83378
MARCH			542	217432	7656	20509	107987	194991	91520
APRIL			29468	131227	289101	31084	68102	400286	158211
MAY			6505	415535	266609	20552	597690	81024	221319
JUNE			98943	159413	187287	8370	107368	63772	104192
JULY			47426	83335	21788	3021	20579	35333	35247
AUGUST			8044	52123	27217	362	8118	6852	17119
SEPTEMBER			1396	41216	184480	7863	10061	9845	42477
OCTOBER			5053	58763	146597	7400	9088	42652	44926
NOVEMBER			178432	18102	48636	2219	7927	15831	45191
DECEMBER			211937	14527	29171	4264	32312	38966	55196
ANNUAL TOTAL			589508	1523705	1228132	141850	1074184	1110242	944604
STORAGE ADJUSTMENT			57676-	3635	8574-	17605	47002-	7664-	16613-
ADJUSTED ANNUAL TOTAL			531832	1527340	1219558	159455	1027182	1102578	927991

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.		1075	1415	1404	1410	1329	1366	
	IRRIGATION	1)	1	0	0	0	2	22	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			47725	65083	2892	1573	1456	0	19788
FEBRUARY			82703	24801	19630	4501	11234	322	23879
MARCH			154910	88718	10957	63388	2211	865	53508
APRIL			43465	42283	7162	83823	12786	1540	31843
MAY			146213	56751	29400	74281	41584	15657	60648
JUNE			47921	11489	10328	54459	24042	27927	29361
JULY			9263	4480	16659	10500	23604	0	10751
AUGUST			2481	1249	618	1259	742	0	1058
SEPTEMBER			25714	702	7511	375	30615	1451	11061
OCTOBER			6511	216	0	6339	0	0	2178
NOVEMBER			26370	3258	0	3498	0	0	5521
DECEMBER			28155	7743	0	2403	0	0	6384
ANNUAL TOTAL			621431	306853	105157	306399	148274	47762	255979
STORAGE ADJUSTMENT			4100-	24231	3529-	40813	36269-	54749	12649
ADJUSTED ANNUAL TOTAL			617331	331084	101628	347212	112005	102511	268629

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.		877	1060	1636	6067	6896		
	IRRIGATION	1)	71	109	49	25	241		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			0	5454	1312	85	501	165	1470
FEBRUARY			0	893	620	428	421	198	472
MARCH			218	16901	0	84	405	293	3522
APRIL			27391	10069	0	270	274	8580	7601
MAY			66956	158613	0	452	80650	241500	61334
JUNE			9721	2801	0	251	3450	357100	3245
JULY			2394	10380	0	179	813	386600	2753
AUGUST			0	4298	0	322	1300	41140	1184
SEPTEMBER			0	2947	0	229	661	1590	767
OCTOBER			0	21156	0	186	1330		4534
NOVEMBER			7095	5021	0	155	53390		13132
DECEMBER			17598	2374	0	302	19760		8007
ANNUAL TOTAL			131373	240907	1932	2943	162955	1037166	108022
STORAGE ADJUSTMENT			34917-	87350-	98800	107500	53600-	53600-	6086
ADJUSTED ANNUAL TOTAL			96456	153557	100732	110443	109355	983566	114108

MINIMUM MONTHLY RUNOFF		0	AT TIMES
MINIMUM CALENDAR YEAR RUNOFF	2)	96456	1952
AVERAGE ANNUAL RUNOFF	2)	455898	1940-1956

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	12/48	8/54	2/55	2/56	4/56	4/57
TOTAL ACRE FEET	0		513	3865	423791	1242826

NOTES: 1) SOME REPORTED USES MODIFIED
2) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN J LITTLE RIVER ABOVE MOUTH, EXCLUDING 9 I, AREA 3,982 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	354	317	2888	3313	4618	4950	
	IRRIGATION	30	32	30	24	39	12	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		4248	350863	20958	60905	157605	316407	151831
FEBRUARY		22792	462385	21819	38242	277120	283469	184305
MARCH		5943	483530	19645	70855	330477	376477	214488
APRIL		107496	360561	398749	92024	106187	758201	303870
MAY		122444	703759	471574	69899	1111921	209840	448240
JUNE		227434	391150	387148	29242	369461	206503	268490
JULY		417137	299780	49335	14324	61183	80987	153791
AUGUST		15542	63949	36328	6741	25062	40265	31315
SEPTEMBER		9730	67842	361388	17292	64883	29914	91842
OCTOBER		5756	85048	177543	19638	22775	122422	72197
NOVEMBER		585234	42895	116989	7924	59945	38616	141934
DECEMBER		643481	31669	90444	12052	183552	116606	179634
ANNUAL TOTAL		2167237	3343431	2151920	439138	2770171	2579707	2241934
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		2167237	3343431	2151920	439138	2770171	2579707	2241934

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	5125	4653	5106	5286	5114	5040	
	IRRIGATION	93	214	227	178	200	177	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		153044	312437	13084	17417	12845	2999	85304
FEBRUARY		217611	103175	30983	24663	88473	6941	78641
MARCH		308483	206431	34670	84598	12873	20020	111179
APRIL		159236	143771	39307	329022	72513	5484	124889
MAY		362489	165498	82572	121008	70642	33645	139309
JUNE		150324	58700	21023	73990	60142	53040	69537
JULY		32030	16804	36934	24264	23129	255	22236
AUGUST		14598	18252	5203	5543	9632	59	8881
SEPTEMBER		63364	8681	9497	2985	56196	11410	25356
OCTOBER		36678	4218	3076	12087	5550	1622	10539
NOVEMBER		221509	10070	1911	9761	2106	1302	41110
DECEMBER		152469	17870	3173	18455	1491	1820	32546
ANNUAL TOTAL		1871835	1065907	281433	723793	415592	138597	749526
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1871835	1065907	281433	723793	415592	138597	749526

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	5778	22671	8783	4631	7311		
	IRRIGATION	271	184	606	351	434		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2213	48447	15489	4320	3990	1486	14892
FEBRUARY		3547	23334	8701	33315	10882	2231	15956
MARCH		6913	41941	4812	14184	2564	34741	14083
APRIL		71457	42691	1667	49888	1084	694246	33357
MAY		148313	357712	35705	91164	96904	596598	145960
JUNE		42217	21429	29	72766	8282	657872	28945
JULY		5870	14902	640-	16154	2330-	378395	6791
AUGUST		923-	8072	1393	24450	1284	71426	6855
SEPTEMBER		1778	25569	1090	3923-	178	20017	4938
OCTOBER		330	182703	1181	8120	3528		39172
NOVEMBER		10364	31909	17984	2754	58914		24385
DECEMBER		52030	165304	2530	2356	29406		50325
ANNUAL TOTAL		344109	964013	89941	315548	214686	2457012	385659
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		344109	964013	89941	315548	214686	2457012	385659

MINIMUM MONTHLY RUNOFF	1)	3923-	9/55
MINIMUM CALENDAR YEAR RUNOFF		89941	1954
AVERAGE ANNUAL RUNOFF		1169239	1940-1956

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/56	12/51	1/55	4/56	4/56	3/57
TOTAL ACRE FEET	868-	16468	78772	393340	1835284	3970034

NOTES: 1) NEGATIVE MONTHLY FLOWS DUE TO PROPORTIONAL PARTS OF FLOOD PEAK LOSSES ON BRAZOS RIVER. LOW WATER MINIMUM MONTH 54 AF 10/52

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN K YEGUA CREEK ABOVE MOUTH, AREA 1,112 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	620	32623	2646	16393	50205	106862	34892
FEBRUARY	9255	24593	2269	2015	46173	28334	18773
MARCH	485	84056	1970	8313	42074	17527	25738
APRIL	0	32106	65210	2019	3963	84064	31227
MAY	16632	55944	16241	7432	42403	20418	26512
JUNE	55056	100587	10721	6780	20762	27524	36905
JULY	220265	164078	8103	1894	2429	2738	66585
AUGUST	522	1070	432	1324	3317	45799	8744
SEPTEMBER	826	0	3806	1482	14722	18288	6521
OCTOBER	1778	0	1143	1298	480	27363	5344
NOVEMBER	77077	15251	6383	853	60945	3237	27291
DECEMBER	177877	3495	2773	2280	80500	4521	45241
ANNUAL TOTAL	560393	513803	121697	52083	367973	386675	333771
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	560393	513803	121697	52083	367973	386675	333771

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	48860	51103	1390	1026	12441	346	19194
FEBRUARY	43932	6968	8888	33552	66028	740	26685
MARCH	102165	66804	5304	25600	6809	4673	35226
APRIL	13942	15423	2935	115636	62572	4557	35844
MAY	45982	29685	6217	21800	29256	394	22222
JUNE	30180	6606	3022	11169	78280	2667	21987
JULY	3570	3820	2340	2840	2386	365	2554
AUGUST	520	106073	0	664	2242	18	18253
SEPTEMBER	2360	2860	469	1623	13551	282	3524
OCTOBER	6199	512	293	39203	2000	454	8110
NOVEMBER	73159	1622	275	6345	610	421	13739
DECEMBER	14557	3172	310	19738	536	529	6474
ANNUAL TOTAL	385426	294648	31443	279196	276711	15446	213812
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	385426	294648	31443	279196	276711	15446	213812

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	318	21633	5295	889	525	160	5732
FEBRUARY	1617	9061	1923	24005	14186	589	10158
MARCH	2562	3565	785	401	4168	14576	2296
APRIL	9657	6706	1602	7062	7380	108757	6481
MAY	19698	96045	5915	0	0	122716	24332
JUNE	8398	3711	2088	4032	755	61078	3797
JULY	19278	6719	878	905	0	6592	5556
AUGUST	381	804	3095	641	624	1494	1109
SEPTEMBER	607	5159	419	0	143	15261	1266
OCTOBER	286	17156	214	2701	113		4094
NOVEMBER	2887	11689	370	678	66		3138
DECEMBER	20200	17670	422	363	.1446		8020
ANNUAL TOTAL	85889	199918	23006	41677	29406	331223	75979
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	85889	199918	23006	41677	29406	331223	75979

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	15446	1951	
AVERAGE ANNUAL RUNOFF	215611	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/56	10/56	3/52	2/57	9/55	3/57
TOTAL ACRE FEET	322	1635	14184	46938	365340	1167790

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN L NAVASOTA RIVER ABOVE MOUTH, AREA 2,159 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	0	0	12	195	144	475	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		6071	156090	18416	74150	149712	328115	122092
FEBRUARY		55907	83551	15348	10008	207724	96138	78113
MARCH		4861	243483	12744	4496	155344	167576	98084
APRIL		0	61184	182122	12051	13687	324088	98855
MAY		56960	0	225811	13273	359847	155968	135310
JUNE		0	110832	113516	39874	183767	74412	87000
JULY		150739	94921	48035	18107	18184	19904	58315
AUGUST		4327	298	3685	12869	8039	61042	15043
SEPTEMBER		5449	0	26552	7620	40964	126044	34438
OCTOBER		9662	0	8731	9646	4701	90577	20553
NOVEMBER		142932	66134	45899	8790	102427	21324	64584
DECEMBER		551063	22338	21885	16431	192564	106256	151756
ANNUAL TOTAL		987971	838831	722744	227315	1436560	1571444	964144
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		987971	838831	722744	227315	1436560	1571444	964144

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	487	520	581	477	611	647	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		168410	222105	17422	28004	88374	2128	87741
FEBRUARY		194083	49028	48476	74108	239533	4288	101586
MARCH		226192	181024	54840	127649	43191	7242	106690
APRIL		73793	58133	38782	100466	138897	7564	69606
MAY		372120	163697	37163	80202	82199	7181	123760
JUNE		209141	72746	28248	69772	147168	6023	88850
JULY		32535	19290	17771	27579	4378	906	17077
AUGUST		5464	63754	0	6694	22241	0	16361
SEPTEMBER		0	24145	4708	10218	8662	3279	8502
OCTOBER		20240	5195	2975	92795	19165	1166	23589
NOVEMBER		210930	16379	2907	57836	6504	1076	49272
DECEMBER		75376	18052	3925	78876	5568	2537	30722
ANNUAL TOTAL		1588284	893558	257215	754199	805880	43390	723754
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1588284	893558	257215	754199	805880	43390	723754

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	683	725	973	1001	926		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2140	45756	21275	5379	2456	719	15401
FEBRUARY		10422	15720	3703	43508	30677	4913	21206
MARCH		16631	72642	3473	12887	5033	20881	22133
APRIL		37825	16228	4473	73218	4685	219426	27286
MAY		34545	303555	41781	6759	21871	345453	81702
JUNE		28719	8441	4857	5614	2513	55415	10029
JULY		918	2344	1612	2612	0	13509	1497
AUGUST		693	1152	1317	980	1256	3246	1080
SEPTEMBER		1170	4392	851	0	292	0	1341
OCTOBER		563	13228	1268	5395	228		4136
NOVEMBER		2545	18028	3152	1813	1893		5486
DECEMBER		27790	126044	3463	1214	1985		32099
ANNUAL TOTAL		163961	627530	93225	159379	72889	663562	223397
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		163961	627530	93225	159379	72889	663562	223397

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	43390	1951	
AVERAGE ANNUAL RUNOFF	661434	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/41	12/56	12/51	11/52	12/55	3/57
TOTAL ACRE FEET	298	5654	43390	185129	1087485	3445582

NOTES: 1) ONLY MINOR MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN M BRAZOS RIVER FROM WACO GAGE TO GAGE NEAR HEMPSTEAD, EXCL. 9 I, 9 J, 9 K and 9 L, AREA 3,374 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	0	0	0	0	0	0	
	IRRIGATION	0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		7325	282599	7644	80262	205710	344823	154727
FEBRUARY		52040	153409	20281	26591	251131	150789	109040
MARCH		9639	287898	17297	44757	305584	197931	143851
APRIL		788	39172	107575	74111	50566	484775	126165
MAY		45757	55883	440178	63144	509668	190909	217590
JUNE		62141-	258742	102560	66608	289085	118174	128838
JULY		206556	184125	48119	23429	27637	40684	88425
AUGUST		7546-	30119	13496	19791	11252	47935	19175
SEPTEMBER		15716	36468	87785	9239	81904	97756	54811
OCTOBER		18882	38938-	5475-	35319	11518	113973	22547
NOVEMBER		221526	114221	110996	11533	110884	20370	98255
DECEMBER		625063	25760	65268	17293	203530	137426	179057
ANNUAL TOTAL		1133605	1429458	1015724	472077	2058469	1945545	1342480
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1133605	1429458	1015724	472077	2058469	1945545	1342480

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE.	MUN. & IND.	0	0	0	0	369	616	
	IRRIGATION	0	0	583	536	539	1075	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		181797	251492	21727	14364	77537	5629	92091
FEBRUARY		192760	43891	26856	58564	258638	15165	99312
MARCH		308298	181364	68427	127693	44375	12891	123841
APRIL		117445	61790	44591	115711	133127	24146	82802
MAY		548644	111366	52472	63242	96159	5050	146156
JUNE		247880	87093	21781	49016	155227	24171	97528
JULY		48277	23719	33188	52939	30235-	511	21400
AUGUST		9735	92261	6113-	4562	50059	1148	25275
SEPTEMBER		17852-	28683	9220	8117	3804-	13838	6367
OCTOBER		43154	3317	7185	57955	26437	8591	24440
NOVEMBER		235693	21729	4430	56526	7433	6578	55398
DECEMBER		112165	26887	5348	85470	1163	9089	40020
ANNUAL TOTAL		2027996	933592	289112	694159	816116	126807	814630
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		2027996	933592	289112	694159	816116	126807	814630

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	2045	8796	9024	7078	9174		
	IRRIGATION	1715	646	1235	1260	1696		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		7615	124116	52186	12485	11890	1382-	41658
FEBRUARY		15143	67097	18519	102865	32184	180	47162
MARCH		36548	80597	8104	16270	18324	34243	31969
APRIL		87845	13300	9571	143932	12184	35014	53366
MAY		62028	624788	33777	4323-	1141-	973083	143026
JUNE		91002	51948	19874	27471	9697	71925	39998
JULY		5971	22515	5289	23249	11980-	149844	9009
AUGUST		602-	7958	11865	15914	3857	43501	7798
SEPTEMBER		15967	31725	5322	96045-	1611	9183	8284-
OCTOBER		5503	11162	3189	64901	10517		19054
NOVEMBER		6017	65806	14918	17729	6478		22190
DECEMBER		46715	192312	9469	7268	17096		54572
ANNUAL TOTAL		379752	1293324	192083	331716	110717	1315591	461518
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		379752	1293324	192083	331716	110717	1315591	461518

MINIMUM MONTHLY RUNOFF	96045-	9/55	(DURING FLOOD) LOW WATER 11980- 7/56	
MINIMUM CALENDAR YEAR RUNOFF	110717	1956		
AVERAGE ANNUAL RUNOFF	897074	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/55	10/56	2/57	4/57	4/57	4/57
TOTAL ACRE FEET	56882-	12561	65441	234936	2228496	4696896

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 9 BRAZOS RIVER - SUBBASIN N BRAZOS RIVER FROM GAGE NEAR HEMPSTEAD TO MOUTH AREA 2,000 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consump-tive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	67,244	1,171,400	326,756-	844,644		
41	66,111	2,730,900	327,889-	2,403,011		
42	79,973	639,800	314,027-	325,773		
43	293,630	219,100	100,370-	118,730		
44	238,508	842,200	155,492-	686,708		
45	290,336	777,600	103,664-	673,936		
					842,134	6 Yr.Av. 1940-45
1946	188,298	1,326,500	205,702-	1,120,798		
47	250,492	397,000	143,808-	253,192		
48	408,730	96,900-	14,730	82,170-		
49	288,295	453,100	105,705-	347,395		
50	296,637	151,400	97,363-	54,037		
51	338,168	273,600-	55,832-	329,432-		
					227,303	6 Yr.Av. 1946-51
1952	280,526	34,200-	113,474-	147,674-		
53	367,022	249,800	26,978-	222,822		
54	363,129	259,400-	30,871-	290,271-		
55	319,611	115,300-	74,389-	189,689-		
56	302,741	260,300-	91,259-	351,559-		
					151,274-	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 351,559- 1956

Average Annual Runoff 332,956 1940-56

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN A COLORADO RIVER ABOVE COLORADO CITY GAGE
AREA 1,492 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Storage And Use Adjustments	Adjusted Runoff	Averages	
1940	*	34,650	16,000-	18,650		
41	*	156,730	67,100-	89,630		
42	*	39,070	35,000-	4,070		
43	*	9,280	6,000-	3,280		
44	22	38,380	30,000-	8,380		
45	20	73,250	37,000-	36,250		
					26,710	6 Yr.Av. 1940-45
1946	8	38,530	25,000-	13,530		
47	*	96,680	57,000-	39,680		
48	*	121,960	76,000-	45,960		
49	*	38,830	23,000-	15,830		
50	*	62,470	37,000-	25,470		
51	*	34,410	28,000-	6,410		
					24,480	6 Yr.Av. 1946-51
1952	*	3,540	0	3,540		
53	341	26,330	24,500-	1,830		
54	2,145	39,050	0	39,050		
55	13,053	46,910	0	46,910		
56	18,621	8,010	0	8,010		
					19,868	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 1,830 1953

Average Annual Runoff 23,910 1940-56

* NO USE REPORTED

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN B COLORADO RIVER FROM COLORADO CITY GAGE TO BALLINGER GAGE, AREA 3,748 SQ.MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	264	332	319	1208	462	864	
	IRRIGATION	341	129	468	418	291	550	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		137-	38-	2213	2019	192-	665	755
FEBRUARY		277	3519	1155	714	2182	225	1345
MARCH		15-	16694	943	2237	2403	896	3860
APRIL		12672	78250	6467	637	422-	8657	17710
MAY		10544	142443	19789	9128	35842	14	36293
JUNE		52366	83824	1482	4444	7098	6103	25886
JULY		10283	24758	553-	5771	31547	111812	30603
AUGUST		20829	20504	40000	718-	9397	9813	16638
SEPTEMBER		6335	7364	27346	191-	8490	3725	8845
OCTOBER		2525	81244	18149	421-	16534	23785	23636
NOVEMBER		2430	7986	2915	306-	166	329	2253
DECEMBER		564	5620	3001	294-	569	301	1627
ANNUAL TOTAL		118673	472168	122907	23020	113614	166325	169451
STORAGE ADJUSTMENT		14500-	10700-	13200-	1500-	15500-	14800-	11700-
ADJUSTED ANNUAL TOTAL		104173	461468	109707	21520	98114	151525	157751

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1462	1830	2097	1777	3166	3963	
	IRRIGATION	451	442	405	258	377	415	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		715	722	205	98	145	270-	269
FEBRUARY		222	24-	8435	767	102-	263-	1506
MARCH		43-	118	4388	481	218-	186-	757
APRIL		29-	9753	896	30515	11833	201-	8795
MAY		19042	95023	4265	103526	18814	18345	43169
JUNE		55	18145	11023	27091	3639	26299	14375
JULY		121-	2050	90028	1392	3299	1685-	15827
AUGUST		5959	518	3356	1013-	7266	5714	3633
SEPTEMBER		34569	4629	5770	8800	5691	739	10033
OCTOBER		15539	27970	2829	5526	525	226-	8694
NOVEMBER		2852	1576	96	195	253-	188-	713
DECEMBER		17941	6462	89	200	313-	180-	4033
ANNUAL TOTAL		96701	166942	131380	177578	50326	47898	111804
STORAGE ADJUSTMENT		15500-	10600-	14500-	6700-	6700	6800-	7900-
ADJUSTED ANNUAL TOTAL		81201	156342	116880	170878	57026	41098	103904

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	2624	3651	4245	2749	6251		
	IRRIGATION	564	691	704	1125	1314		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		349-	206-	79-	300-	24-	39	192-
FEBRUARY		338-	243-	156-	650	11-	140	20-
MARCH		320-	2012	180-	1050-	0	3737	92
APRIL		6357	902-	68169	448	3669	38070	15548
MAY		980	19107	101587	63336	24570	247190	41916
JUNE		9306	279-	15269	8289	1280	130090	6773
JULY		1367-	7097	2208	9444	3169	4584	4110
AUGUST		639-	68135	381-	4060	94	3384	14254
SEPTEMBER		2528	3734	246-	3013	177	16796	1841
OCTOBER		254-	20496	217-	2617	33285		11185
NOVEMBER		120	2303	155-	257-	2703		943
DECEMBER		271-	173-	169-	273-	4814		786
ANNUAL TOTAL		15753	121081	185650	89977	73726	444030	97237
STORAGE ADJUSTMENT		3900-	7100-	5300-	2700-	2100-	2100-	4220-
ADJUSTED ANNUAL TOTAL		11853	113981	180350	87277	71626	441930	93017

MINIMUM MONTHLY RUNOFF		1685-	7/51	(DURING FLOOD) LOW WATER 1013-	8/49
MINIMUM CALENDAR YEAR RUNOFF	1)	11853	1952		
AVERAGE ANNUAL RUNOFF	1)	119707	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/43	1/44	4/53	6/53	7/53	4/53
TOTAL ACRE FEET	1330-	2122-	11064	39416	330281	984591

NOTES: 1) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN C CONCHO RIVER ABOVE GAGE NEAR SAN ANGELO
AREA 4,217 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Actual Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	4,012	77,040	14,570-	62,470		
41	3,275	242,690	37,380-	205,310		
42	2,070	129,360	7,390-	121,970		
43	5,411	30,410	3,950-	26,460		
44	5,101	39,850	3,480-	36,370		
45	5,157	91,500	49,500-	42,000		
					82,430	6 Yr.Av. 1940-45
1946	13,295	65,360	1,890-	63,470		
47	13,380	35,040	18,930-	16,110		
48	14,550	124,610	83,200-	41,410		
49	16,795	158,350	51,900-	106,450		
50	8,974	35,120	18,700-	16,420		
51	6,374	10,570	6,600-	3,970		
					41,305	6 Yr.Av. 1946-51
1952	10,749	960	0	960		
53	15,637	49,530	0	49,530		
54	17,612	47,620	0	47,620		
55	17,730	36,490	0	36,490		
56	22,797	14,990	0	14,990		
					29,918	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 960 1952

Average Annual Runoff 52,471 1940-56

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN D CONCHO RIVER FROM GAGE NEAR SAN ANGELO TO MOUTH, AREA 1,237 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	32	16	16	15	15	16	
	IRRIGATION	543	153	144	1021	827	820	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2396	2501	8366	7530	6040	4213	5174
FEBRUARY		5704	6638	7618	4878	6270	3956	5844
MARCH		1707	17467	7462	6041	5679	3741	7016
APRIL		18944	27606	14285	4076	1255	10632	12800
MAY		12521	70124	22254	6186	11957	2179	20869
JUNE		44034	82391	3350	1751	5583	1629	23123
JULY		9568	14466	739	656	0	89698	19188
AUGUST		6076	13396	62025	0	2189	877	14094
SEPTEMBER		7919	10369	17756	1640	21875	795	10059
OCTOBER		2255	27742	12385	1434	8875	5296	9665
NOVEMBER		6047	14919	9084	903	1981	2352	5881
DECEMBER		5509	12736	7559	3125	2644	2545	5686
ANNUAL TOTAL		122680	300345	172883	38220	74348	127913	139398
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		122680	300345	172883	38220	74348	127913	139398

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	21	23	20	23	23	25	
	IRRIGATION	912	831	1327	944	1323	1264	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		4724	5420	553	2117	2861	699	2729
FEBRUARY		2248	2522	909	2301	2706	895	1930
MARCH		1322	2374	1808	16076	604	435	3770
APRIL		3069	3256	1454	133947	4238	322	24381
MAY		5807	43399	7756	64362	8068	7185	22763
JUNE		949	5070	7089	12112	1690	4698	5268
JULY		64	643	120522	405	892	25	20425
AUGUST		0	0	1427	536	834	5790	1431
SEPTEMBER		39393	0	5713	1544	24563	217	11905
OCTOBER		8979	2267	1243	15382	1469	42	4897
NOVEMBER		3901	491	1053	2043	624	59	1362
DECEMBER		13470	1996	1114	1916	757	53	3218
ANNUAL TOTAL		83926	67438	150641	252741	49306	20420	104079
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		83926	67438	150641	252741	49306	20420	104079

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	19	31	37	34	33		
	IRRIGATION	773	904	1542	1439	1500		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		50	283	286	75	239	329	187
FEBRUARY		86	72	156	391	423	170	226
MARCH		0	15211	140	56	63	2720	3094
APRIL		2473	592	25014	136	0	106710	5643
MAY		10089	11144	40900	36337	24245	314705	24543
JUNE		3449	32	12815	20188	216	38973	7340
JULY		0	2062	1143	36573	0	1613	7956
AUGUST		0	16001	70	11373	1396	0	5768
SEPTEMBER		8393	5358	26	7403	389	4568	4314
OCTOBER		131	18693	344	1421	11512		6420
NOVEMBER		1009	710	769	121	2171		956
DECEMBER		599	221	44	63	421		270
ANNUAL TOTAL		26279	70379	81707	114137	41075	469788	66715
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		26279	70379	81707	114137	41075	469788	66715

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	20420	1951	
AVERAGE ANNUAL RUNOFF	105555	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	3/52	3/52	8/52	2/53	4/55	2/57
TOTAL ACRE FEET	136	290	16518	45460	238340	866680

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN E PECAN BAYOU ABOVE MOUTH, AREA 2,194 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	105	722	6651	6854	6739	5501	
	IRRIGATION	108	2	519	3231	3266	5646	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		174	903	3168	2787	3850	2166	2175
FEBRUARY		996	23193	601	5597	4744	4984	6686
MARCH		0	24195	722	638	3129	8108	6132
APRIL		8344	70418	74674	1313	1477	26021	30375
MAY		15452	196841	102881	3302	18760	15843	58847
JUNE		35716	73107	47008	0	2077	4562	27078
JULY		17263	17966	3601	0	0	74653	18914
AUGUST		38967	0	817	0	0	881	6778
SEPTEMBER		12294	15836	33603	3310	7825	0	12145
OCTOBER		0	17877	61511	1855	10419	814	15413
NOVEMBER		7167	9351	12943	0	3698	191	5558
DECEMBER		3808	8768	3093	494	8071	514	4125
ANNUAL TOTAL		140181	458455	344622	19296	64050	138737	194224
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		140181	458455	344622	19296	64050	138737	194224

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	4045	6896	4584	4438	4654	5545	
	IRRIGATION	9814	7980	6367	2725	9753	11525	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		818	3528	393	1161	343	12	1043
FEBRUARY		3884	7034	0	1585	2402	10	2486
MARCH		778	2482	2194	10939	569	0	2827
APRIL		0	1492	1509	22829	1865	342	4673
MAY		9479	3129	4594	43238	4475	16884	13633
JUNE		10101	0	1566	8245	927	119500	23390
JULY		0	0	0	2920	0	0	487
AUGUST		0	0	0	0	0	0	
SEPTEMBER		2176	0	369	0	720	0	544
OCTOBER		828	0	0	3745	0	0	762
NOVEMBER		2359	672	0	7422	0	0	1742
DECEMBER		0	4350	96	181	0	87	786
ANNUAL TOTAL		30423	22687	10721	102265	11301	136835	52372
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		30423	22687	10721	102265	11301	136835	52372

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	5668	6558	6613	6214	6573		
	IRRIGATION	12175	13037	15469	17066	19388		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		50	874	285	223	647	352	416
FEBRUARY		0	198	140	1398	818	86	511
MARCH		0	7390	459	209	190	5188	1650
APRIL		4487	4859	22099	3234	0	55257	6936
MAY		19017	10940	29205	45107	156030	315997	52060
JUNE		1025	0	3142	63060	414	76250	13528
JULY		0	4111	430	28505	0	1997	6609
AUGUST		0	1527	0	1463	1884	742	975
SEPTEMBER		21433	0	0	39524	360	2918	12263
OCTOBER		0	28377	810	15080	3722		9598
NOVEMBER		3124	888	2682	295	1741		1746
DECEMBER		2087	408	152	965	1029		928
ANNUAL TOTAL		51223	59572	59404	199063	166835	458787	107219
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		51223	59572	59404	199063	166835	458787	107219

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	10721	1948	
AVERAGE ANNUAL RUNOFF	118569	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	8/43	3/51	4/51	2/49	3/51	2/53
TOTAL ACRE FEET	0	22	6486	25592	171939	580226

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN F SAN SABA RIVER ABOVE MOUTH, AREA 3,143 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1)	21	112	407	1047	986	893	
	IRRIGATION		3703	1860	2248	6634	6437	2855	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			5868	10768	10476	8545	15425	12421	10584
FEBRUARY			6524	14696	8266	6673	14715	16954	11305
MARCH			5076	24628	8108	7215	11742	23937	13451
APRIL			14841	64942	20196	7453	8029	29442	24151
MAY			18705	66723	16984	5877	50567	11327	28364
JUNE			33702	55866	8803	41566	13600	10104	27274
JULY			12426	18810	2485	2641	3878	5369	7602
AUGUST			6437	10267	11533	0	1590	1884	5285
SEPTEMBER			2908	25134	22073	4977	10639	2923	11442
OCTOBER			4634	76428	38935	8051	17540	5650	25206
NOVEMBER			14008	13968	11196	5128	6543	5154	9333
DECEMBER			16569	12332	8787	7329	8325	6168	9918
ANNUAL TOTAL			141698	394562	167842	105455	162593	131333	183914
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			141698	394562	167842	105455	162593	131333	183914

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1945-1951
REPORTED ANNUAL USE	MUN. & IND.	1)	1078	470	960	477	393	342	
	IRRIGATION		2461	4141	2128	6738	7078	7424	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			7891	8787	3588	4221	5730	2656	5479
FEBRUARY			7805	4926	4293	7049	6330	2760	5527
MARCH			5871	9393	4030	10288	3047	2399	5838
APRIL			4464	4663	3521	47893	5427	3095	11511
MAY			17893	12775	14486	17836	10332	20612	15656
JUNE			6048	2520	5232	7649	4347	6509	5384
JULY			0	508	1233	2325	3461	0	1268
AUGUST			0	0	1989	1858	0	488	723
SEPTEMBER			21705	731	8390	3832	4184	306	6025
OCTOBER			5939	1294	1660	6180	1639	467	2863
NOVEMBER			4367	2455	2186	3866	1778	971	2804
DECEMBER			4159	6559	2836	4006	2508	1519	3590
ANNUAL TOTAL			86142	54691	53444	117003	48783	41782	66974
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			86142	54691	53444	117003	48783	41782	66974

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	1)	24	255	0	0	525		
	IRRIGATION		4001	4627	13161	13054	12116		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			2161	7045	2697	1180	2065	977	3030
FEBRUARY			1575	3191	1646	3809	3852	1191	2815
MARCH			1229	4567	1587	940	1250	6627	1915
APRIL			4070	2243	5448	2170	24718	109254	7730
MAY			43833	7288	16476	127140	85458	198388	56039
JUNE			5862	340	985	45115	1653	22197	10791
JULY			0	1615	281	25047	751	2899	5939
AUGUST			0	1241	44	8248	1108	1145	2128
SEPTEMBER			99473	566	333	15633	1123	8445	23426
OCTOBER			2958	22616	1293	3242	1293		6280
NOVEMBER			4594	2355	3163	1363	958		2487
DECEMBER			8938	2400	1145	1538	1105		3025
ANNUAL TOTAL			174693	55467	35098	235425	125334	351123	125203
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			174693	55467	35098	235425	125334	351123	125203

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	35098	1954	
AVERAGE ANNUAL RUNOFF	125373	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/54	12/51	4/55	4/52	4/52	4/55
TOTAL ACRE FEET	658	3751	31819	79066	296969	723781

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN G COLORADO RIVER FROM BALLINGER GAGE TO GAGE NEAR SAN SABA, EXCLUD. 10 C, 10 D, 10 E and 10 F, AREA 2,669 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	84	61	437	677	534	595	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1769	2517	4006	1950	15192	9380	5802
FEBRUARY		6184	25659	1407	3821	14309	15224	11101
MARCH		860	24978	2458	2223	14921	20817	11043
APRIL		36462	63359	61267	7815	8962	37154	35837
MAY		30116	138285	112212	9904	68103	13469	62015
JUNE		45903	132584	29990	3416	13879	21217	41165
JULY		58127	27309	8289	513	3510-	31628	20393
AUGUST		18772	4358	30484	53	1158	3504	9722
SEPTEMBER		11278	11163	11189	17550	21381	1209-	11892
OCTOBER		1692	5485	30521	12181	16274	6822	12163
NOVEMBER		31546	5490	6266	719	3249	1999	8212
DECEMBER		16568	1085	6138	2045	5082	2049	5495
ANNUAL TOTAL		259277	442272	304227	62190	179000	162054	234837
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		259277	442272	304227	62190	179000	162054	234837

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	1683	1074	1243	1059	1402	1479	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		3145	4321	2259	4711	1543	420	2733
FEBRUARY		13025	2511	3052-	7054	11962	696	5366
MARCH		4514	9136	11679	47623	485	873	12385
APRIL		255-	2648	6244	99912	10065	2156	20128
MAY		40483	13894	21172	65931	14085	54483	35008
JUNE		7887	4554	3874	22702	7540	55775	17055
JULY		1997	4067	16151-	1792	7021	215	177-
AUGUST		3039-	693-	15878	7113	1068	766-	3260
SEPTEMBER		11178	147	7988	2549	9563	2870	5716
OCTOBER		7254	2384	2047	15619	2873	663	5140
NOVEMBER		8816	3977	647	2137	266	903	2791
DECEMBER		536-	15831	1190	1202	218	744	3108
ANNUAL TOTAL		94469	62777	53775	278345	66689	119032	112515
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		94469	62777	53775	278345	66689	119032	112515

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	1820	1805	1404	2019	2647		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		524	3780	939	1042	671	1561	1391
FEBRUARY		427	933	652	5442	3204	303	2132
MARCH		16	32924	1705	787	778	22762	7242
APRIL		21657	8157	17548	1888	12252-	81897	7400
MAY		73839	34863	64271	198394	156248	311290	105523
JUNE		8176	1025	2269	128143	1656	67725	28254
JULY		166-	1678	6245	71643	716-	7757	15737
AUGUST		404-	8477	315	8484	7609	3247	4896
SEPTEMBER		102785	2620	126	103164	601	13349	41859
OCTOBER		2224	42184	4679	16530	14515		16026
NOVEMBER		14182	4548	10693	1448	6980		7570
DECEMBER		8258	1308	613	711	2946		2767
ANNUAL TOTAL		231518	142497	110055	537676	182240	509891	240797
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		231518	142497	110055	537676	182240	509891	240797

MINIMUM MONTHLY RUNOFF	16151-	7/48	(DURING FLOOD) LOW WATER 766- 8/51	
MINIMUM CALENDAR YEAR RUNOFF	53775	1948		
AVERAGE ANNUAL RUNOFF	193417	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	4/56	4/56	11/47	7/48	2/49	8/52
TOTAL ACRE FEET	8270-	5440-	46410	112475	534339	1236514

NOTES: 1) ONLY MINOR MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN H LLANO RIVER ABOVE MOUTH, AREA 4,491 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	263	195	199	286	251	251	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		8148	13835	9570	10843	22557	29793	15791
FEBRUARY		12032	28296	7660	7724	22175	29804	17949
MARCH		6855	39978	6875	9465	20594	22430	17700
APRIL		27279	74204	42905	8617	10992	31236	32539
MAY		21772	69548	26567	7937	56223	9210	31876
JUNE		66591	26902	12441	85574	21082	5242	36305
JULY		28132	16400	3436	20191	3641	2325	12354
AUGUST		7275	15250	33777	3007	5689	2092	11182
SEPTEMBER		4490	17925	35198	10541	14261	2462	14146
OCTOBER		9200	50437	38724	10358	9549	8690	21160
NOVEMBER		23449	13983	32073	7671	7809	4308	14882
DECEMBER		49400	11512	13050	10674	12424	5316	17063
ANNUAL TOTAL		264623	378270	262276	192602	206996	152908	242946
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		264623	378270	262276	192602	206996	152908	242946

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	195	506	576	880	1158	1572	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		9103	44276	4806	7724	10313	4467	13448
FEBRUARY		11203	10867	7558	38478	10683	4692	13914
MARCH		6238	19942	5131	19630	7000	4578	10420
APRIL		34565	10822	6623	42381	13787	4074	18709
MAY		47776	15429	14072	22850	17898	13127	21859
JUNE		8738	15050	192923	16551	5725	5575	40760
JULY		1101	3378	81210	10159	7208	353	17235
AUGUST		0	1651	8784	9888	3259	2459	4340
SEPTEMBER		12503	1540	14281	12178	13753	3748	9667
OCTOBER		12920	1819	6174	10935	4808	1130	6298
NOVEMBER		6599	3549	5566	9424	4114	2297	5258
DECEMBER		5825	4955	5952	9719	4626	2833	5652
ANNUAL TOTAL		156571	133278	353080	209917	103174	49333	167559
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		156571	133278	353080	209917	103174	49333	167559

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	1544	1632	2146	1692	2367		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		2812	12785	3003	4891	3586	2069	5415
FEBRUARY		2337	7006	2215	2996	4456	3034	3802
MARCH		2785	5810	1534	3530	2504	7629	3233
APRIL		23065	3218	2442	1299	1666	141007	6338
MAY		15780	39632	9823	98464	8891	218566	34518
JUNE		3313	427	2227	13820	607	85973	4079
JULY		236	1687	6224	17511	0	8053	5132
AUGUST		0	3987	0	26384	852	10133	6245
SEPTEMBER		245515	4466	6	59233	209	4997	61886
OCTOBER		2200	6248	2576	11068	3077		5034
NOVEMBER		3920	2118	2373	4113	1305		2766
DECEMBER		28170	2324	1793	3745	2058		7618
ANNUAL TOTAL		330133	89708	34216	247054	29211	481461	146064
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		330133	89708	34216	247054	29211	481461	146064

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	29211	1956	
AVERAGE ANNUAL RUNOFF	187844	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/56	11/56	2/57	4/55	4/55	4/55
TOTAL ACRE FEET	1061	6050	26272	107821	577497	1511771

NOTES: 1) ONLY MINOR MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN I PEDERNALES RIVER ABOVE MOUTH, AREA 1,288 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	0	0	0	0	0	0	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		1455	13437	3794	3658	3386	28261	8999
FEBRUARY		9965	42700	3287	2825	4062	25333	14695
MARCH		11266	51550	3106	5990	8696	54610	22536
APRIL		24532	79068	12455	4418	3452	49311	28873
MAY		12426	73069	6633	2906	91252	15867	33692
JUNE		47668	22712	3971	11492	10513	7466	17304
JULY		12935	10936	3837	9535	2042	4136	7237
AUGUST		1746	2739	22962	310	82109	3678	18924
SEPTEMBER		970	4910	7616	1864	18619	26520	10083
OCTOBER		9305	20321	54933	1033	7360	15860	18135
NOVEMBER		15591	4643	5813	905	5922	5296	6362
DECEMBER		53543	4542	4447	1537	25446	7031	16091
ANNUAL TOTAL		201402	330627	132854	46473	262859	243369	202931
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		201402	330627	132854	46473	262859	243369	202931

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	0	0	0	0	2	15	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		10676	44146	1890	1537	1537	690	10079
FEBRUARY		10210	16085	2662	5817	2362	879	6336
MARCH		8152	16258	2617	4507	1238	2630	5900
APRIL		21554	14808	13774	16304	1888	1325	11609
MAY		30555	11774	6864	5558	4511	3559	10470
JUNE		10893	10417	2557	8894	4569	11330	8110
JULY		2327	2001	4939	1443	362	0	1845
AUGUST		834	3460	740	1027	2059	0	1353
SEPTEMBER		4230	716	1204	2244	1797	1679	2012
OCTOBER		10991	807	1512	1444	228	13	2499
NOVEMBER		23166	1420	775	726	298	196	4430
DECEMBER		20495	3128	1186	1972	698	454	4656
ANNUAL TOTAL		154083	125020	40720	51473	21547	22955	69300
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		154083	125020	40720	51473	21547	22955	69300

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	70	92	412	150	214		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		388	8024	1414	2897	532	141	2651
FEBRUARY		446	4730	767	4703	880	364	2305
MARCH		994	6359	643	509	173	8990	1736
APRIL		8989	7372	4624	170	5	110704	4232
MAY		24545	4444	2462	23634	171	48076	11051
JUNE		9568	637	295	4027	101	44390	2926
JULY		5378	292	29	7317	0	2203	2603
AUGUST		0	3927	0	7810	189	653	2385
SEPTEMBER		512404	5412	843	12383	8	14470	106210
OCTOBER		3080	5421	4678	1118	2897		3439
NOVEMBER		4182	1558	774	300	1469		1657
DECEMBER		30355	1632	204	573	486		6450
ANNUAL TOTAL		600329	49808	16733	65441	6911	229991	147844
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		600329	49808	16733	65441	6911	229991	147844

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	6911	1956	
AVERAGE ANNUAL RUNOFF	139565	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/56	9/56	9/56	3/52	4/52	3/57
TOTAL ACRE FEET	197	474	4050	41193	181235	933943

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN J COLORADO RIVER FROM GAGE NEAR SAN SABA TO AUSTIN GAGE, EXCLUD. 10 H AND 10 I, AREA 2,021 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL	1,2)	10321	9891	10025	12984	14211	13398	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		32865	97811	39650	128389	8650	34061	56904
FEBRUARY		31956	87271	39831	105416	12291	15953	48786
MARCH		58527	171404	43522	100945	6813	2305-	63151
APRIL		37813-	127608	176539-	127826	37468	40973-	6263
MAY		34055-	210240	242852-	83282	226457-	75783	22343-
JUNE		149492-	79611	3156-	15955-	80745	74064	10970
JULY		126497	121075	52750	78296	132273	139843-	61841
AUGUST		37713-	4310	145848-	99161	74780	163790	26413
SEPTEMBER		33450	5202	84446-	15510	66194	98214	22354
OCTOBER		50892	177030-	38918-	47769	48122	40103	4844-
NOVEMBER		5902-	23574-	152137	60814	59732	99821	57171
DECEMBER		90525	14399	110697	56409	66893	104548	73912
ANNUAL TOTAL		159737	718327	253172-	887862	367504	523216	400579
STORAGE ADJUSTMENT		290300	28100	91800	24000-	15300-	20700-	58367
ADJUSTED ANNUAL TOTAL		450037	746427	161372-	863862	352204	502516	458946

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL	1,2)	1897	18700	21700	20800	21800	23900	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		94257	63615	42221	20771	31545	42083	49082
FEBRUARY		48657	78572	33405	24002-	15704	25837	29696
MARCH		85295	52742	28955	41483-	30895	3448	26642
APRIL		47624	37717	27262	340058-	64-	33123	32399-
MAY		9951-	179209-	5281-	263965-	2340-	26948-	81282-
JUNE		72787	64083	130733-	6957	76099	137845-	8109-
JULY		104916	106467	229855-	88216	82404	105841	42998
AUGUST		161430	110081	80692	81533	80610	89222	100595
SEPTEMBER		5253-	80415	22685	54523	31055-	35988	26217
OCTOBER		71740	30214	34559	13329	22361	21525	32288
NOVEMBER		107860	52883	33282	50434	34111	10013	48097
DECEMBER		81376	11864	32069	55561	36381	6733	37331
ANNUAL TOTAL		860738	509444	30739-	298184-	376651	209020	271155
STORAGE ADJUSTMENT		22900-	15300-	26200-	19700-	29500-	45000	11433-
ADJUSTED ANNUAL TOTAL		837838	494144	56939-	317884-	347151	254020	259722

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL	1,2)	24200	24600	27100	20300	19700		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		5675	15609	21760	7342	12372	5080	12552
FEBRUARY		6891	38682	7323	9611	17764	308-	16054
MARCH		6653	57872-	19336	21722	24893	43699-	2946
APRIL		45276-	30766	105188-	47314	42319	533811-	6013-
MAY		126451-	44838-	165070-	508458-	319962-	41642-	232956-
JUNE		60388	114678	78993	34591-	128272	581037	69548
JULY		104373	93005	113177	25522-	143440	271144	85695
AUGUST		105197	35705-	93115	67698	84189	143874	62899
SEPTEMBER		942475-	4632	29508	147388-	31733	76143	204798-
OCTOBER		5935	139954-	3630	76447	51524-		21093-
NOVEMBER		6200-	1231	1594-	95358	6574-		16444
DECEMBER		59790-	23052	13340	23542	2304-		432-
ANNUAL TOTAL		885080-	43286	108330	366925-	104618	457818	199154-
STORAGE ADJUSTMENT		67000						13400
ADJUSTED ANNUAL TOTAL		818080-	43286	108330	366925-	104618	457818	185754-

MINIMUM MONTHLY RUNOFF		942475-	9/52	RESULTING FROM STORAGE OF INFLOW IN
MINIMUM CALENDAR YEAR RUNOFF	3)	818080-	1952	L.C.R.A. RESERVOIRS
AVERAGE ANNUAL RUNOFF	3)	199014	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/52	2/53	3/53	4/57	4/57	4/57
TOTAL ACRE FEET	942740-	948239-	907880-	921034-	1542452-	1034963-

NOTES: 1) ONLY MINOR IRRIGATION USES 2) SOME REPORTED USES MODIFIED
3) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN K COLORADO RIVER FROM AUSTIN GAGE TO COLUMBUS GAGE, AREA 2,670 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1)	4950-	4650-	4500-	5900-	6100-	5650-	
	IRRIGATION		8	6	9	100	23	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			11316	109321	5313	33017	101720	180137	73471
FEBRUARY			22432	78417	11429	20214	75677	104333	52084
MARCH			7701-	175814	1306	26212	111273	101030	67989
APRIL			18582	166307	214489	8294-	14926	197622	100605
MAY			44282	441817	12019	17014	77697	17033	101644
JUNE			117160	513085	11613-	990	19266	62400	116881
JULY			476603	209727	142990	9148	4211	6158-	139420
AUGUST			10751	52775	11908	5024	22180	53109	25958
SEPTEMBER			5999	3874	68877	14572	25055	16789	22528
OCTOBER			42875	45599	11312	6259-	18679	34015	24370
NOVEMBER			490159	30424	42326	6082	89523	8930	111241
DECEMBER			332796	21171	26033	11477	130400	17037	89819
ANNUAL TOTAL			1565254	1848331	536389	129197	690607	786277	926009
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			1565254	1848331	536389	129197	690607	786277	926009

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1)	6200-	8300-	9500-	8600-	10690-	11200-	
	IRRIGATION		0	4	0	6	76	94	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			79692	139417	14377	16582	30367	2075	47085
FEBRUARY			67658	43313	27113	130678	105424	19662	65641
MARCH			178285	89110	10930	35395	11141	14850	56619
APRIL			61077	51823	2112	288368	98495	12336-	81590
MAY			116988	24213	37723	24138	23714	13848-	35488
JUNE			164755	10181	2520-	14956	128688	64418	63413
JULY			48997	12123	5478-	23498	13342	12796-	13281
AUGUST			6364	80690	11589	8766	1815	20420-	14801
SEPTEMBER			86244	29840	15839	11315	37869	36990	36350
OCTOBER			17470	5685	2235	95170	5150	9769	22577
NOVEMBER			212785	15740	6020	2515	4251	8480	41632
DECEMBER			65892	12377	5107	31392	8507	9305	22097
ANNUAL TOTAL			1106207	514492	125047	682773	468763	106149	500572
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			1106207	514492	125047	682773	468763	106149	500572

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	1)	11600-	12300-	12900-	12400-	14500-		
	IRRIGATION		115	154	395	242	366		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			6222	16743	14793	3585	4910	2570	9251
FEBRUARY			5459	32541	6573	34424	24020	8780	20603
MARCH			5577	23489	696-	2657-	1560	66690	5455
APRIL			16592	78445	1034	5510-	1790-	282100	17754
MAY			59729	125421	4433	39174	1600	25000	46071
JUNE			5743-	7962	5064-	6463	7100-	387000	696-
JULY			2823-	5128	10359-	5543	19600-	20400	4422-
AUGUST			7776-	6259	9863	132	1540-	1600	1388
SEPTEMBER			13729	36395	8477	13371-	5580	198800	10162
OCTOBER			5747	70120	5165	14468	2560		19612
NOVEMBER			22437	22009	864	4097-	3170		8877
DECEMBER			90622	67623	3823	9775	9070		36183
ANNUAL TOTAL			209772	492135	38906	87929	22440	992940	170236
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			209772	492135	38906	87929	22440	992940	170236

MINIMUM MONTHLY RUNOFF	20420-	8/51		
MINIMUM CALENDAR YEAR RUNOFF	22440	1956		
AVERAGE ANNUAL RUNOFF	553569	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	8/56	8/56	2/57	2/57	1/57	3/57
TOTAL ACRE FEET	28240-	26870-	4860	83710	847530	2554606

NOTES: 1) REPORTED USES MODIFIED BY INCLUSION OF RETURN FLOW FROM AUSTIN

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 10 COLORADO RIVER - SUBBASIN L COLORADO R FROM COLUMBUS GAGE TO MOUTH
AREA 693 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	256,464	87,100	158,536-	71,444-		
41	248,701	554,700	166,299-	388,401		
42	277,947	186,500	137,053-	49,447		
43	316,423	84,600-	98,577-	183,177-		
44	327,246	125,400	87,754-	37,646		
45	331,549	80,100	83,451-	3,351-		
					36,254	6 Yr.Av. 1940-45
1946	291,093	347,800	123,907-	223,893		
47	272,948	85,900-	142,052-	227,952-		
48	367,449	362,400-	47,551-	409,951-		
49	335,525	428,600	79,475-	349,125		
50	365,527	63,500	49,473-	14,027		
51	354,509	252,400-	60,491-	312,891-		
					60,625-	6 Yr.Av. 1946-51
1952	308,864	8,200	106,136-	97,936-		
53	343,126	50,400	71,874-	21,474-		
54	415,249	170,200-	249	169,951-		
55	346,113	309,300-	68,887-	378,187-		
56	349,357	349,900-	65,643-	415,543-		
					216,618-	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 415,543- 1956

Average Annual Runoff 72,313- 1940-56

WATERSHED NO. 11 LAVACA RIVER - SUBBASIN A NAVIDAD RIVER ABOVE MOUTH, AREA 1,424 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	9223	5578	7469	7374	6920	7189	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		1058	70371	5653	21692	131428	51755	46993
FEBRUARY		12594	41023	8613	5359	28748	18528	19144
MARCH		2794	128748	9519	44813	217175	11012	69010
APRIL		1518	175705	106788	4708	9430	161031	76530
MAY		2794	237974	7184	20020	117571	5206	65125
JUNE		17698	148654	10718	8677	12786	8141	34446
JULY		275361	109545	129514	12467	6520	7260	90111
AUGUST		4249	40755	12467	8001	6673	47620	19961
SEPTEMBER		2743	13360	24601	5895	23440	14189	14038
OCTOBER		24627	51206	7924	3126	4338	11714	17156
NOVEMBER		489729	46076	17519	38803	24601	1799	103088
DECEMBER		212582	16307	9468	49139	64349	13896	60957
ANNUAL TOTAL		1047747	1079724	349968	222700	647059	352151	616558
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1047747	1079724	349968	222700	647059	352151	616558

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	8113	9075	9454	9544	9277	7333	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		39377	100294	19153	2833	34324	807	32811
FEBRUARY		79457	7911	40845	39530	26132	1040	32486
MARCH		52482	24218	34631	23364	4070	5117	23980
APRIL		19472	13564	5449	141381	18821	2479	33927
MAY		56616	66977	66071	16639	3968	1429	35283
JUNE		172643	5551	3152	4160	66148	71877	53922
JULY		27319	7492	9812	13589	5602	1179	10826
AUGUST		34350	10846	1141	13500	1582	2745	10694
SEPTEMBER		106189	8881	10999	12186	11114	30650	30003
OCTOBER		78704	1289	997	150568	1404	6610	39929
NOVEMBER		97257	4121	1697	6801	375	1710	18660
DECEMBER		17787	14878	924	68943	746	1185	17911
ANNUAL TOTAL		781653	265982	194871	492894	174286	126902	339431
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		781653	265982	194871	492894	174286	126902	339431

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	8528	3071	3839	4135	5516		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		717	8201	1081	1097	704	15	2376
FEBRUARY		7311	8294	674	58875	5806	8090	16192
MARCH		3432	2705	704	422	0	91464	1453
APRIL		68917	2399	1263	2182	1888	147378	15330
MAY		125609	110604	6227	48603	82	105804	58225
JUNE		21322	2450	154	14023	660	104185	7722
JULY		3841	6546	231	1837	17	1442	2494
AUGUST		3177	43039	1672	8396	1774	2003	11612
SEPTEMBER		9174	76802	3675	21883	2999	38676	22907
OCTOBER		943	3228	1876	3598	93		1948
NOVEMBER		30216	1850	26	0	50		6428
DECEMBER		55213	5627	26	0	3509		12875
ANNUAL TOTAL		329872	271825	17611	160916	17582	499059	159561
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		329872	271825	17611	160916	17582	499059	159561

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	17582	1956	
AVERAGE ANNUAL RUNOFF	384338	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	1/56	8/56	10/56	2/57	11/56	1/57
TOTAL ACRE FEET	704	4421	14023	126631	795482	1952462

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 11 LAVACA RIVER - SUBBASIN B LAVACA RIVER ABOVE MOUTH, EXCLUDING NAVIDAD RIVER, AREA 1,051 Sq.Mi.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1) 2450	3316	3200	3400	3000	3030	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		1241	43865	5278	7009	49626	26088	22185
FEBRUARY		13602	29734	5207	3937	13388	7385	12209
MARCH		2399	97777	5602	15166	94834	8714	37415
APRIL		1608	88509	62114	4175	9171	43311	34815
MAY		2697	202605	6388	7692	59901	3910	47199
JUNE		0	144421	3784	9530	9558	9236	29422
JULY		296068	30718	803019	9427	3692	2352	190879
AUGUST		4260	14411	4235	4018	2786	3153	5477
SEPTEMBER		2150	6277	19856	2533	14818	1167	7800
OCTOBER		13661	11041	6051	1975	2555	3025	6385
NOVEMBER		241099	17450	6050	9548	6982	1423	47092
DECEMBER		120698	7030	5049	23977	11738	2345	28473
ANNUAL TOTAL		699483	693838	932633	98987	279049	112109	469350
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		699483	693838	932633	98987	279049	112109	469350

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1) 5149	4399	3563	3898	4351	3057	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		6005	46196	4446	2702	8499	1065	11486
FEBRUARY		32660	7975	12132	11716	6886	1173	12090
MARCH		17541	14425	11423	5184	3161	1402	8856
APRIL		7314	11500	2985	73016	7428	1065	17218
MAY		12085	42776	87323	11303	5356	757	26600
JUNE		57414	4895	5150	4392	8986	22379	17203
JULY		7796	2387	3549	4886	2099	491	3535
AUGUST		52127	1920	841	6309	471	140	10301
SEPTEMBER		115809	1184	1374	2412	482	10059	21887
OCTOBER		104268	1262	829	27753	371	2138	22770
NOVEMBER		46444	2372	957	2717	396	976	8977
DECEMBER		12444	3141	1165	32221	767	985	8454
ANNUAL TOTAL		471907	140033	132174	184611	44902	42630	169376
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		471907	140033	132174	184611	44902	42630	169376

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1) 3490	4103	1994	2724	1123		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		800	3659	1173	669	404	0	1341
FEBRUARY		2414	3837	885	42061	1158	5407	10071
MARCH		1752	2366	890	1155	482	31752	1329
APRIL		16551	3260	5691	2279	310	98583	5618
MAY		94697	50260	4896	49178	596	32902	39925
JUNE		14222	1945	441	7640	62	21493	4862
JULY		2162	1370	156	901	1127	1134	1143
AUGUST		1463	17178	383	10755	22	370	5960
SEPTEMBER		1222	8018	542	3686	29	10825	2699
OCTOBER		305	1765	102	368	69		522
NOVEMBER		20492	1273	5	156	0		4385
DECEMBER		28265	1193	12	349	1960		6356
ANNUAL TOTAL		184345	96124	15176	119197	6219	202466	84212
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		184345	96124	15176	119197	6219	202466	84212

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	6219	1956	
AVERAGE ANNUAL RUNOFF	250201	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/56	12/54	11/56	3/52	1/55	2/57
TOTAL ACRE FEET	98	1200	4608	73952	375347	916647

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 12 GUADALUPE RIVER - SUBBASIN A GUADALUPE RIVER ABOVE NEW BRAUNFELS GAGE (ABOVE MOUTH OF COMAL), AREA 1,516 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES AND WITH ANNUAL TOTALS ADJUSTED FOR EFFECT OF STORAGE COMPLETED OR UNDER CONSTRUCTION

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	11	14	35	54	45	46	
	IRRIGATION	82	92	75	143	149	106	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		4363	18393	12045	17568	18477	64487	22556
FEBRUARY		5933	77833	10315	11948	28047	63367	32907
MARCH		8953	79584	9825	12640	54019	76807	40305
APRIL		23283	109264	45125	14781	28930	63868	47542
MAY		15874	144454	52795	10783	121062	30409	62563
JUNE		21019	51240	16140	21761	55561	18495	30696
JULY		13015	38077	13315	14651	20611	14342	19002
AUGUST		4600	18212	8400	5546	20277	8408	10907
SEPTEMBER		2759	19060	48590	7840	25869	14805	19821
OCTOBER		2879	32369	51130	6437	18766	27713	23216
NOVEMBER		15613	17364	27125	5150	14699	12297	15375
DECEMBER		55473	14163	22605	6708	43347	25187	27914
ANNUAL TOTAL		173764	620013	317410	135813	449665	420145	352802
STORAGE ADJUSTMENT		73636-	37213-	3131-	1713-	19460-	6754-	23651-
ADJUSTED ANNUAL TOTAL		100128	582800	314279	134100	430205	413391	329151

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	44	57	29	41	31	31	
	IRRIGATION	205	147	191	197	272	425	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		20969	78748	5906	5097	6489	3142	20059
FEBRUARY		26509	48408	6246	21577	10739	3562	19507
MARCH		36171	38100	6369	20580	7333	5559	19019
APRIL		22244	31291	5521	33582	8307	5286	17705
MAY		37806	27963	6873	30335	13351	10973	21217
JUNE		24698	28981	11364	14266	8446	9426	16197
JULY		9142	12992	7327	7410	5955	1075	7317
AUGUST		6329	10687	2074	9086	1982	307	5078
SEPTEMBER		30225	5350	2402	6624	2432	636	7945
OCTOBER		41510	4787	4057	9309	2134	457	10376
NOVEMBER		71651	5300	2989	5900	2173	1229	14887
DECEMBER		50529	6578	3726	6397	3099	2512	12140
ANNUAL TOTAL		377783	299265	64854	170163	72440	44164	171445
STORAGE ADJUSTMENT			3680-	37531	57219-	30330	57626	10765
ADJUSTED ANNUAL TOTAL		377783	295585	102385	112944	102770	101790	182210

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	27	25	36	31	96		
	IRRIGATION	526	362	435	578	574		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2373	20340	5862	2205	1560	755	6468
FEBRUARY		1983	9780	4172	3985	1800	1960	4944
MARCH		2512	8776	3209	2205	1210	19910	3582
APRIL		8241	8101	2197	1245	556	115700	4068
MAY		23220	4607	6874	8535	842	65200	8816
JUNE		13668	1346	1477	2656	40	61150	3037
JULY		2674	2092	390	7256	3	10740	2483
AUGUST		654	1829	338	2316	408	4620	1109
SEPTEMBER		183189	23871	207	710	290	27080	41653
OCTOBER		9561	12269	788	1085	614		4063
NOVEMBER		7792	6856	1829	699	1250		3685
DECEMBER		19373	10170	1352	1535	1340		6754
ANNUAL TOTAL		275240	110037	28695	34432	9913	307115	91663
STORAGE ADJUSTMENT		147297-	2081	71991	66322	90975	90975	16814
ADJUSTED ANNUAL TOTAL		127943	112118	100686	100754	100888	398090	108478

MINIMUM MONTHLY RUNOFF	2)	3		7/56				
MINIMUM CALENDAR YEAR RUNOFF	1)	100128		1940				
AVERAGE ANNUAL RUNOFF	1)	212386		1940-1956				
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS		3	6	12	24	60	120	
FINAL MONTH		8/56	9/56	1/57	2/57	8/52	3/57	
TOTAL ACRE FEET		451	2139	9108	40870	429041	966572	

ALLRED-FLEMING, HOUSTON

NOTES: 1) ADJUSTED FOR STORAGE NOW COMPLETE OR UNDER CONSTRUCTION
2) IN PAST; WILL DEPEND ON CANYON RESERVOIR OPERATION WHEN THAT PROJECT IS COMPLETED

WATERSHED NO. 12 GUADALUPE RIVER - SUBBASIN B SAN MARCOS RIVER ABOVE MOUTH, AREA 1,350 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1,2)	69	0	307	517	502	769	
	IRRIGATION		0	1	1	1	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			6303	37309	11834	22274	27469	70399	29265
FEBRUARY			7343	55950	9575	15744	35519	63266	31233
MARCH			8076	71056	10423	18092	70374	79177	42866
APRIL			13490	139742	30218	16294	28077	85405	52204
MAY			8747	149188	14347	16858	72864	25748	47959
JUNE			47382	94935	10795	14969	51254	25381	40786
JULY			45717	45050	121473	15645	20449	15517	43975
AUGUST			6350	20146	12273	9090	19510	12138	13251
SEPTEMBER			6223	14390	109781	12781	23214	9939	29388
OCTOBER			9335	21604	70145	9317	12765	14057	22871
NOVEMBER			69849	13531	31879	9899	29255	11141	27592
DECEMBER			109561	12759	26401	10112	58424	13783	38507
ANNUAL TOTAL			338376	675630	459144	171075	449174	425951	419897
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			338376	675660	459144	171075	449174	425951	419897

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1,2)	269	214	212	394	89	123	
	IRRIGATION		0	1	1	4	0	12	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			26633	79171	9383	7632	8724	5567	22852
FEBRUARY			32057	33852	9860	30255	13075	5452	20759
MARCH			80509	36804	9776	13627	9229	6257	26034
APRIL			29720	38286	7563	113547	28381	5676	37196
MAY			35586	29921	19869	31603	14968	8259	23368
JUNE			34782	14826	7162	13441	64964	55792	31828
JULY			12531	12933	8066	10438	9720	5665	9892
AUGUST			33440	59308	6440	7753	6075	4424	19573
SEPTEMBER			57332	10681	5550	7207	6274	7629	15779
OCTOBER			34091	9609	9613	72356	5482	4786	22656
NOVEMBER			86963	8849	5891	9131	5512	5134	20247
DECEMBER			53973	9717	6106	10120	5571	5388	15146
ANNUAL TOTAL			517617	343957	105279	327110	177975	120029	265328
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			517617	343957	105279	327110	177975	120029	265328

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	1,2)	81	268	158	158	191		
	IRRIGATION		0	1	58	180	368		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			5542	22923	12369	4939	5004	4709	10155
FEBRUARY			5260	13144	9436	13340	5118	8180	9260
MARCH			5616	11342	9706	6265	4576	24634	7505
APRIL			7966	73540	8586	7102	7069	157957	20853
MAY			21297	23178	14915	21355	9370	84040	18023
JUNE			21763	9299	5505	14096	3451	68896	10823
JULY			7922	6719	4908	4725	3547	13608	5564
AUGUST			5146	7196	4342	5229	3743	10126	5131
SEPTEMBER			92153	26319	4123	4285	4749	81903	26326
OCTOBER			11420	27929	4041	3505	4752		10329
NOVEMBER			29633	14678	4440	3608	3963		11264
DECEMBER			27385	26561	5117	5388	7515		14393
ANNUAL TOTAL			241103	262848	87488	93837	62857	454053	149627
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			241103	262848	87488	93837	62857	454053	149627

MINIMUM MONTHLY RUNOFF	3451	6/56	
MINIMUM CALENDAR YEAR RUNOFF	62857	1956	
AVERAGE ANNUAL RUNOFF	285852	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	8/56	11/56	8/56	2/57	11/56	3/57
TOTAL ACRE FEET	10741	24205	58664	151304	746006	1710179

NOTES: 1) NO USE ADJUSTMENT MADE 2) SOME REPORTED USES MODIFIED

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 12 GUADALUPE RIVER - SUBBASIN C FROM NEW BRAUNFELS GAGE TO OLD GONZALES GAGE EXCLUDING 12B, AREA 587 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	262	214	2498	2077	2429	397	
	IRRIGATION	174	115	113	115	67	305	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		17721	35785	22250	29372	24344	37208	27780
FEBRUARY		18558	31645	19660	23896	21404	29232	24066
MARCH		17940	40872	21941	26007	29962	23185	26651
APRIL		17696	25931	32981	22736	24678	58771	30466
MAY		16858	130038	21547	21667	22210	27480	39967
JUNE		13500	47406	20333	25051	33154	24650	27349
JULY		88162	32054	71335	21217	23780	21822	43062
AUGUST		17219	27120	22795	20545	18560	20796	21173
SEPTEMBER		16263	23041	42377	20016	27022	18000	24453
OCTOBER		18330	23883	32043	19691	19910	24809	23111
NOVEMBER		75632	24054	28494	19480	20952	20159	31462
DECEMBER		54720	22165	28425	20808	22470	21001	28265
ANNUAL TOTAL		372599	463994	364181	270486	288446	327113	347803
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		372599	463994	364181	270486	288446	327113	347803

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	1574	2341	5688	6224	2665	6554	
	IRRIGATION	119	260	366	102	287	559	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		21820	33501	20182	16154	19450	14521	20938
FEBRUARY		23000	25261	20569	11622	17746	12920	18520
MARCH		31825	31743	20926	26387	18495	13855	23872
APRIL		23570	30983	17966	35531	21025	13572	23775
MAY		30153	34847	26550	38278	18604	13855	27048
JUNE		37454	21211	16021	23201	26735	25400	25004
JULY		23531	21833	19243	22849	16294	11899	19275
AUGUST		22042	18134	17668	19706	14572	10148	17045
SEPTEMBER		63835	19934	15281	17746	14177	11471	23741
OCTOBER		57025	19287	15558	33562	14753	10868	25176
NOVEMBER		32451	19159	15264	20783	13775	11604	18839
DECEMBER		26078	20553	15817	23229	14559	12388	18771
ANNUAL TOTAL		392784	296446	221045	289048	210185	162501	262002
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		392784	296446	221045	289048	210185	162501	262002

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	5836	5901	6242	5269	3593		
	IRRIGATION	342	437	985	969	666		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		11962	23611	13701	8334	5597	2877	12641
FEBRUARY		11546	14854	11991	13775	5915	5008	11616
MARCH		11357	14789	10965	8671	4253	9594	10007
APRIL		12667	3144	10760	6779	2483	9612	7167
MAY		17008	37500	11824	8409	2302	75902	15409
JUNE		18116	10227	7302	10876	549	53882	9414
JULY		11677	9123	5895	3464	529	11352	6138
AUGUST		7505	10494	4561	3773	347	6065	5336
SEPTEMBER		22776	20037	4105	3497	277	34242	10138
OCTOBER		14064	22988	5884	3150	1613		9540
NOVEMBER		13671	13721	7001	3758	750		7780
DECEMBER		25808	13663	7973	5227	6497		11834
ANNUAL TOTAL		178157	194151	101962	79713	31112	208534	117019
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		178157	194151	101962	79713	31112	208534	117019

MINIMUM MONTHLY RUNOFF	277	9/56				
MINIMUM CALENDAR YEAR RUNOFF	31112	1956				
AVERAGE ANNUAL RUNOFF	249643	1940-1956				
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/56	11/56	2/57	2/57	4/57	4/57
TOTAL ACRE FEET	1153	4065	27485	96601	564654	1669923

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 12 GUADALUPE RIVER - SUBBASIN D GUADALUPE RIVER FROM GONZALES GAGE TO OLD CUERO GAGE, AREA 1,470 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	0 0	0 0	0 0	0 0	0 0	0 0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2216	56715	5688	14736	9874	27731	19493
FEBRUARY		7898	46525	4052	8209	7955	21046	15948
MARCH		2777	67306	5251	10570	23806	8614-	16849
APRIL		2292	4498	40383	6073	7003	105624	27646
MAY		3046	321915	7695	4943	6668-	7863	56466
JUNE		14438-	77485	5580	17164	34808	8717	21553
JULY		223480	33232	154510	4481	7261	3182	71024
AUGUST		2436	17182	11003	4255	3840-	926	5327
SEPTEMBER		1079	10196	50974	3087	23821	4451-	14118
OCTOBER		6356	4256	14289	3793	877	9185	6459
NOVEMBER		188306	13315	14824	3187	8237	3004	38479
DECEMBER		130526	6679	10075	5980	5459	2735	23576
ANNUAL TOTAL		535974	659304	324324	86478	118593	176948	316937
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		535974	659304	324324	86478	118593	176948	316937

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	0 0	0 0	0 1190	0 201	0 1759	0 1970	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		6717	24749	4802	890	7305	800	7544
FEBRUARY		17598	9433	9134	6854-	6945	1364	6270
MARCH		34976	22264	8628	30628	5237	512	17041
APRIL		13418	24846	1407	52598	15800	2182	18379
MAY		19688	33960	28760	59985	7456	1358	25201
JUNE		36077	3134	1250-	13716	33218	38674	20595
JULY		2923	6070	9232	11687	3147	316	5563
AUGUST		1168	5222-	6106	2937	430-	3017-	257
SEPTEMBER		116623	3938	31	1963	545-	2213	20704
OCTOBER		104228	1379	661-	45116	831-	1284-	24658
NOVEMBER		22792	3505	591-	12782	677-	636	6408
DECEMBER		5797	6011	416	18140	1326	213-	5246
ANNUAL TOTAL		382005	134087	66014	243588	77951	43541	157864
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		382005	134087	66014	243588	77951	43541	157864

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	0 2020	0 1707	0 2158	0 1619	0 1656		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		630	29815	3283	267	165-	921-	6766
FEBRUARY		3631	7276	2089	18542	1589	6567	6625
MARCH		866	4287	1272	2564	273-	15077	1743
APRIL		5293	35623-	6216	1753	652-	31381-	4603-
MAY		18408	78730	8230	7740	1105	174207	22843
JUNE		23219	869-	338	16959	421-	113730	7845
JULY		5676	1278	1827-	2050-	662-	5069	483
AUGUST		2020-	8678	2192-	1331	1884-	895	783
SEPTEMBER		52162-	28078	1751-	691	1931-	74322	5415-
OCTOBER		7155	34594	2800-	1461-	2660		8030
NOVEMBER		5280	5047	1164-	1563-	2076-		1105
DECEMBER		37225	3436	334	887-	12509		10523
ANNUAL TOTAL		53201	164727	12028	43886	9799	357565	56728
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		53201	164727	12028	43886	9799	357565	56728

MINIMUM MONTHLY RUNOFF	52162-	9/52	(DURING FLOOD) LOW WATER 2800- 10/54	
MINIMUM CALENDAR YEAR RUNOFF	9799	1956		
AVERAGE ANNUAL RUNOFF	184262	1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/52	11/52	9/56	4/57	4/57	4/57
TOTAL ACRE FEET	48506-	12852-	7205-	19901	262563	756852

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 12 GUADALUPE RIVER - SUBBASIN E GUADALUPE RIVER FROM CURRO GAGE TO VICTORIA GAGE, AREA 238 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	0	0	0	0	0	0	
	IRRIGATION	0	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		293	9131	856	2325	1535	7492	3605
FEBRUARY		1226	7489	602	1277	1236	3358	2531
MARCH		379	10843	780	1643	3790	1468-	2661
APRIL		273	632	6451	886	1038	17031	4385
MAY		391	52100	1144	699	1183-	1172	9054
JUNE		2506-	12399	740	2618	5479	1248	3330
JULY		36106	5254	24920	592	1043	380	11383
AUGUST		251	2642	1642	547	766-	7	721
SEPTEMBER		69	1547	8160	395	3757	828-	2183
OCTOBER		935	595	2222	520	46	1394	952
NOVEMBER		30454	2077	2323	435	1255	406	6158
DECEMBER		17859	1018	1569	904	819	379	3758
ANNUAL TOTAL		85730	105727	51409	12841	18049	30571	50721
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		85730	105727	51409	12841	18049	30571	50721

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	0	0	0	0	0	0	
	IRRIGATION	0	0	0	6	18	226	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1023	3947	710	79	1114	66	1157
FEBRUARY		2798	1475	1423	1167-	1066	168	961
MARCH		5601	3539	1319	4896	767	12	2689
APRIL		2078	3933	119	8431	2449	254	2877
MAY		3089	5405	4546	9622	1085	111	3976
JUNE		5685	343	393-	2056	5187	6102	3163
JULY		339	850	1323	1755	321	114-	746
AUGUST		47	991-	806	326	270-	663-	124-
SEPTEMBER		18805	533	122-	209	223-	240	3240
OCTOBER		16807	129	216-	7219	247-	309-	3897
NOVEMBER		3615	487	185-	1990	201-	22	955
DECEMBER		875	910	3-	2876	144	97-	784
ANNUAL TOTAL		60762	20560	9327	38292	11192	5792	24321
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		60762	20560	9327	38292	11192	5792	24321

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	0	0	0	275	338		
	IRRIGATION	909	1013	1022	1072	891		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		65	4805	501	39	27-	149-	1077
FEBRUARY		555	1149	307	3003	257	1066	1054
MARCH		102	663	173	411	45-	2444	261
APRIL		813	5810-	972	279	105-	5088-	770-
MAY		2937	12733	1295	1251	180	28250	3679
JUNE		3704	179-	8	2747	69-	18443	1242
JULY		857	168	349-	337-	106-	823	47
AUGUST		394-	1368	409-	211	305-	145	94
SEPTEMBER		8509-	4519	326-	108	314-	12052	904-
OCTOBER		1116	5576	492-	241-	431		1278
NOVEMBER		816	786	223-	259-	337-		157
DECEMBER		6001	527	22	149-	2028		1686
ANNUAL TOTAL		8063	26305	1479	7063	1588	57986	8900
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		8063	26305	1479	7063	1588	57986	8900

MINIMUM MONTHLY RUNOFF		8509-		9/52	(DURING FLOOD) LOW WATER 991-		8/47
MINIMUM CALENDAR YEAR RUNOFF		1479		1954			
AVERAGE ANNUAL RUNOFF		29103		1940-1956			
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120	
FINAL MONTH	9/52	11/52	9/56	4/57	4/57	4/57	
TOTAL ACRE FEET	8046-	2410-	1183-	3192	41236	115040	

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 12 GUADALUPE RIVER - SUBBASIN F GUADALUPE R. FROM VICTORIA GAGE TO MOUTH AREA 872 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	0	271,908	92,000-	180,000		
41	0	252,144		160,000		
42	2,400	129,471		37,000		
43	1,667	34,354		58,000-		
44	1,500	94,309		2,000		
45	3,200	31,266		61,000-		
					43,000	6 Yr.Av. 1940-45
1946	3,200	304,696		211,000		
47	43,188	69,461		23,000-		
48	100,000	15,820		76,000-		
49	50,155	58,504		33,000-		
50	59,315	5,307		87,000-		
51	71,241	43,513		48,000-		
					9,000-	6 Yr.Av. 1946-51
1952	81,271	127,751		36,000		
53	92,077	81,000		11,000-		
54	88,547	3,821		88,000-		
55	57,107	22,168		70,000-		
56	38,552	18,840	92,000-	73,000-		
					41,000-	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 88,000- 1954

Average Annual Runoff 300- 1940-56

WATERSHED NO. 13 SAN ANTONIO RIVER - SUBBASIN A MEDINA ABOVE GAGE NEAR RIO MEDINA
AREA 623 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Act. Historic Runoff	Adjustments	Adjusted Runoff	Averages
1922	*	333	0		
23	*	488			
24	35	5,721			
25	*	0			
1926	*	5,293			
27	589	0			
28	589	0			
29	589	0			
30	589	0			
31	589	0			
1932	589	242			
33	0	0			
1933-52 Incl.	Avg. 12,744	No Record			
53	6,185	2,708			
54	34,035	3,111			
55	202	469			
56	200	0	0		

Same as Historic

Min. Cal. Yr. Runoff 0

Average Annual Runoff 1,148 1922-33 & 53-56

* No reported use.

WATERSHED NO. 13 SAN ANTONIO RIVER - SUBBASIN B MEDINA RIVER FROM GAGE NEAR RIOMEDINA TO GAGE NEAR SAN ANTONIO, AREA 602 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	219	218	74	43	23	622	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2520	4490	3810	7610	6550	13100	6347
FEBRUARY		3740	20940	4990	5780	4980	12880	8885
MARCH		2720	6080	3720	5470	5060	8770	5303
APRIL		4659	13879	7459	4749	4289	8249	7214
MAY		4549	12219	8089	4749	6349	6229	7031
JUNE		7609	5529	3369	4969	3559	8249	5547
JULY		6329	3739	14049	5289	3469	4619	6249
AUGUST		2229	3179	3979	3489	7339	5049	4211
SEPTEMBER		1889	3529	50359	5749	5649	5589	12127
OCTOBER		5040	4090	37280	4740	5710	6310	10528
NOVEMBER		7590	3870	8810	5860	4990	4790	5985
DECEMBER		8510	4660	6300	4750	9010	5600	6472
ANNUAL TOTAL		57384	86204	152214	63204	66954	89434	85899
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		57384	86204	152214	63204	66954	89434	85899

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	18	57	110	1102	1736	23	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		7240	8760	5670	2650	6740	1240	5383
FEBRUARY		5380	6380	6250	6630	4000	3870	5418
MARCH		6190	6720	4990	2230	4830	2900	4643
APRIL		7439	5439	4799	14669	5489	1119	6492
MAY		7439	5589	2459	4479	4679	8409	5509
JUNE		8739	5069	3329	22949	6389	2719	8199
JULY		4629	4709	3899	3259	2849	582	3335
AUGUST		51409	4889	3779	2239	5569	539	11404
SEPTEMBER		53769	4439	1559	2329	5139	3039	11712
OCTOBER		15150	5050	2850	16390	3380	857	7280
NOVEMBER		9170	5900	2200	3480	3900	809	4243
DECEMBER		8540	6610	1780	6910	3760	930	4755
ANNUAL TOTAL		185094	69634	43564	88214	56724	27013	78374
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		185094	69634	43564	88214	56724	27013	78374

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	413	49	39	21	74		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1050	766	1070	1340	1290	343	1103
FEBRUARY		3480	706	732	4041	856	1460	1963
MARCH		1890	2393	790	2340	601	1510	1603
APRIL		1229	1206	2130	636	395	28320	1119
MAY		1349	0	1800	3310	1040	16997	1500
JUNE		427	63	469	664	388	14669	402
JULY		300	415	377	432	414	712	388
AUGUST		193	2060	423	2160	1720	0	1311
SEPTEMBER		2569	20862	0	807	1720	7544	5192
OCTOBER		535	1132	729	468	4510		1475
NOVEMBER		1500	958	9	506	507		696
DECEMBER		2210	1200	0	963	1190		1113
ANNUAL TOTAL		16732	31761	8529	17667	14631	71555	17864
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		16732	31761	8529	17667	14631	71555	17864

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	8529	1954	
AVERAGE ANNUAL RUNOFF	63233	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	7/53	12/54	12/54	6/56	9/56	3/57
TOTAL ACRE FEET	478	1538	8529	23775	85709	355922

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 13 SAN ANTONIO RIVER - SUBBASIN C SAN ANTONIO RIVER ABOVE GAGE NEAR FALLS CITY EXCLUDING 13 A and 13 B, AREA 846 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1)	1504	1208	2291	2663	2225	1892	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			4102	12710	8683	12498	14871	19047	11985
FEBRUARY			5446	14377	7610	9931	8298	22488	11358
MARCH			4347	13312	7176	11785	14613	20017	11875
APRIL			12033	27000	14096	9536	9361	24004	16005
MAY			5809	40812	9180	9093	23884	11484	16710
JUNE			12127	24180	7133	9942	10782	12939	12851
JULY			16741	9297	75929	12605	7500	8630	21784
AUGUST			7627	7700	9043	6472	4952	7219	7169
SEPTEMBER			3444	18625	63373	9340	9676	5433	18315
OCTOBER			7043	14920	54766	7106	6491	14364	17448
NOVEMBER			38273	7485	16680	7162	6776	8156	14089
DECEMBER			19562	9030	12383	7578	12251	7467	11379
ANNUAL TOTAL			136554	199448	286052	113048	129455	161248	170968
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			136554	199448	286052	113048	129455	161248	170968

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1)	1423	2219	2946	2571	2046	2933	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			10928	23920	7679	6124	7173	4119	9991
FEBRUARY			10404	16198	7900	9878	5753	5139	9212
MARCH			14433	19053	7259	7060	7594	7449	10475
APRIL			17287	13621	5649	43469	7317	6368	15619
MAY			24972	13963	6549	15495	6828	10967	13129
JUNE			25194	9261	3768	51438	7244	15916	18804
JULY			6349	6549	12188	14001	4913	4303	8051
AUGUST			364	13651	16588	10668	3934	2906	8019
SEPTEMBER			189276	6786	8288	5531	3698	8307	36981
OCTOBER			46447	5871	9769	18569	2827	6171	14942
NOVEMBER			26098	7445	5599	8717	2675	5989	9421
DECEMBER			18218	8020	5449	8794	3173	5909	8261
ANNUAL TOTAL			389970	144338	96685	199744	63129	83543	162902
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			389970	144338	96685	199744	63129	83543	162902

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1)	3123	2900	3366	3498	7961		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE									
JANUARY			5786	8942	6086	4461	5220	5127	6099
FEBRUARY			7625	5852	4420	8466	4604	6040	6193
MARCH			6058	5807	4555	5427	4049	10350	5179
APRIL			11833	5815	5232	2907	3245	49020	5806
MAY			5715	8809	10486	8418	4170	63480	7520
JUNE			4828	2239	3136	4332	1872	41470	3281
JULY			7803	3613	2334	2639	4296	5430	4137
AUGUST			2682	7430	1322	3426	3670	3645	3706
SEPTEMBER			8296	16644	2540	5227	13280	46790	9197
OCTOBER			3358	5005	3942	2715	6250		4254
NOVEMBER			5180	5258	3849	3226	4173		4337
DECEMBER			8156	6308	3376	5298	11370		6902
ANNUAL TOTAL			77320	81722	51278	56542	66199	231352	66612
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			77320	81722	51278	56542	66199	231352	66612

MINIMUM MONTHLY RUNOFF	364	8/46 (DURING FLOOD) LOW WATER 1322	8/54
MINIMUM CALENDAR YEAR RUNOFF	51278	1954	
AVERAGE ANNUAL RUNOFF	137428	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/54	11/54	6/56	6/56	7/56	3/57
TOTAL ACRE FEET	6196	17123	45691	97065	323600	882846

NOTES: 1) ONLY MINOR MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 13 SAN ANTONIO RIVER - SUBBASIN D CIBOLO CREEK ABOVE GAGE NEAR FALLS CITY, AREA 831 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	799	10260	1450	3110	7440	11540	5767
FEBRUARY	857	16220	1280	2300	2080	14460	6200
MARCH	829	9470	1360	3020	5140	10930	5125
APRIL	6370	46260	5140	1800	3570	12860	12667
MAY	1550	44470	2990	4560	39540	1690	15800
JUNE	22510	18360	1110	4250	3390	4390	9002
JULY	6730	3080	83450	4400	1680	1140	16747
AUGUST	556	2040	3610	1050	1740	1070	1678
SEPTEMBER	527	10460	87800	2320	2420	691	17370
OCTOBER	4340	10790	34650	1170	1230	3880	9343
NOVEMBER	33590	1640	4660	2490	1530	1100	7502
DECEMBER	30930	1620	3240	1430	4100	1210	7088
ANNUAL TOTAL	109588	174670	230740	31900	73860	64961	114287
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	109588	174670	230740	31900	73860	64961	114287

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	1970	10790	1340	1150	1610	956	2969
FEBRUARY	2160	2220	1520	2940	1810	966	1936
MARCH	5260	4980	1310	1220	1410	1200	2563
APRIL	16100	2990	1090	46200	3080	984	11741
MAY	38060	15480	3980	5590	1210	2430	11125
JUNE	14140	2120	1190	16240	15930	10450	10012
JULY	1300	1460	2680	2120	1180	579	1553
AUGUST	55890	1800	9930	2280	1190	477	11928
SEPTEMBER	49790	1100	1660	1070	1170	2120	9485
OCTOBER	15440	958	2410	31580	725	645	8626
NOVEMBER	7000	1180	861	2060	740	795	2106
DECEMBER	3650	1370	930	3820	912	869	1925
ANNUAL TOTAL	210760	46448	28901	116270	30967	22471	75970
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	210760	46448	28901	116270	30967	22471	75970

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	906	1570	1110	746	635	688	993
FEBRUARY	1630	1080	902	2280	555	1330	1289
MARCH	946	1030	893	3150	433	6040	1290
APRIL	2730	3020	968	753	450	62930	1584
MAY	3590	4250	2500	2910	1120	39470	2874
JUNE	1020	784	890	4050	121	29420	1373
JULY	782	536	448	446	505	1550	543
AUGUST	389	5950	292	1050	147	865	1566
SEPTEMBER	48850	16880	370	1490	1570	33510	13832
OCTOBER	1190	1690	933	665	2720		1440
NOVEMBER	1570	1050	730	501	659		902
DECEMBER	4400	3670	614	863	8670		3643
ANNUAL TOTAL	68003	41510	10650	18904	17585	175803	31330
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	68003	41510	10650	18904	17585	175803	31330

MINIMUM MONTHLY RUNOFF		121		6/56			
MINIMUM CALENDAR YEAR RUNOFF		10650		1954			
AVERAGE ANNUAL RUNOFF		76364		1940-1956			
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120	
FINAL MONTH	8/56	8/56	8/56	8/56	9/56	2/57	
TOTAL ACRE FEET	773	2776	7485	25517	146912	390717	

NOTES: 1) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 13 SAN ANTONIO RIVER - SUBBASIN E SAN ANTONIO RIVER FROM GAGE NEAR FALLS CITY TO MOUTH, EXCLUD. 13 D, AREA 1,315 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	4	0	0	0	0	0	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		492	10151	3441	6880	82	59	3518
FEBRUARY		4168	10751	4367	4862	5938	1600-	4748
MARCH		8	15097	2180	8535	10805	4443-	5380
APRIL		1741-	12302	3738	6826	429-	33759	9076
MAY		63-	155240	5573	9218	50283	4782	37506
JUNE		4785-	50945	3635	41346	12671	3460	17879
JULY		58068	49658	128540	6112	3065	216	40943
AUGUST		12328	17342	37806	3194	7538	81	13048
SEPTEMBER		1306	21641	103711	1919	17492	29	24350
OCTOBER		6462	4229	6802	2244	2598	1790	4021
NOVEMBER		81854	15273	9791	3122	2362	608	18835
DECEMBER		47634	3956	9750	3778	3217	1657	11665
ANNUAL TOTAL		205731	366585	319334	98136	115622	40398	190968
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		205731	366585	319334	98136	115622	40398	190968

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	0	0	451	22	393	1297	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		692	6115	1317	1367	884	1193	1928
FEBRUARY		6256	3921	1789	2367-	642	948	1865
MARCH		4785	3354	2237	5489	105	1042-	2488
APRIL		2543	6239	2068	37285	304-	2522	8392
MAY		27494	36383	5322	19461	473	8024	16193
JUNE		17535	3723	1436-	31691-	5776	36686	5099
JULY		2684	2049	5140	28003	1319	949	6691
AUGUST		56626-	129-	15354	1834	985	508	6346-
SEPTEMBER		33985-	2994	4802	2735	271-	43724	3333
OCTOBER		283280	1444	4754	6498	558	1330	49644
NOVEMBER		13753	1509	962	3993	196-	1410	3572
DECEMBER		4404	1557	1669	6394	42	1434	2583
ANNUAL TOTAL		272815	69159	43978	79001	10013	97686	95442
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		272815	69159	43978	79001	10013	97686	95442

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	1361	850	1386	2434	2551		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		556	5450	877	754	584-	666	1411
FEBRUARY		258-	1501	771	4708	200	486	1384
MARCH		1683	1054	513	133-	909	15034	805
APRIL		2743	1141	865	760	1174	23371	1337
MAY		26494	45567	888	4360	6360	66185	16734
JUNE		3437	646	2145	221	761-	59373	1138
JULY		406	2109	1138	150	1937-	2240	373
AUGUST		453	6181	205	2919	1705-	1657	1611
SEPTEMBER		160056	29544	98	6997	4596-	34071	38420
OCTOBER		4294	10835	1437	552	9210		5266
NOVEMBER		5273	1900	2364	138	3961		2727
DECEMBER		1154	802	428	141-	3601		1169
ANNUAL TOTAL		206291	106730	11729	21285	15832	203083	72373
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		206291	106730	11729	21285	15832	203083	72373

MINIMUM MONTHLY RUNOFF	56626-	8/46	(DURING FLOOD)	LOW WATER 1937- 7/56	
MINIMUM CALENDAR YEAR RUNOFF	10013	1950			
AVERAGE ANNUAL RUNOFF	122372	1940-1956			

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/46	9/46	9/46	9/46	7/52	2/57
TOTAL ACRE FEET	87927-	40355-	24567-	19953	273114	652820

NOTES: 1) NO MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 14 NUECES RIVER - SUBBASIN A W. NUECES ABOVE GAGE NEAR BRACKETTVILLE
AREA 700 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Act. & Est. Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	0	427	0			
41		230				
42		3,898				
43		70				
44		14				
45		11				
					775	6 Yr.Av. 1940-45
1946		7,619				
47		2,468				
48		25,568				
49		58,309				
50		3				
51		0x				
					15,661	6 Yr.Av. 1946-51
1952		800x				
53		8,700x				
54		44,000x				
55		75,180x				
56	0	174x	0			
					25,771	5 Yr.Av. 1952-56

Same as Historic Runoff

Min. Cal. Yr. Runoff 0 1951

Average Annual Runoff 13,380 1940-56

x - Estimated

WATERSHED NO. 14 NUECES RIVER - SUBBASIN B NUECES RIVER ABOVE LAGUNA GAGE, AREA 764 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	83	79	152	164	165	74	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		4205	3445	4138	4798	4848	8375	4968
FEBRUARY		4349	3519	3221	3781	5181	5588	4273
MARCH		4121	4461	3215	3935	7495	5291	4753
APRIL		5220	7320	3245	4516	6266	5289	5309
MAY		10256	14686	5702	4103	4783	3195	7121
JUNE		5920	7529	3051	6873	3743	1758	4812
JULY		4013	8393	2334	3016	2066	1202	3504
AUGUST		3020	4759	3351	1853	1713	938	2606
SEPTEMBER		2492	4702	24509	1730	12570	758	7794
OCTOBER		1940	14540	24465	2096	5896	4919	8976
NOVEMBER		2347	6737	10322	2312	3752	3527	4833
DECEMBER		3505	5165	7108	3068	4058	3205	4352
ANNUAL TOTAL		51388	85256	94661	42081	62371	44045	63300
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		51388	85256	94661	42081	62371	44045	63300

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	86	117	195	347	591	641	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		3305	8056	2489	2025	5765	2487	4021
FEBRUARY		3119	7900	2692	64387	5014	2175	14215
MARCH		2811	6993	2757	19724	4597	2689	6595
APRIL		2360	5223	2339	10391	3560	2804	4446
MAY		4186	7499	2276	11840	4472	2176	5408
JUNE		7740	8985	2698	7372	5251	1699	5624
JULY		3254	8199	15300	4723	3980	1227	6114
AUGUST		1220	3625	1868	27902	2841	845	6384
SEPTEMBER		1533	2286	1223	11419	2733	561	3293
OCTOBER		23980	1793	1409	8871	2850	469	6562
NOVEMBER		6998	1789	1514	7313	2448	614	3446
DECEMBER		4855	2226	1639	6235	2775	844	3096
ANNUAL TOTAL		65361	64574	38204	182202	46286	18590	69203
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		65361	64574	38204	182202	46286	18590	69203

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	962	665	992	720	1460		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		1020	861	1641	1630	3010	336	1632
FEBRUARY		1215	1126	1416	1648	2500	283	1581
MARCH		1485	1640	1327	1863	2420	433	1747
APRIL		4670	1776	2113	1421	1850	4710	2366
MAY		6675	1048	10888	1273	1630	10570	4303
JUNE		2520	600	22075	972	1100	16930	5453
JULY		1265	379	10200	3609	857	3960	3262
AUGUST		795	303	3015	1922	556	2000	1318
SEPTEMBER		545	6850	1603	158626	512	1960	33627
OCTOBER		414	2946	1673	10681	645		3272
NOVEMBER		413	2192	1392	6236	322		2111
DECEMBER		507	1848	1341	3830	343		1574
ANNUAL TOTAL		21524	21569	58684	193711	15745	41182	62247
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		21524	21569	58684	193711	15745	41182	62247

MINIMUM MONTHLY RUNOFF		283		2/57		
MINIMUM CALENDAR YEAR RUNOFF		15745		1956		
AVERAGE ANNUAL RUNOFF		65074		1940-1956		
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	2/57	3/37	3/57	8/53	8/55	6/55
TOTAL ACRE FEET	962	2362	8867	31745	145511	540350

NOTES: 1) ONLY MINOR MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 14 NUECES RIVER - SUBBASIN C NUECES FROM LAGUNA GAGE TO GAGE BELOW UVALDE, EXCLUDING 14 A, AREA 483 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF CONSUMPTIVE USES (SEE NOTE 1)

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 2)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	2690-	2774-	2390-	2890-	4285-	7541-	3762-
FEBRUARY	3120-	2870-	1950-	2610-	4555-	4930-	3339-
MARCH	3050-	3677-	2000-	2820-	6973-	4553-	3846-
APRIL	4237-	6450-	2230-	3460-	5864-	4692-	4489-
MAY	9383-	8911-	4480-	3147-	4148-	2660-	5455-
JUNE	4967-	4868-	2379-	6113-	1978-	1420-	3621-
JULY	3320-	6290-	1606-	2242-	1708-	951-	2686-
AUGUST	2316-	3300-	2856-	1324-	30	792-	1760-
SEPTEMBER	1811-	3400-	16295-	1133-	9800-	476-	5486-
OCTOBER	1282-	5752-	11690-	1361-	4640-	4575-	4883-
NOVEMBER	1791-	4354-	5993-	1660-	2840-	3203-	3307-
DECEMBER	2638-	3070-	4600-	2434-	3156-	2823-	3120-
ANNUAL TOTAL	40605-	55716-	58469-	31194-	49917-	38616-	45753-
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	40605-	55716-	58469-	31194-	49917-	38616-	45753-

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 2)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	2920-	7216-	1776-	1667-	4050-	2161-	3298-
FEBRUARY	2764-	7113-	2040-	19360	3680-	1942-	304
MARCH	2502-	6096-	2158-	8870-	3410-	2433-	4245-
APRIL	2143-	4376-	1911-	7876-	2610-	2671-	3598-
MAY	3674-	6923-	1907-	8610-	3646-	1906-	4444-
JUNE	6515-	8290-	5170-	5440-	4624-	1685-	5287-
JULY	2629-	6539-	7678-	3260-	3448-	1350-	4151-
AUGUST	902-	2266-	960-	9130-	2595-	976-	2805-
SEPTEMBER	192-	1210-	610-	8588-	2363-	643-	2268-
OCTOBER	18460-	916-	957-	6258-	2431-	500-	4920-
NOVEMBER	5402-	1003-	1168-	5097-	2146-	635-	2575-
DECEMBER	3510-	1443-	1288-	4130-	2411-	877-	2277-
ANNUAL TOTAL	51613-	53391-	27623-	49566-	37414-	17779-	39564-
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	51613-	53391-	27623-	49566-	37414-	17779-	39564-

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 2)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	1040-	893-	1660-	1660-	2876-	336-	1626-
FEBRUARY	1230-	1150-	1430-	1670-	2451-	283-	1586-
MARCH	1510-	1680-	1350-	1900-	2420-	433-	1772-
APRIL	4710-	1840-	2150-	1480-	1850-	5921-	2406-
MAY	4530-	1120-	7380-	1340-	1630-	17920-	3200-
JUNE	2381-	727-	19530-	1090-	1100-	8622-	4966-
JULY	1332-	498-	6590-	3654-	857-	3244-	2586-
AUGUST	875-	430-	2738-	2036-	556-	1650-	1327-
SEPTEMBER	595-	5640-	1537-	87500-	512-	1712-	19157-
OCTOBER	454-	2810-	1619-	9150-	819-		2970-
NOVEMBER	443-	2161-	1383-	5799-	322-		2022-
DECEMBER	527-	1880-	1345-	3659-	343-		1551-
ANNUAL TOTAL	19627-	20829-	48712-	120938-	15736-	40121-	45168-
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	19627-	20829-	48712-	120938-	15736-	40121-	45168-

MINIMUM MONTHLY RUNOFF	87500-	9/55	LOST INTO BALCONES FAULT ZONE
MINIMUM CALENDAR YEAR RUNOFF	120938-	1955	
AVERAGE ANNUAL RUNOFF	43397-	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/55	12/55	6/56	3/56	7/47	3/50
TOTAL ACRE FEET	102449-	111798-	124125-	172957-	259327-	458990-

NOTES: 1) THE INCREMENTAL RUNOFF FROM THIS SUBBASIN IS USUALLY NEGATIVE BECAUSE LOSS OF WATER FROM 14 B INTO BALCONES FAULT USUALLY EXCEEDS RUNOFF FROM 14 C

2) NO REPORTED USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 14 NUECES RIVER - SUBBASIN D NUECES RIVER FROM GAGE BELOW UVALDE TO COTULLA GAGE, AREA 3,313 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1) 14221	196	19334	17235	21035	21565	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		1550-	701-	1781-	1838-	579-	872-	1220-
FEBRUARY		1209-	31800	1293-	1174-	658-	632-	4472
MARCH		3320	604-	1267-	1178-	1790	3803	964
APRIL		29120	7410	1620	1153-	434-	60612	16196
MAY		38220	52950	11540	1108-	41338	12460	25900
JUNE		63940	640-	29-	42090	35840	548-	23442
JULY		28280	1668-	17116	4072	548-	459-	7799
AUGUST		828-	1667-	512-	675-	178450	368-	29067
SEPTEMBER		5541	4680	98170	77	210000	421-	53008
OCTOBER		741-	8813-	3090-	4481	1370	181845	29175
NOVEMBER		612-	2042-	2960-	520	966-	235-	1049-
DECEMBER		890-	2131-	2530-	451-	425-	392-	1137-
ANNUAL TOTAL		162591	78494	114984	43663	465178	254793	186617
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		162591	78494	114984	43663	465178	254793	186617

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1) 23222	17190	14570	13579	13383	3158	
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		402-	961-	764-	403-	1739-	359-	771-
FEBRUARY		384-	832-	690-	129220-	1358-	258-	22124-
MARCH		284-	964-	662-	131550	1230-	297-	21352
APRIL		83973	968-	529-	41430	1020-	199-	20448
MAY		36764	5050	483-	5760	2266	24946	12384
JUNE		17920	47800	2820	42570	20394	3625	22522
JULY		511-	9710	27340	1550	3248	0	6890
AUGUST		462	1156-	1110-	4180-	180	0	967-
SEPTEMBER		21050	959-	10890	2844-	19350	0	7915
OCTOBER		10330	984-	5517	5650	1501	475	3748
NOVEMBER		1703-	867-	74-	1821-	354-	39	797-
DECEMBER		1390-	837-	402-	1864-	399-	0	815-
ANNUAL TOTAL		165825	54032	41853	88178	40839	27972	69783
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		165825	54032	41853	88178	40839	27972	69783

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1) 39190	6336	7268	2097	3935		
		MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY		0	0	0	0	134-	0	27-
FEBRUARY		0	0	0	0	49-	0	10-
MARCH		0	0	0	0	0	0	
APRIL		0	0	2250	0	0	85351	450
MAY		18540	1390	10520	1100	0	106180	6310
JUNE		12311	0	2960-	21	0	130460	1874
JULY		8-	0	32050	13694	22990	716-	13745
AUGUST		0	1620	352-	132	969	350-	474
SEPTEMBER		0	71420	113-	99890-	244	10982	5668-
OCTOBER		0	21750	7509	38300	5510		14614
NOVEMBER		0	331	37-	481-	45		28-
DECEMBER		0	0	15-	201-	0		43-
ANNUAL TOTAL		30843	96511	48852	47325-	29575	331907	31691
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		30843	96511	48852	47325-	29575	331907	31691

MINIMUM MONTHLY RUNOFF	129220-	2/49	(DURING FLOOD) LOW WATER 2844- 9/49
MINIMUM CALENDAR YEAR RUNOFF	27972	1951	EXCLUDING LARGE LOSSES FROM FLOOD PEAKS
AVERAGE ANNUAL RUNOFF	99815	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	2/49	2/49	2/49	2/49	9/55	10/56
TOTAL ACRE FEET	130025-	113692-	86316-	31945-	119983	408192

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 14 NUECES RIVER - SUBBASIN E FRIO RIVER ABOVE CONCAN GAGE, AREA 405 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR			1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL	1)	929	770	531	709	396	638	
			MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY			2550	3630	5220	4170	3140	8340	4508
FEBRUARY			2870	4240	4120	3150	3010	6620	4002
MARCH			2770	5350	3940	3280	5550	6360	4542
APRIL			4450	15070	5670	3550	4660	7050	6742
MAY			6890	20690	7330	3010	6460	5880	8377
JUNE			5460	8880	3910	3420	7360	3260	5382
JULY			6590	6050	3420	2480	3730	2110	4063
AUGUST			2950	9480	3450	1370	4510	1240	3833
SEPTEMBER			2210	11600	9950	1570	5620	972	5320
OCTOBER			1830	13420	9040	1850	4650	3760	5758
NOVEMBER			2480	9570	6510	1730	3360	2820	4412
DECEMBER			4060	6910	4950	2470	4010	3230	4272
ANNUAL TOTAL			45110	114890	67510	32050	56060	51642	61210
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			45110	114890	67510	32050	56060	51642	61210

YEAR			1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL	1)	636	642	14	6	32	31	
			MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY			2820	6510	2490	1780	3430	1290	3053
FEBRUARY			2690	5580	2470	27720	3220	1400	7180
MARCH			2500	5140	2440	10960	3440	2030	4418
APRIL			2260	5140	2010	8190	2860	2250	3785
MAY			3060	6110	1750	7080	2990	7520	4752
JUNE			2160	9750	1900	5120	2570	2600	4017
JULY			1730	6590	1730	3170	1790	888	2650
AUGUST			877	3420	842	3140	1430	433	1690
SEPTEMBER			1660	2310	834	3280	1360	2300	1957
OCTOBER			17150	1930	1170	3730	1460	728	4361
NOVEMBER			6320	2220	1200	3190	1160	984	2512
DECEMBER			4240	2690	1420	3910	1530	1230	2403
ANNUAL TOTAL			47467	57390	20256	80670	27240	23653	42779
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			47467	57390	20256	80670	27240	23653	42779

YEAR			1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL	1)	335	407	546	611	818		
			MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE						
JANUARY			1260	1760	1080	807	823	185	1146
FEBRUARY			1150	1320	885	994	730	458	1016
MARCH			1410	1280	781	1070	726	1710	1053
APRIL			1900	980	650	692	507	10600	946
MAY			2620	474	10710	2560	399	5590	3353
JUNE			1610	71	3530	856	64	8380	1226
JULY			727	77	2700	2270	166	1980	1188
AUGUST			248	181	1130	894	1	720	491
SEPTEMBER			91	851	522	1980	0	1340	689
OCTOBER			95	1290	358	1110	0		571
NOVEMBER			415	1220	439	908	0		596
DECEMBER			1230	1210	567	946	0		791
ANNUAL TOTAL			12756	10714	23352	15087	3416	30963	13065
STORAGE ADJUSTMENT									
ADJUSTED ANNUAL TOTAL			12756	10714	23352	15087	3416	30963	13065

MINIMUM MONTHLY RUNOFF	0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	3416		1956
AVERAGE ANNUAL RUNOFF	40545	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	11/56	12/56	2/57	2/57	2/57	9/57
TOTAL ACRE FEET	0	167	2506	17345	63558	254947

ALLRED-FLEMING, HOUSTON

NOTES: 1) NO USE ADJUSTMENT MADE

WATERSHED NO. 14 NUECES RIVER - SUBBASIN F FRIO RIVER FROM CONCAN GAGE TO GAGE NEAR DERBY, AREA 3,088 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES (SEE NOTE 1)

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL 2)	648	758	366	766	362	875	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	1370-	2460-	3910-	2970-	2752-	1220-	2447-
FEBRUARY	1740-	44180	2540-	2000-	2732-	5809-	4893
MARCH	1828-	3600	2550-	2090-	3120-	5575-	1927-
APRIL	2780-	7480	3100-	2420-	4458-	2320-	1266-
MAY	4970-	16670	5960-	2159-	2410-	5801-	772-
JUNE	690-	2550-	3541-	12690	4290-	2190-	95-
JULY	5530-	3790-	6860	1992-	3716-	2110-	1713-
AUGUST	2882-	2040-	2220-	1370-	7970	1240-	297-
SEPTEMBER	2210-	4970-	24610	1216-	2810	7258	4380
OCTOBER	1830-	2330-	4980	1489-	10600	14360	4049
NOVEMBER	880-	8190-	5762-	10	3298-	2820-	3490-
DECEMBER	610-	5750-	4170-	2067-	3619-	3230-	3241-
ANNUAL TOTAL	27320-	39850	2697	7073-	9015-	10697-	1926-
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	27320-	39850	2697	7073-	9015-	10697-	1926-

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL 2)	127	971	548	729	161		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	2820-	6498-	2490-	1780-	3430-	1290-	3051-
FEBRUARY	2690-	5570-	2470-	3570-	3220-	1400-	3153-
MARCH	2500-	5130-	2440-	5190-	3440-	2030-	3455-
APRIL	910	5130-	2010-	7100	2860-	2250-	707-
MAY	2010-	6110-	1750-	4860-	990-	53570	6308
JUNE	2032-	10430	22400	140	2539-	1891-	4418
JULY	1730-	6410-	530	3147-	1627-	888-	2212-
AUGUST	15423	3366-	842-	800	1430-	433-	1692
SEPTEMBER	27220	2310-	576-	3280-	1360-	2300-	2899
OCTOBER	8880-	1930-	4020	9850	1460-	623-	163
NOVEMBER	6303-	2220-	1200-	3179-	1160-	984-	2508-
DECEMBER	4225-	2690-	1420-	3310-	1530-	1230-	2401-
ANNUAL TOTAL	10363	36934-	11752	10426-	25046-	38251	2007-
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	10363	36934-	11752	10426-	25046-	38251	2007-

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL 2)	30	60	45	40	5		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY	1260-	1760-	1080-	807-	823-	185-	1146-
FEBRUARY	1150-	1320-	885-	994-	730-	458-	1016-
MARCH	1410-	1230-	781-	1070-	726-	1149-	1053-
APRIL	1900-	980-	650-	692-	71-	53210	859-
MAY	2267-	474-	8550	4330	399-	68840	1948
JUNE	1465-	71-	3465-	856-	64-	40380	1184-
JULY	727-	77-	2700-	2270-	6784	1980-	202
AUGUST	248-	449	1003-	854-	1649	720-	1-
SEPTEMBER	586	78559	522-	580-	0	8480	15609
OCTOBER	95-	6610	358-	1100-	1220		1255
NOVEMBER	415-	1127-	439-	908-	0		578-
DECEMBER	1230-	1210-	567-	946-	0		791-
ANNUAL TOTAL	11581-	77319	3900-	6747-	6840	166418	12386
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	11581-	77319	3900-	6747-	6840	166418	12386

MINIMUM MONTHLY RUNOFF	8880-	10/46	
MINIMUM CALENDAR YEAR RUNOFF	27320-	1940 LOST INTO BALCONES FAULT ZONE	
AVERAGE ANNUAL RUNOFF	2255	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	12/46	3/47	9/47	9/48	5/46	4/51
TOTAL ACRE FEET	19408-	36606-	49502-	45990-	62818-	94299-

NOTES: 1) THE INCREMENTAL RUNOFF FROM THIS SUBBASIN IS USUALLY NEGATIVE BECAUSE LOSS OF WATER INTO BALCONES FAULT FROM 14 E USUALLY EXCEEDS RUNOFF FROM 14 F

2) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 14 - NUECES RIVER - SUBBASIN G FRIO RIVER FROM GAGE NEAR DERBY TO MOUTH, EXCLUDING ATASCOSA RIVER, AREA 2,095 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1,2)	226	147	559	502	427	562	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		193-	11805	153	572	884	1480-	1957
FEBRUARY		960	5499-	99	315	458	9025	893
MARCH		288	1993	173-	952	1193	2190	1074
APRIL		28734	63002	3381	271	1170	22705	19877
MAY		14392	107838	9594	2992	60788	2239	32974
JUNE		65770	17946	684	15062	14741	18050	22042
JULY		52963	6498	171261	27207	2004	2100	43672
AUGUST		19850	2116-	9619	183	2730-	4-	4134
SEPTEMBER		1083	106233	73599	2259	2867	7436-	29768
OCTOBER		4062	385-	14878	341	5266-	22971	6100
NOVEMBER		8380	1123	1632	783	657	501	2179
DECEMBER		9938	811	848	389	1503	505	2332
ANNUAL TOTAL		206227	309249	285575	51326	78269	71366	167002
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		206227	309249	285575	51326	78269	71366	167002

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1,2)	542	962	453	970	603	407	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		736	1652	83	113	247	5-	471
FEBRUARY		497	643	339	16988-	70	3	2573-
MARCH		2406	1643	110	16427	75	37-	3437
APRIL		11940	1922	21-	55869	469	86	11711
MAY		20432	7671	107-	19376	8561	891	9471
JUNE		16186	4260-	22941-	42496	10233	38975	13448
JULY		167	7074	25200	13728	131	83	7731
AUGUST		22294	1968	341	2025	3	0	4439
SEPTEMBER		80290	148	376-	72	504-	56017	22608
OCTOBER		113432	13-	9192	3940	256	6474	22214
NOVEMBER		2596	870	222	2401	5-	596	1113
DECEMBER		1300	323	114	11100	17-	116	2156
ANNUAL TOTAL		272276	19641	12156	150559	19519	103199	96225
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		272276	19641	12156	150559	19519	103199	96225

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1,2)	896	1607	1309	724	276		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		86	26	146	10	17	24	57
FEBRUARY		7035	9-	58	1521	9	75	1723
MARCH		1654	8	21	12-	12-	6007	332
APRIL		7363	533	6186	24-	294-	8696	2753
MAY		13645	32205	12407-	21215	4424	76680	11816
JUNE		4126	58-	12380	2809	1268	65534	4105
JULY		115-	311	6729	208	3728-	378	681
AUGUST		22-	12304	107-	3960	16033	3-	6434
SEPTEMBER		721-	98780	96-	598	17523	26769	23217
OCTOBER		12-	21762	1127	1771	11579		7245
NOVEMBER		35	2446	925	24-	205		717
DECEMBER		38-	191	12-	28	164		67
ANNUAL TOTAL		33036	168499	14950	32060	47188	184160	59147
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		33036	168499	14950	32060	47188	184160	59147

MINIMUM MONTHLY RUNOFF	22941-	6/48 (DURING FLOOD) LOW WATER 2730- 8/44	
MINIMUM CALENDAR YEAR RUNOFF	12156	1948	
AVERAGE ANNUAL RUNOFF	110300	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/48	6/48	6/48	2/49	2/57	2/57
TOTAL ACRE FEET	23069-	22537-	12167-	12627	288711	598611

NOTES: 1) NO USE ADJUSTMENT MADE 2) SOME REPORTED USES MODIFIED

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 14 NUECES RIVER - SUBBASIN H ATASCOSA RIVER ABOVE MOUTH, AREA 1,423 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL	1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		346	5908	1009	1715	6195	1633	2801
FEBRUARY		1226	8064	1392	1408	1368	5319	3130
MARCH		1612	5757	951	2339	5143	2832	3106
APRIL		11667	68950	6848	1221	991	24113	18965
MAY		8291	87118	3203	2030	7306	4734	18780
JUNE		24923	32117	1012	3953	11198	14131	14556
JULY		22004	8601	189583	2596	1706	895	37564
AUGUST		10977	6807	11286	194	2954	108	5388
SEPTEMBER		1775	85576	124353	8209	0	413	36721
OCTOBER		5166	10481	7451	794	1022	11990	6151
NOVEMBER		23890	1188	2107	1388	2456	619	5275
DECEMBER		17424	1099	1647	1177	2718	586	4109
ANNUAL TOTAL		129301	321666	350842	27024	43057	67373	156544
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		129301	321666	350842	27024	43057	67373	156544

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL	1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1317	4520	688	638	1070	274	1418
FEBRUARY		1585	1676	1150	5296	759	337	1801
MARCH		9005	3730	828	0	783	474	2470
APRIL		5047	4611	610	42960	1671	414	9219
MAY		23250	7493	36	18065	2840	13193	10813
JUNE		27677	5020	2100	16700	8859	22877	13872
JULY		823	2409	12661	59898	10634	146	14429
AUGUST		59790	8114	6100	5008	137	349	13250
SEPTEMBER		76302	613	55	1802	0	40623	19899
OCTOBER		54956	222	2374	5736	695	1645	10938
NOVEMBER		4309	2019	629	2326	24	1349	1776
DECEMBER		2485	1046	432	4130	123	807	1504
ANNUAL TOTAL	2)	266546	41473	27663	162559	27595	82488	101387
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL	2)	266546	41473	27663	162559	27595	82488	101387

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL	1)							
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1026	1439	639	1076	673	879	971
FEBRUARY		3037	909	836	6796	610	1096	2438
MARCH		460	1042	902	946	621	10194	794
APRIL		4420	3119	3257	662	2267	57144	2745
MAY		2923	35395	1094	5675	5222	106547	10062
JUNE		0	1414	0	3789	1336	49743	1308
JULY		6614	2246	14999	729	376	995	4993
AUGUST		357	3238	51	2785	2885	518	1863
SEPTEMBER		14382	29164	0	1336	11734	50016	11323
OCTOBER		435	1057	1167	0	14794		3491
NOVEMBER		994	3713	2476	246	589		1604
DECEMBER		1390	624	515	769	3796		1419
ANNUAL TOTAL	2)	36038	83360	25936	24809	44903	277132	43009
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL	2)	36038	83360	25936	24809	44903	277132	43009

MINIMUM MONTHLY RUNOFF		0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	2)	24809	1955	
AVERAGE ANNUAL RUNOFF	2)	103684	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	1/51	1/51	7/56	7/56	9/56	2/57
TOTAL ACRE FEET	421	1253	16241	40123	199668	552603

NOTES: 1) NO REPORTED USES
2) RUNOFF FROM 1951-56 INCLUSIVE INCLUDES ARTESIAN WELL FLOW TEMPORARILY DIVERTED INTO RIVER FOR CORPUS CHRISTI WATER SUPPLY

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 14 NUECES RIVER, - SUBBASIN I NUECES RIVER FROM COTULLA GAGE TO THREE RIVERS GAGE, EXCLUD. FRIO & ATASCOSA RIVERS, AREA 3,329 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	1160	1545	1381	1219	1284	554	
2) MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		9-	1200-	415	197	57	478	10-
FEBRUARY		332	4136-	288	171	107	2087	192-
MARCH		11126	1144	191	578	730-	11881	4032
APRIL		48178	11015-	314-	195	543	20950	9756
MAY		12579	194872	893-	417-	1460-	20478	37527
JUNE		67131	77855	8283	28330	108426	9865	49648
JULY		168522	65717	185009	4449	1470	2473	67940
AUGUST		29803	482	3857-	50-	170519-	189-	24060-
SEPTEMBER		9464	23039	102971	16097	135983	403	47993
OCTOBER		6985	3675	2365	4346	2013	12538	5320
NOVEMBER		2069	1159	3492	1298	104	248	1395
DECEMBER		4139	371	428	1902	24-	6-	1130
ANNUAL TOTAL		360289	351963	276348	57096	75970	81206	200479
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		360289	351963	276348	57096	75970	81206	200479

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	697	833	860	557	921	288	
2) MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		4-	317	0	71-	145	93-	49
FEBRUARY		60	36	141	7527-	818	56-	1088-
MARCH		652	290	397	22671-	97	658	3430-
APRIL		65597-	8489	48-	52040	1869	18-	544-
MAY		68788	123950	2308	94658	38922	7600-	53504
JUNE		64189	30395-	27032-	5303	71815	73166	26174
JULY		2438	30236	17273	3930	823-	160	8869
AUGUST		22603-	12203	1315	11136	630-	283-	190
SEPTEMBER		53591	595	3136-	1530	6171-	56432	17140
OCTOBER		304613	72	7597	2553	14278	6774	55981
NOVEMBER		1739	4705	1779	4262	57-	471	2150
DECEMBER		115	532	40	4421	94-	100-	819
ANNUAL TOTAL		407981	151032	634	149564	120169	129511	159815
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		407981	151032	634	149564	120169	129511	159815

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	397	498	800	1323	1564		
2) MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		129-	63	17	152-	57-	33-	52-
FEBRUARY		594	60-	205	434-	50-	100	51
MARCH		633-	82-	93-	91-	50-	8099	190-
APRIL		853	11703	1725-	118-	1041	12869-	2351
MAY		6707-	17723	14826-	8038	5154	158743	1876
JUNE		90101	774-	38866	11341	275	118963	19962
JULY		1537	274	65126	9015-	13828-	286	8819
AUGUST		276-	11968	858	1379	10193	48-	4824
SEPTEMBER		476-	80730	827	25818-	4520	49264	7957
OCTOBER		141-	20116	1053	618-	4767		5035
NOVEMBER		39-	19025	7212	87	631		5383
DECEMBER		229-	3	117-	72	291		4
ANNUAL TOTAL		44453	140689	87405	15329-	12887	322505	56021
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		44453	140689	87405	15329-	12887	322505	56021

MINIMUM MONTHLY RUNOFF	170519-	8/44	(DURING FLOOD) LOW WATER 0 AT TIMES
MINIMUM CALENDAR YEAR RUNOFF	15329-	1955	
AVERAGE ANNUAL RUNOFF	143639	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/46	6/46	8/44	7/56	4/57	4/57
TOTAL ACRE FEET	64883-	64647-	58463-	13011-	274717	817180

ALLRED-FLEMING, HOUSTON

NOTES: 1) ONLY MINOR MUN & IND. USES
2) NEGATIVE INCREMENTAL MONTHLY RUNOFF VALUES IN THIS SUBBASIN FREQUENTLY RESULT FROM THE METHOD OF ESTIMATING RUNOFF IN THE LOWER FRIO & ATASCOSA RIVERS AND ARE NOT ACTUALLY LOSSES IN SUBBASIN 14 I

WATERSHED NO. 14 NUECES RIVER - SUBBASIN J FROM THREE RIVERS GAGE TO GAGE NEAR MATHIS AREA 1,060 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Actual Historic Runoff	Adjustments Use	Adjustments Storage	Adjusted Runoff	Averages	
1940	1	34,500	*	42,400-	7,900-		
41	2	90,000		8,900-	81,100		
42	2	136,400		11,900-	124,500		
43	2	12,200-		37,100-	49,300-		
44	5	40,400		36,400-	4,000		
45	5	34,800-		42,500-	77,300-		
						12,517	6 Yr.Av. 1940-45
1946	2	112,160		28,400-	83,760		
47	7	21,200		37,500-	16,300-		
48	4	14,700-		44,800-	59,500-		
49	3	96,900		30,000-	66,900		
50	4	15,300-		58,200-	73,500-		
51	4	20,200		42,900-	22,700-		
						3,540-	6 Yr.Av. 1946-51
1952	4	11,000		45,800-	34,800-		
53	3	48,500		42,600-	5,900		
54	7	1,900-		60,600-	62,500-		
55	34	19,700		77,100-	57,400-		
56	33	8,300-	*	65,300-	73,600-		
						44,480-	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 77,300- 1945

Average Annual Runoff 9,920- 1940-56

* - Insignificant

WATERSHED NO. 14 NUECES RIVER - SUBBASIN K NUECES R. FROM GAGE NEAR MATHIS TO MOUTH
AREA 294 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	14,795	26,749	72,000-	45,000 -		
41	16,400	72,764		1,000		
42	13,437	93,000		21,000		
43	15,260	14,141		58,000 -		
44	20,381	21,146		51,000 -		
45	28,210	16,396		56,000 -		
					31,000 -	6 Yr.Av. 1940-45
1946	26,680	34,014		38,000 -		
47	28,884	21,622		50,000 -		
48	30,351	2,578		69,000 -		
49	31,860	11,196		61,000 -		
50	35,934	1,223		71,000 -		
51	49,293	12,896		59,000 -		
					58,000 -	6 Yr.Av. 1946-51
1952	53,492	33,712		38,000 -		
53	56,616	17,491		55,000 -		
54	47,129	2,025		70,000 -		
55	51,990	1,771		70,000 -		
56	45,099	3,692	72,000-	68,000 -		
					60,000 -	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 71,000- 1950

Average Annual Runoff 49,058 - 1940-56

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN A RIO GRANDE RIVER ABOVE NEW MEXICO STATE LINE, AREA 29,169 SQ. MI.

ESTIMATED HISTORICAL RUNOFF IN ACRE FEET FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
	MONTHLY RUNOFF						
JANUARY	10700	8500	13000	15100	11900	11400	11767
FEBRUARY	12700	7230	52200	21800	15500	16700	21022
MARCH	38700	26500	62500	52400	46200	49000	45883
APRIL	57800	61400	139000	78600	74500	68300	79933
MAY	52200	58600	357000	82500	71700	66700	114783
JUNE	68300	61600	304000	82100	71800	63100	108483
JULY	68900	74200	198000	85600	83900	76200	97800
AUGUST	61000	82500	158000	84900	94000	81600	93667
SEPTEMBER	41700	71600	171000	63500	79200	60500	81250
OCTOBER	19000	25800	57900	27100	29500	35400	32450
NOVEMBER	11900	16700	21000	21300	16700	18400	17667
DECEMBER	11000	16800	25600	16900	17000	21600	18150
ANNUAL TOTAL	453900	511430	1559200	631800	611900	568900	722855
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	453900	511430	1559200	631800	611900	568900	722855

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
	MONTHLY RUNOFF						
JANUARY	12000	9860	7770	10800	9830	8460	9787
FEBRUARY	15200	9140	6510	8140	10200	6970	9293
MARCH	38400	37300	22300	34400	48000	24600	34167
APRIL	61400	65000	51600	57200	57700	32300	54200
MAY	63500	51800	49700	56200	56700	17900	49300
JUNE	59100	63200	59800	59100	59600	33900	55783
JULY	71100	69700	74800	73500	78400	45500	68833
AUGUST	77700	77800	71800	65500	68800	47800	68233
SEPTEMBER	45100	40600	41800	51500	44500	17100	40100
OCTOBER	25200	14600	18900	20100	18300	6930	17338
NOVEMBER	15200	10400	13400	14900	10900	5640	11740
DECEMBER	14000	9460	13300	12200	9700	5300	10660
ANNUAL TOTAL	497900	458860	431680	463540	472630	252000	429435
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	497900	458860	431680	463540	472630	252000	429435

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
	MONTHLY RUNOFF						
JANUARY	4290	4310	3250	533	234	100000	2525
FEBRUARY	3190	2870	2010	283	211	100000	1713
MARCH	8970	34900	5470	4580	11000	100000	12984
APRIL	26100	33000	22700	10500	17800	100000	22020
MAY	34400	24700	12700	2130	1220	100000	15030
JUNE	47100	35200	12500	6020	7340	100000	21632
JULY	51400	42400	16200	15000	9920	100000	26984
AUGUST	58000	46800	11700	12100	4870	100000	26694
SEPTEMBER	32700	26800	2430	13800	4300	100000	16006
OCTOBER	7410	5530	3790	1480	151		3672
NOVEMBER	5120	4290	540	391	229		2114
DECEMBER	5000	3690	435	272	206		1921
ANNUAL TOTAL	283680	264500	93725	67089	57481	900000	153295
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	283680	264500	93725	67089	57481	900000	153295

MINIMUM MONTHLY RUNOFF		151		10/56		
MINIMUM CALENDAR YEAR RUNOFF		57481		1956		
AVERAGE ANNUAL RUNOFF		451777		1940-1956		
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	12/56	2/55	12/56	12/56	12/56	12/56
TOTAL ACRE FEET	586	8011	57481	124570	766475	2845185

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN B RIO GRANDE RIVER FROM STATE LINE TO GAGE AT FORT QUITMAN (IN TEXAS), AREA 1,437 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	220098	141449	219181	284693	278179	314403	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2226	368	3436	2808	2565	3484	2481
FEBRUARY		1017-	411-	1017-	2323-	484-	1113-	1061-
MARCH		15580-	9123-	11422-	15634-	16747-	18891-	14566-
APRIL		26421-	24684-	30008-	30830-	29427-	23813-	27531-
MAY		22555-	18827-	23232-	31218-	25701-	27249-	24797-
JUNE		26475-	12922-	30976-	30008-	23909-	28498-	25465-
JULY		28072-	25265-	28072-	24054-	26862-	33812-	27690-
AUGUST		19312-	14230-	15004-	38338-	25265-	35061-	24535-
SEPTEMBER		16805-	484-	11616-	19408-	18489-	25497-	15383-
OCTOBER		4114-	9680	4162	1113-	2710-	11180	2848
NOVEMBER		872-	3775	1355	1936-	1452	1887	944
DECEMBER		523-	4550	2614	823-	1500	2566	1647
ANNUAL TOTAL		159520-	87573-	139780-	192877-	164077-	174817-	153107-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		159520-	87573-	139780-	192877-	164077-	174817-	153107-

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	294284	302308	260887	75028	278480	182699	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2710	2585	271	581	469	1530-	848
FEBRUARY		1888-	997	721-	325-	2043-	1757-	956-
MARCH		14419-	16088-	9796-	14433-	21151-	11078-	14494-
APRIL		27342-	29287-	24233-	25812-	25836-	15402-	24652-
MAY		24926-	22307-	23024-	24500-	24215-	8655-	21271-
JUNE		26591-	27908-	25289-	25787-	25410-	16398-	24564-
JULY		32907-	32767-	34325-	31750-	22071-	21551-	29229-
AUGUST		36402-	29669-	32292-	28309-	28217-	19311-	29033-
SEPTEMBER		15536-	16998-	17250-	10503-	15924-	7656-	13978-
OCTOBER		2275	4404-	3969-	290-	4017-	2696-	2184-
NOVEMBER		2178-	1404-	775-	1113	49-	1941-	872-
DECEMBER		194-	901-	1065-	532	504-	1558-	615-
ANNUAL TOTAL		177398-	178151-	172468-	159483-	168968-	109533-	161000-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		177398-	178151-	172468-	159483-	168968-	109533-	161000-

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	221641	214793	77671	52058	55944		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1277-	1304-	1493-	242-	101-	0	901-
FEBRUARY		1041-	1115-	894-	127-	91-	0	654-
MARCH		4180-	16697-	2579-	2212-	5322-	0	6198-
APRIL		12632-	15863-	10927-	5082-	8615-	0	10624-
MAY		16650-	11936-	5348-	1031-	559-	0	7105-
JUNE		22610-	16990-	5767-	2912-	3553-	0	10366-
JULY		23774-	13407-	7241-	6544-	4687-	0	11131-
AUGUST		27982-	21552-	1515-	5510-	353	0	11241-
SEPTEMBER		15701-	12844-	1124-	6350-	2081-	0	7620-
OCTOBER		3176-	2652-	851-	688	45-		1207-
NOVEMBER		1747-	2007-	228-	178-	111-		854-
DECEMBER		1142-	1723-	190-	120-	100-		655-
ANNUAL TOTAL		131912-	118180-	38157-	29620-	24912-		68556-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		131912-	118180-	38157-	29620-	24912-		68556-

MINIMUM MONTHLY RUNOFF	38338-	8/43	)
MINIMUM CALENDAR YEAR RUNOFF	192877-	1943	) FLOW DIVERTED FOR IRRIGATION
AVERAGE ANNUAL RUNOFF	131025-	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	8/45	9/45	1/44	9/45	1/48	2/52
TOTAL ACRE FEET	97371-	173930-	193120-	358399-	889857-	1642289-

NOTES: 1) NO USE ADJUSTMENT MADE

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN C PECOS RIVER ABOVE NEW MEXICO STATE LINE, AREA 19,754 SQ. MI.
(EXCLUDING RUNOFF ORIGINATING IN TEXAS*)

ESTIMATED HISTORICAL RUNOFF IN ACRE FEET FROM SUBBASIN

YEAR	1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL							
MONTHLY RUNOFF							
JANUARY	9655	9764	43345	24753	15334	14930	19630
FEBRUARY	8093	8087	29791	15316	14612	10239	14356
MARCH	6751	9549	18269	13238	11147	7495	11075
APRIL	5495	6951	40728	8089	7360	6262	12481
MAY	13019	432047	71288	9880	7774	6965	90162
JUNE	7950	189872	14674	10497	6833	5018	39141
JULY	6518	78856	10955	15395	6218	5947	20648
AUGUST	7091	50935	10766	6529	7876	8639	15306
SEPTEMBER	6765	389157	104627	9780	10488	5434	87709
OCTOBER	15654	323573	25555	11033	9313	7373	65417
NOVEMBER	7401	82342	69107	11572	11762	6672	31476
DECEMBER	9314	50131	30379	13863	12980	8052	20787
ANNUAL TOTAL	103706	1631264	469484	149945	121697	93026	428187
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	103706	1631264	469484	149945	121697	93026	428187

YEAR	1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL							
MONTHLY RUNOFF							
JANUARY	8329	15623	5393	7559	16842	11839	10931
FEBRUARY	8545	10093	5328	7108	8577	7309	7827
MARCH	6382	8209	3791	4875	8655	8020	6655
APRIL	3808	5195	1840	2700	5182	5729	4076
MAY	5703	6984	7301	6648	6910	6619	6694
JUNE	3911	4314	46179	11529	4440	4470	12474
JULY	3877	2400	4276	5576	29167	5821	8520
AUGUST	5231	2172	4108	4742	11094	3671	5170
SEPTEMBER	8808	3664	3000	49818	13444	4170	13817
OCTOBER	15790	3132	5419	23507	30689	5965	14084
NOVEMBER	15719	4332	5085	17180	19203	6044	11261
DECEMBER	9654	5193	4738	15535	13182	6542	9141
ANNUAL TOTAL	95757	71311	96458	156777	167385	76199	110648
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	95757	71311	96458	156777	167385	76199	110648

YEAR	1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL							
MONTHLY RUNOFF							
JANUARY	7158	4398	3330	6587	5966		5488
FEBRUARY	6450	3637	2853	2418	3035		3679
MARCH	4759	2824	2571	1996	3375		3105
APRIL	2635	1150	6880	1804	2594		3013
MAY	3592	2175	3052	1834	2526		2636
JUNE	2714	1433	1940	2161	1904		2030
JULY	4287	1402	573	4144	2175		2516
AUGUST	1377	664	10567	3219	1948		3555
SEPTEMBER	2216	1230	1098	12036	1830		3682
OCTOBER	3966	8883	165045	61456	6889		49248
NOVEMBER	3776	2677	8170	6676	3435		4947
DECEMBER	4211	2270	5214	7317	4017		4606
ANNUAL TOTAL	47141	32743	211293	111648	39694		88504
STORAGE ADJUSTMENT							
ADJUSTED ANNUAL TOTAL	47141	32743	211293	111648	39694		88504

MINIMUM MONTHLY RUNOFF		573		7/54		
MINIMUM CALENDAR YEAR RUNOFF		32743		1953		
AVERAGE ANNUAL RUNOFF		216208		1940-1956		
MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/53	9/53	3/54	7/54	9/54	9/54
TOTAL ACRE FEET	3296	8054	30638	69488	412554	903716

NOTES: *THE DELAWARE RIVER, WITH MOST OF ITS DRAINAGE AREA IN TEXAS, FLOWS NORTH AND ENTERS THE PECOS IN NEW MEXICO

ALLRED-FLEMING, HOUSTON

F-104

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN D PECOS RIVER FROM NEW MEXICO STATE LINE TO GAGE NEAR GIRVIN, AREA 9,808 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	129945	114004	90646	194135	179831	178895	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		3735	4670	14349	8587	5816	5330	7081
FEBRUARY		5559	4062	8955	2510	2270	2704-	3442
MARCH		1688-	5119	2815	6144-	6724-	12192-	3136-
APRIL		19794-	25723-	27270-	24059-	26537-	18816-	23700-
MAY		1563-	124417-	29855-	12828-	18221-	20607-	34582-
JUNE		5272-	7212	1554-	11901-	17605-	24439-	8927-
JULY		20633-	34678-	28647-	21327-	29402-	4050-	23123-
AUGUST		2683-	16236-	16470-	36052-	15361-	26063-	18811-
SEPTEMBER		6700-	312358-	2203-	5532-	4391	10904-	55551-
OCTOBER		6997	173808	2349	5201	4855	7266	33413
NOVEMBER		5753	91720	10030-	4641	3798	3700	16597
DECEMBER		5282	22296	5557	5631	4931	3323	7837
ANNUAL TOTAL		31007-	204525-	82004-	91273-	87789-	100156-	99459-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		31007-	204525-	82004-	91273-	87789-	100156-	99459-

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	115518	115460	118294	93173	156209	118032	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		6494	3523	2523	2808	2338	3064	3458
FEBRUARY		739	1986	1947	2368	2017	3438-	937
MARCH		3317-	5365-	1846	1895-	11514-	500-	3458-
APRIL		18983-	28864-	16746-	11702-	22127-	20395-	19803-
MAY		8524-	5413-	2665-	891	14080-	20915-	8451-
JUNE		1551-	4728-	27270-	2603-	14060-	7210-	9570-
JULY		12560-	15020-	12391-	15902-	16832-	25893-	16483-
AUGUST		560-	5237-	7905-	4759-	29783-	7492-	9289-
SEPTEMBER		5236	1430-	1000	4535	315	1340	1833
OCTOBER		3886	1314	1377	2562	8250	5130	3753
NOVEMBER		1521	1146	1036	1691	797	5144	1889
DECEMBER		2823	2826	2485	1576	2970	4397	2846
ANNUAL TOTAL		24796-	55262-	54763-	20430-	91709-	66768-	52288-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		24796-	55262-	54763-	20430-	91709-	66768-	52288-

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	93882	45582	67738	133307	64167		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		6173	1620	783	51-	885		1882
FEBRUARY		5611	1210	33	316	871		1608
MARCH		736	843	12704-	15821-	1785-		5746-
APRIL		4733-	590	9069	22562-	15185-		6564-
MAY		1169	383	2999-	11226-	5405-		3616-
JUNE		367-	90-	3819-	21159-	12437-		7574-
JULY		3429-	579-	11209-	28425-	17549-		12228-
AUGUST		8774-	725-	2427-	29062-	13444-		10886-
SEPTEMBER		318	174	8349-	5308-	3778-		3389-
OCTOBER		1012	4567	9312	60675	175-		15078
NOVEMBER		1325	343	1	148-	217		348
DECEMBER		1672	483	118-	134-	211		423
ANNUAL TOTAL		713	8869	22427-	72905-	67574-		30665-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		713	8869	22427-	72905-	67574-		30665-

MINIMUM MONTHLY RUNOFF	2)	312358-	9/41 (DURING FLOOD) LOW FLOW 36052- 8/43	2)
MINIMUM CALENDAR YEAR RUNOFF	2)	204525-	1941	
AVERAGE ANNUAL RUNOFF	2)	62577-	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/41	9/41	9/41	3/43	3/46	3/51
TOTAL ACRE FEET	363272-	506200-	474317-	295427-	575682-	827432-

NOTES: 1) NO USE ADJUSTMENT MADE 2) MOST OF INFLOW DIVERTED FOR IRRIGATION

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN E PECOS RIVER FROM GAGE NEAR GIRVIN TO GAGE NEAR SHUMLA, AREA 5,600 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	190	482	313	305	537	447	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		11589	11953	20112	14288	13754	11222	13820
FEBRUARY		10476	10862	18952	15485	11068	9381	12704
MARCH		10006	12857	20244	14603	10602	10389	13117
APRIL		9327	36218	17212	12391	7842	9233	15371
MAY		17054	25307	10940	15723	9563	7041	14271
JUNE		31018	15092-	17183	10763	9060	4889	9637
JULY		13219	25516	12808	12944	7681	31948	17353
AUGUST		15722	18572	32960	7655	9171	7296	15229
SEPTEMBER		10121	16735	18110	7921	24163	7829	14147
OCTOBER		10364	36373-	19262	8539	11764	45577	9856
NOVEMBER		12179	29116	12388	9231	10367	11924	14201
DECEMBER		11556	17828	15475	11958	11177	9373	12895
ANNUAL TOTAL		162631	153499	215646	141501	136212	166102	162599
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		162631	153499	215646	141501	136212	166102	162599

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	1196	1408	1296	725	801	631	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		10215	13120	10071	9918	10173	11233	10788
FEBRUARY		10682	9877	10557	10254	8443	11099	10152
MARCH		12064	10165	9140	9274	8366	10143	9859
APRIL		11591	8190	6353	33560	9103	7172	12662
MAY		15373	24405	9403	25860	8589	16108	16623
JUNE		17445	16381	6178	15201	10039	6763	12001
JULY		8481	8153	38066	48022	31670	4178	23095
AUGUST		6367	9905	5136	27695	8810	5873	10631
SEPTEMBER		11078	13632	8176	17002	17740	4467	12016
OCTOBER		85178	9558	10419	19050	9167	5244	23103
NOVEMBER		13261	9674	9154	13754	8885	6982	10285
DECEMBER		12335	10512	9923	10579	9928	7410	10115
ANNUAL TOTAL		214070	143572	132576	240169	140913	96672	161329
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		214070	143572	132576	240169	140913	96672	161329

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	443	185	2963	7191	669		
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		7150	7800	7634	10670	9710		8593
FEBRUARY		7277	7194	6275	8430	9050		7645
MARCH		6016	7326	6759	9660	7610		7474
APRIL		6448	5284	69393	8440	6510		19215
MAY		7985	4509	43492	13870	9006		15772
JUNE		5629	3112	1706210	18480	5188		347724
JULY		5893	6876	45251	27860	4360		18048
AUGUST		3420	14490	20254	24830	4381		13475
SEPTEMBER		5247	10216	13883	27490	5488		12465
OCTOBER		4309	11591	11119	15900	20470		12678
NOVEMBER		5476	7494	10713	10730	7690		8421
DECEMBER		7249	7611	10563	10590	7620		8727
ANNUAL TOTAL		72099	93503	1951546	186950	97083		480236
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		72099	93503	1951546	186950	97083		480236

MINIMUM MONTHLY RUNOFF	36373-	10/41	(DURING FLOOD) LOW WATER 3420 8/52
MINIMUM CALENDAR YEAR RUNOFF	72099	1952	
AVERAGE ANNUAL RUNOFF	255573	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	10/41	11/52	6/53	6/53	3/54	3/54
TOTAL ACRE FEET	1066-	29974	66819	141478	634578	1421132

NOTES: 1) ONLY MINOR MUN. & IND. USES

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 15 RIO GRANDE - SUBBASIN F DEVILS RIVER ABOVE MOUTH
AREA 4,305 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consump-tive Use	Actual Historic Runoff	Est. Spring Flow	Adjusted Runoff	Averages	
1940	*	245,800	110,000	355,800		
41	*	259,200	120,000	379,200		
42	*	347,500	245,000	592,500		
43	*	268,000	140,000	408,000		
44	*	255,000	85,000	340,000		
45	*	288,000	70,000	358,000		
					405,583	6 Yr.Av. 1940-45
1946	*	229,900	75,000	304,900		
47	*	180,000	70,000	250,000		
48	*	808,510	85,000	893,510		
49	*	638,700	265,000	903,700		
50	*	267,400	110,000	377,400		
51	*	139,830	45,000	184,830		
					485,723	6 Yr.Av. 1946-51
1952	*	131,830	45,000	176,830		
53	*	138,130	45,000	183,130		
54	*	923,220	95,000	1,018,220		
55	*	296,400	45,000	341,400		
56	*	110,000	40,000	150,000		
					373,916	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 150,000 1956

Average Annual Runoff 424,554 1940-56

* NO USE REPORTED

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN G RIO GRANDE RIVER FROM GAGE AT FORT QUITMAN TO DIABLO DAM SITE
EXCLUDING PECOS AND DEVILS RIVERS, AREA 12,617 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	TOTAL 1)	6435	7280	5785	7866	10414	9156	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		14234	15841	23510	22699	18928	12764	17996
FEBRUARY		16296	16478	14854	16874	20066	14263	16472
MARCH		16151	18489	22058	18473	16082	14800	18009
APRIL		23674	46014	0	20724	14173	24965	21592
MAY		46379	82172	0	33105	17863	13568	32181
JUNE		28185	32625	15749	28025	29014	12813	24402
JULY		22832	71623	27766	29767	6995	90748	41622
AUGUST		44934	44045	6827	29811	31034	20250	29484
SEPTEMBER		25944	29423	60561	0	27795	22964	27781
OCTOBER		52658	145464	69554	32102	39368	49295	64740
NOVEMBER		22542	50582	22626	22003	20488	20509	26459
DECEMBER		17912	36736	26725	18669	16289	22577	23151
ANNUAL TOTAL		331741	589492	290230	272254	260095	319516	343888
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		331741	589492	290230	272254	260095	319516	343888

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	TOTAL 1)	9667	10523	10582	11898	13633	9765	
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		19069	4573	15391	16342	22548	17523	15908
FEBRUARY		17418	45046	16120	54053	17688	12768	27182
MARCH		16797	28856	14993	31705	20213	22645	22535
APRIL		22927	23203	19679	48448	19762	16707	25121
MAY		40474	36831	20176	37231	19715	32025	31075
JUNE		82471	23573	38525	58789	35640	41896	46816
JULY		36604	25555	50042	41055	37789	26402	36241
AUGUST		20178	8890	27609	71770	42830	17742	31503
SEPTEMBER		32821	50808	23276	49378	64315	26685	41214
OCTOBER		65097	25878	26587	42788	44428	15024	36634
NOVEMBER		25150	13784	18807	21480	16928	16194	18724
DECEMBER		24947	20981	16883	23788	18494	12953	19674
ANNUAL TOTAL		403953	307978	288088	496827	360350	258564	352627
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		403953	307978	288088	496827	360350	258564	352627

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	TOTAL 1)	10877	9880	10514	10789	13098		
	MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE							
JANUARY		13970	11517	13204	19452	19969		15622
FEBRUARY		13724	10460	12299	17957	16908		14270
MARCH		14754	15869	13570	19618	17529		16268
APRIL		19566	14203	71062	18177	17754		28152
MAY		35640	11925	46796	60540	21541		35288
JUNE		16863	11248	233377	47529	18166		65437
JULY		89204	16175	65636	38931	14445		44878
AUGUST		18085	23690	52612	42769	16228		30677
SEPTEMBER		9506	28725	55330	90350	16964		40175
OCTOBER		14555	18642	44234	35640	46924		31991
NOVEMBER		12311	12999	30080	23832	16367		19118
DECEMBER		12478	13759	29737	20412	15553		18388
ANNUAL TOTAL		270656	189172	667937	435207	238348		360264
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL	2)	270656	189172	667937	435207	238348		(360264) ADJUSTED TO 337000

MINIMUM MONTHLY RUNOFF		0	AT TIMES	
MINIMUM CALENDAR YEAR RUNOFF	2)	(189172)	1953	ADJUSTED TO 170000
AVERAGE ANNUAL RUNOFF	2)	(351789)	1940-1956	ADJUSTED TO 309000

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/42	2/53	7/53	7/53	3/54	3/54
TOTAL ACRE FEET	15749	70827	158332	450651	1512542	3137196

NOTES: 1) ONLY MINOR MUN. & IND. USES
2) VALUES IN PARENTHESIS INCLUDE INFLOW FROM SPRINGS NEAR MOUTH OF DEVILS RIVER REPORTED UNDER 15F. ADJUSTED FIGURES EXCLUDE THIS FLOW.

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN H RIO GRANDE RIVER FROM DIABLO DAM SITE TO LAREDO GAGE (IN TEXAS), AREA 3,028 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	1195	773	2124	2486	2515	2503	
	IRRIGATION	28605	7207	8934	26674	8002	8007	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1856-	1441	4694	1577-	4681-	696	214-
FEBRUARY		5697-	53801-	10959-	7867-	5749-	4694-	14795-
MARCH		4724-	12695-	16694-	12893-	12159-	8695-	11310-
APRIL		3920	40626-	2923-	1480-	13869-	17148	6305-
MAY		45408	39597	26951	4441	4686	11790-	18216
JUNE		24391	533	18224-	32940	10263-	22340-	1173
JULY		3351	21277-	66910	12988-	23053-	38800-	4310-
AUGUST		9196-	18719-	64141-	11228-	107724	19964-	2587-
SEPTEMBER		975-	12972-	8850-	5316-	6048-	19081-	8874-
OCTOBER		14715	58170-	19863	2086-	2645	44436	3567
NOVEMBER		10257-	2987-	1812-	364	9132-	11226-	5842-
DECEMBER		3350-	10895-	1075-	4477-	1895-	7059-	4792-
ANNUAL TOTAL		55730	190571-	6260-	22167-	28206	81369-	36072-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		55730	190571-	6260-	22167-	28206	81369-	36072-

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	2045	3647	3410	4563	3240	1408	
	IRRIGATION	8772	53733	62975	109909	118847	134542	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		8035-	1303-	6092-	861-	3521	4824-	2932-
FEBRUARY		12399-	6126-	9728-	65245	481-	9890-	4437
MARCH		19301-	12034-	11938-	3059	5346-	7325-	8814-
APRIL		5718	11502-	15446-	24494	5841-	8018-	1766-
MAY		53184	17333	15764-	5541	10015	53689	20666
JUNE		4916-	72849	175184	51434	11452	2693	51449
JULY		5826-	8273-	46813	24316-	14287-	22613-	4750-
AUGUST		2258-	1406-	6954-	15658	3031-	8421-	1069-
SEPTEMBER		12266-	8628-	65175	9514	3467-	8466	9799
OCTOBER		10185	5040-	171	13197	3787-	3474-	1875
NOVEMBER		4348-	10738-	3362-	2084	9402-	4976-	5124-
DECEMBER		4076-	6146-	1914-	5081	8832-	3721-	3268-
ANNUAL TOTAL		4338-	18986	216145	170130	29486-	8414-	60504
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		4338-	18986	216145	170130	29486-	8414-	60504

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND.	4282	1828	1684	4335	7193		
	IRRIGATION	161187	162852	161715	152014	156075		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		1880-	3074-	2937-	7154	4898		832
FEBRUARY		4310-	5683-	4096-	4815	370-		1929-
MARCH		6271-	918	10117-	6515-	7675-		5932-
APRIL		6121-	7923-	16232-	10191-	7996-		9693-
MAY		23256	3678-	39009	7596-	9862-		8226
JUNE		3026	17319-	444560-	10770-	17564-		97437-
JULY		7000-	22262-	180346	1849-	104		29868
AUGUST		6169-	43876	4914	19316	14010-		9585
SEPTEMBER		7766-	109497	40468	581-	14840		31292
OCTOBER		11703-	1096-	52464	6622	16800		12617
NOVEMBER		5076-	4671-	9675	6347	1237-		968
DECEMBER		3465-	4302-	9603	5620	227-		1634
ANNUAL TOTAL		33479-	84023	141463-	13372	22299-		19969-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		33479-	84023	141463-	13372	22299-		19969-

MINIMUM MONTHLY RUNOFF							
MINIMUM CALENDAR YEAR RUNOFF	1)		190571-		1941		
AVERAGE ANNUAL RUNOFF	1)		2750		1940-1956		

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	6/54	6/54	6/54	6/54	6/54	6/54
TOTAL ACRE FEET	421783-	438933-	318151-	396089-	405071-	36494-

NOTES: 1) DIVERSIONS PLUS CHANNEL LOSSES FREQUENTLY EXCEED SIDE INFLOW

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN I RIO GRANDE RIVER FROM LAREDO GAGE TO CHAPENO GAGE, AREA 2,044 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE TOTAL	1)	6957	2435	6004	9414	11676	11298	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		4591-	3273	6043-	1974-	3087-	1523-	2324-
FEBRUARY		4399-	778	6222-	1699-	3985-	1085-	2769-
MARCH		54353	2955-	308	5531-	1851	3094	8520
APRIL		2399	8052-	5676-	6236-	3225-	19470	220-
MAY		10563-	66368	2101-	4792-	46083	38-	15811
JUNE		42084	42331	259-	10815	10740	317	17671
JULY		15153	1930	75164	11630	2922-	14871	19304
AUGUST		7402-	130-	5742-	1665	12192-	3572	3372-
SEPTEMBER		22397	17275-	38142	43719	44395	8057-	20554
OCTOBER		44389	6292	15541	7556	11966	10016	15960
NOVEMBER		2423	27776	1791-	10703-	866	2904-	2611
DECEMBER		1510-	5604	11968-	8887	1728-	3604-	720-
ANNUAL TOTAL		154733	125940	89263	53337	88762	34129	91027
STORAGE ADJUSTMENT	2)							
ADJUSTED ANNUAL TOTAL		154733	125940	89263	53337	88762	34129	91027

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE TOTAL	1)	9096	11885	11462	13853	11554	15287	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		761-	2053-	1421-	444-	285	3834-	1371-
FEBRUARY		1393-	538	692	16792-	869	6520-	3768-
MARCH		3946-	627-	1518	11142	829-	3664-	599
APRIL		2012-	924	1639-	233082	8698	4651-	39067
MAY		80454	6181	11509	19306	57721	5434-	28290
JUNE		7855	11292	82775-	1258	21102	17587	3947-
JULY		1927-	229	8184-	3221-	9912-	10897-	5652-
AUGUST		981	32656	1346-	12308	4922-	4338-	5890
SEPTEMBER		5480	2805	43364	13711	9805-	112567	28020
OCTOBER		27134	1455	28665	11884	7089	2302-	12321
NOVEMBER		4957-	331138	1726-	6454	1158-	358	55022
DECEMBER		5328-	2006-	436-	6557	1289-	1084-	598-
ANNUAL TOTAL		101580	382552	11779-	295245	67849	87788	153873
STORAGE ADJUSTMENT	2)							
ADJUSTED ANNUAL TOTAL		101580	382552	11779-	295245	67849	87788	153873

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE TOTAL	1)	15816	15384	16536	17674	31024		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		2856-	4254-	80101	149121	140568	28410-	72536
FEBRUARY		4879-	5011-	138272	88098	153358	33783-	73968
MARCH		3375-	2298-	134548	57933	65279	32845-	50417
APRIL		6097-	4802	87385-	171692	64241	251970-	29451
MAY		635	5454	17028-	206429	106965	744255-	60491
JUNE		11279	1315-	916527-	181337	143168	197969-	116416-
JULY		8588-	6998-	311075-	61882-	15495-	33605-	80808-
AUGUST		3075-	279567-	77597-	92689-	6151-	47258-	91816-
SEPTEMBER		127-	206612-	83354-	288481-	31507-	88356-	122016-
OCTOBER		5621-	21697-	121217-	100041-	76817-		65079-
NOVEMBER		5529-	9089	26196-	7989-	19236-		9972-
DECEMBER		5924-	12366	2461	45895	68604		24680
ANNUAL TOTAL		34157-	496061-	1284997-	349423	592977	1458451-	174563-
STORAGE ADJUSTMENT	2)							
ADJUSTED ANNUAL TOTAL		34157-	496061-	1284997-	349423	592977	1458451-	174563-

MINIMUM MONTHLY RUNOFF		916527-	6/54) NEGATIVE VALUES
MINIMUM CALENDAR YEAR RUNOFF	2,3)	1284997-	1954) DUE TO DIVERSIONS TO LOWER VALLEY
AVERAGE ANNUAL RUNOFF	2,3)	35093	1940-1956)

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	8/54	11/54	9/57	11/54	9/57	9/57
TOTAL ACRE FEET	1305199-	1535966-	1485900-	1789443-	2314183-	1561556-

NOTES: 1) NO MUN. & IND. USES 2) SEE I.B.W.C. DATA IN APPENDIX G
3) NOT ADJUSTED FOR FALCON RESERVOIR STORAGE

ALLRED-FLEMING, HOUSTON

F-110

WATERSHED NO. 15 RIO GRANDE RIVER - SUBBASIN J RIO GRANDE RIVER FROM CHAPENO GAGE TO MOUTH, AREA 1,206 SQ. MI.

ESTIMATED NET RUNOFF IN ACRE FEET FROM SUBBASIN, ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

YEAR		1940	1941	1942	1943	1944	1945	6 YR. AV. 1940-1945
REPORTED ANNUAL USE	MUN. & IND.	353	466	2988	7752	6070	8333	
	IRRIGATION	638025	251968	367585	742375	606542	786080	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		77326-	99291-	85414-	70126-	87858-	76862-	82813-
FEBRUARY		110754-	99861-	115809-	95042-	125588-	81702-	104793-
MARCH		141732-	138807-	157104-	122020-	147747-	135943-	140559-
APRIL		101145-	136051-	152133-	104783-	130799-	141893-	127801-
MAY		133776-	140745-	170794-	128872-	196480-	107444-	146352-
JUNE		134367-	175902-	185018-	102764-	104691-	110493-	135539-
JULY		95742-	135494-	154167-	196642-	140419-	206271-	154789-
AUGUST		153041-	170673-	186576-	127335-	640441-	125917-	233997-
SEPTEMBER		102646-	203691-	236678-	118330-	278518-	85597-	170910-
OCTOBER		148284-	201765-	125182-	116086-	114163-	249237-	159120-
NOVEMBER		74433-	121256-	121390-	96724-	108099-	120724-	107104-
DECEMBER		66372-	95761-	106105-	73644-	100882-	92739-	89251-
ANNUAL TOTAL		1339618-	1719297-	1796370-	1352368-	2175685-	1534822-	1653027-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1339618-	1719297-	1796370-	1352368-	2175685-	1534822-	1653027-

YEAR		1946	1947	1948	1949	1950	1951	6 YR. AV. 1946-1951
REPORTED ANNUAL USE	MUN. & IND.	19022	11632	25589	26675	31244	28001	
	IRRIGATION	878195	805460	1025163	979012	1255862	888993	
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		73322-	97850-	77106-	90346-	89891-	95545-	87343-
FEBRUARY		72067-	134226-	62652-	193880-	99455-	103058-	110890-
MARCH		125113-	137749-	78612-	29872-	77992-	128724-	96344-
APRIL		140894-	116715-	106527-	325702-	91594-	111826-	148876-
MAY		231554-	140107-	103229-	97940-	155986-	162857-	148612-
JUNE		83772-	187057-	379592-	180431-	86144-	179319-	182719-
JULY		138237-	137495-	135101-	154804-	135081-	97419-	133023-
AUGUST		170371-	181276-	127990-	155786-	126242-	106794-	144743-
SEPTEMBER		135254-	150489-	271506-	139957-	168633-	155265-	170184-
OCTOBER		127992-	128957-	109775-	139140-	79252-	92763-	112980-
NOVEMBER		112652-	446000-	84271-	96137-	89915-	83092-	152021-
DECEMBER		96879-	75908-	94047-	87637-	76174-	77852-	84750-
ANNUAL TOTAL		1508107-	1933889-	1630408-	1691632-	1276359-	1394514-	1572485-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1508107-	1933889-	1630408-	1691632-	1276359-	1394514-	1572485-

YEAR		1952	1953	1954	1955	1956	1957	5 YR. AV. 1952-1956
REPORTED ANNUAL USE	MUN. & IND	26715	36789	36995	46908	65578		
	IRRIGATION	592064	535317	1493166	1564488	799692		
MONTHLY RUNOFF ADJUSTED FOR PRESENT CONDITIONS OF USE								
JANUARY		95870-	67701-	20805-	27948-	24822-		47429-
FEBRUARY		107508-	87220-	29325-	18957-	25116-		53625-
MARCH		140536-	110270-	29512-	13292-	11992-		61120-
APRIL		113475-	98770-	14145-	26226-	10681-		52659-
MAY		184757-	98655-	30515-	39500-	16999-		74085-
JUNE		109818-	95038-	31460-	32880-	19971-		57837-
JULY		237098-	106119-	15529-	6169-	1240-		73231-
AUGUST		124522-	104498-	19862-	15349-	1831-		53212-
SEPTEMBER		98907-	62980-	14843-	1797-	5837-		36873-
OCTOBER		93729-	72608-	8979-	7725-	1923-		36993-
NOVEMBER		99733-	87704-	12676-	9257-	2103-		42295-
DECEMBER		84953-	68493-	14261-	14824-	13682-		39243-
ANNUAL TOTAL		1490906-	1060076-	241912-	213924-	136197-		628603-
STORAGE ADJUSTMENT								
ADJUSTED ANNUAL TOTAL		1490906-	1060076-	241912-	213924-	136197-		628603-

MINIMUM MONTHLY RUNOFF	640441-	8/44	DIVERSIONS EXCEED INFLOW
MINIMUM CALENDAR YEAR RUNOFF	136197-	1956	
AVERAGE ANNUAL RUNOFF	1323299-	1940-1956	

MINIMUM TOTALS FOR PERIODS OF CONSECUTIVE MONTHS	3	6	12	24	60	120
FINAL MONTH	9/44	9/44	12/44	4/49	4/49	1/50
TOTAL ACRE FEET	1059378-	1491348-	2175685-	3717557-	8930719-	16694761-

ALLRED-FLEMING, HOUSTON

WATERSHED NO. 16 COASTAL - SUBBASIN A FROM NECHES R. TO TRINITY BAY DRAINAGE AREA 926 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	17,756	1,100,000	34,000-	1,066,000		
41	19,411	1,221,000		1,187,000		
42	22,548	978,000		944,000		
43	23,550	689,000		655,000		
44	24,458	673,000		639,000		
45	25,948	1,022,000		988,000		
					913,167	6 Yr.Av. 1940-45
1946	22,218	1,604,000		1,570,000		
47	23,926	682,000		648,000		
48	23,114	326,000		292,000		
49	25,492	1,261,000		1,227,000		
50	21,738	1,381,000		1,347,000		
51	24,811	247,000		213,000		
					882,833	6 Yr.Av. 1946-51
1952	26,105	398,000		364,000		
53	29,275	767,000		733,000		
54	33,778	180,000		146,000		
55	33,470	271,000		237,000		
56	24,364	284,000	34,000-	250,000		
					346,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 146,000 1954

Average Annual Runoff 735,647 1940-56

WATERSHED NO. 16 COASTAL - SUBBASIN B TRINITY R. COASTAL AREA EXCLUD. CEDAR BAYOU AREA 536 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consump-tive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	800	447,000	10,000-	437,000		
41	2,162	757,000		747,000		
42	944	462,000		452,000		
43	4,206	314,000		304,000		
44	5,382	404,000		394,000		
45	4,801	606,000		596,000		
					488,333	6 Yr.Av. 1940-45
1946	5,254	1,099,000		1,089,000		
47	6,770	379,000		369,000		
48	7,042	176,000		166,000		
49	7,781	708,000		698,000		
50	5,546	666,000		656,000		
51	7,225	125,000		115,000		
					515,500	6 Yr.Av. 1946-51
1952	9,580	211,000		201,000		
53	10,624	467,000		457,000		
54	10,603	85,000		75,000		
55	9,799	185,000		175,000		
56	10,266	117,000	10,000-	107,000		
					203,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 75,000 1954

Average Annual Runoff 414,000 1940-56

WATERSHED NO. 16 COASTAL - SUBBASIN C SAN JACINTO COASTAL AREA, CEDAR BAYOU TO CLEAR CREEK AREA 593 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	*	270,000	12,000-	258,000		
41	*	938,000		926,000		
42	*	359,000		347,000		
43	*	311,000		299,000		
44	3,400	660,000		648,000		
45	3,786	735,000		723,000		
					534,000	6 Yr.Av. 1940-45
1946	4,931	1,022,000		1,010,000		
47	7,050	355,000		343,000		
48	1,509	122,000		110,000		
49	10,611	467,000		455,000		
50	7,696	266,000		254,000		
51	12,141	57,000		45,000		
					370,000	6 Yr.Av. 1946-51
1952	7,515	203,000		191,000		
53	6,462	418,000		406,000		
54	3,073	213,000		201,000		
55	4,644	158,000		146,000		
56	4,327	65,000	12,000-	53,000		
					199,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 45,000 1951

Average Annual Runoff 377,000 1940-56

* NO REPORTED USE

WATERSHED NO. 16 COASTAL - SUBBASIN D FROM DICKINSON BAYOU TO OYSTER CREEK
AREA 1,382 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	6,969	698,000	75,000-	623,000		
41	9,459	2,009,000		1,934,000		
42	12,076	732,000		657,000		
43	13,781	577,000		502,000		
44	14,572	1,379,000		1,304,000		
45	13,756	1,575,000		1,500,000		
					1,086,666	6 Yr.Av. 1940-45
1946	15,728	2,147,000		2,072,000		
47	17,468	789,000		714,000		
48	15,018	261,000		186,000		
49	34,980	1,419,000		1,344,000		
50	37,491	505,000		430,000		
51	40,117	131,000		56,000		
					800,333	6 Yr.Av. 1946-51
1952	46,544	495,000		420,000		
53	50,195	893,000		818,000		
54	58,927	283,000		208,000		
55	47,757	343,000		268,000		
56	75,092	152,000	75,000-	77,000		
					358,200	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 56,000 1951

Average Annual Runoff 771,353 1940-56

WATERSHED NO. 16 COASTAL - SUBBASIN E SAN BERNARD RIVER BASIN
AREA 945 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	6,319	404,000	11,000-	393,000		
41	6,034	1,211,000		1,200,000		
42	6,490	415,000		404,000		
43	4,677	344,000		333,000		
44	6,463	746,000		735,000		
45	6,650	781,000		770,000		
					639,000	6 Yr.Av. 1940-45
1946	5,987	1,011,000		1,000,000		
47	7,119	350,000		339,000		
48	7,690	97,000		86,000		
49	9,074	559,000		548,000		
50	10,096	255,000		244,000		
51	9,220	54,000		43,000		
					377,000	6 Yr.Av. 1946-51
1952	11,246	247,000		236,000		
53	9,598	392,000		381,000		
54	10,604	99,000		88,000		
55	8,017	155,000		144,000		
56	5,946	34,000	11,000-	23,000		
					174,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 23,000 1956

Average Annual Runoff 409,800 1940-56

WATERSHED NO. 16 COASTAL - SUBBASIN F LINVILLE CREEK AND LAVACA BAY DRAINAGE AREA 3,285 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	3,478	1,533,000	16,000-	1,517,000		
41	2,198	3,685,000		3,669,000		
42	3,515	2,578,000		2,562,000		
43	3,426	842,000		826,000		
44	3,351	2,353,000		2,337,000		
45	4,099	1,901,000		1,985,000		
					2,149,000	6 Yr.Av. 1940-45
1946	5,482	2,722,000		2,706,000		
47	6,674	1,317,000		1,301,000		
48	7,915	391,000		375,000		
49	8,619	1,545,000		1,529,000		
50	5,490	588,000		572,000		
51	13,629	229,000		213,000		
					1,116,000	6 Yr.Av. 1946-51
1952	11,980	687,000		671,000		
53	16,299	1,135,000		1,119,000		
54	13,805	657,000		641,000		
55	13,787	374,000		358,000		
56	9,723	186,000	16,000-	170,000		
					592,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 170,000 1956

Average Annual Runoff 1,326,500 1940-56

WATERSHED NO. 16 COASTAL - SUBBASIN G MATAGORDA BAY TO MISSION RIVER
AREA 803 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	*	240,170	0	--- Same as Histroic Runoff ---		
41	*	474,340	0			
42	*	463,900	0			
43	*	52,890	0			
44	*	148,040	0			
45	*	73,950	0			
					242,215	6 Yr.Av. 1940-45
1946	*	236,940	0			
47	*	86,080	0			
48	*	50,020	0			
49	*	95,280	0			
50	*	13,140	0			
51	*	28,970	0			
					85,072	6 Yr.Av. 1946-51
1952	*	114,780	0			
53	*	75,120	0			
54	*	79,660	0			
55	*	46,180	0			
56	*	6,120	0			
					64,372	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 6,120 1956

Average Annual Runoff 134,446 1940-56

* NO REPORTED USE

WATERSHED NO. 16 COASTAL - SUBBASIN H MISSION RIVER ABOVE MOUTH
AREA 1,148 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940		97,000	0			
41		345,000	0			
42		353,000	0			
43		54,000	0			
44		91,000	0			
45		71,000	0			
					167,000	6 Yr.Av. 1940-45
1946	--- None Reported ---	129,000	0	--- Same as Historic ---		
47		86,000	0			
48		114,000	0			
49		47,000	0			
50		4,000	0			
51		48,000	0			
					71,000	6 Yr.Av. 1946-51
1952		108,000	0			
53		78,000	0			
54		9,000	0			
55		7,000	0			
56		13,000	0			
					43,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 7,000 1955

Average Annual Runoff 97,294 1940-56

WATERSHED NO. 16 COASTAL - SUBBASIN I ARANSAS R. COASTAL AREA, MISSION R. TO NUECES RIVER AREA 1,109 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consump-tive Use	ESTIMATED Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	*	87,000	0			
41	*	367,000	0			
42	*	336,000	0			
43	*	37,000	0			
44	*	83,000	0			
45	*	65,000	0			
					154,000	6 Yr.Av. 1940-45
1946	*	113,000	0			
47	*	76,000	0			
48	*	8,000	0			
49	*	46.000	0			
50	*	4,000	0			
51	*	30,000	0			
					46,000	6 Yr.Av. 1946-51
1952	*	90,000	0			
53	*	55,000	0			
54	*	9,000	0			
55	*	7,000	0			
56	*	14,000	0			
					35,000	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 7,000 1955

Average Annual Runoff 78,000 1940-56

* NO REPORTED USE

WATERSHED NO. 16 COASTAL - SUBBASIN J SO. OF NUECES, TO & INCLUD. LOS OLMOS CR.
AREA 3,760 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use	Estimated Historic Runoff	Adjustments	Adjusted Runoff	Averages	
1940	*	79,769	3,000-	77,000		
41	*	456,610		454,000		
42	*	122,404		119,000		
43	*	134,782		132,000		
44	*	70,142		67,000		
45	*	20,630		18,000		
					144,500	6 Yr.Av. 1940-45
1946	237	124,294		121,000		
47	3,120	127,906		125,000		
48	*	61,889		59,000		
49	*	127,906		125,000		
50	*	6,877		4,000		
51	*	107,276		104,000		
					89,667	6 Yr.Av. 1946-51
1952	*	11,003		8,000		
53	*	55,013		52,000		
54	*	27,507		25,000		
55	*	59,139		56,000		
56	*	13,753	3,000-	11,000		
					30,400	5 Yr.Av. 1952-56

Min. Cal. Yr. Runoff 4,000 1950

Average Annual Runoff 91,588 1940-56

* NO REPORTED USE

WATERSHED NO. 17 RIO GRANDE DRAINAGE
AREA 1,777 SQ. MI.

ESTIMATED NET ANNUAL-RUNOFF IN ACRE FEET FROM SUBBASIN ADJUSTED ON BASIS OF PRESENT CONSUMPTIVE USES

Year	Reported Consumptive Use Below Gage	Actual Historic Runoff at Sebastian Gage	Estimated Net Runoff	Use Adjustment	Adjusted Runoff
1940	*	*	0	0	0
41	0	77,760	77,760	4,063-	73,697
42	0	30,800	30,800	4,063-	26,737
43	2,190	28,935	26,745	1,873-	24,872
44	2,570	158,550	155,980	1,493-	154,487
45	3	28,412	28,409	4,060-	24,349
1946	1,003	39,199	38,196	3,060-	35,136
47	1,159	43,795	42,636	2,904-	39,732
48	814	112,702	111,888	3,149-	108,739
49	896	82,520	81,624	3,167-	78,457
50	2,238	60,350	58,112	1,725-	56,387
51	2,435	56,210	53,775	1,628-	52,147
1952	1,658	*	0	0	0
53	1,916	*	0	0	0
54	1,636	*	0	0	0
55	4,063	*	0	0	0
56	3,790	*	0	0	0

Min. Cal. Yr. Runoff 24,349 1943

Average Annual Runoff 61,339 1941-51

* NO RECORD

APPENDIX G

ESTIMATED SPECIAL RUNOFF ADJUSTMENTS IN THE RIO GRANDE WATERSHED

PART I

EXCERPTS FROM THE "WATER SUPPLY" SECTION OF THE UNPUBLISHED REPORT OF INTERNATIONAL BOUNDARY AND WATER COMMISSION ON "PROPOSED DIABLO DAM AND RESERVOIR"

APPENDIX G

ESTIMATED SPECIAL RUNOFF ADJUSTMENTS IN THE RIO GRANDE WATERSHED

PART I. EXCERPTS FROM THE "WATER SUPPLY" SECTION OF THE UNPUBLISHED REPORT OF INTERNATIONAL BOUNDARY AND WATER COMMISSION ON "PROPOSED DIABLO DAM AND RESERVOIR"*

WATER SUPPLY

29. Historical River Flows. Collection of stream-flow records on the Rio Grande below Fort Quitman began in 1900 when 11 stations were established at key points on the river and its tributaries. These were operated until 1914 when, except for a few months in 1919 and 1920, stream gaging on the international portion of the river was suspended until 1923. In that year, gaging resumed with the establishment of 18 stations which have since been operated continuously. Since 1931, when the present joint program of stream gaging by the Commission was adopted, a total of 23 stations have been operated. In order to obtain continuous discharge data since 1900 flows during the 10 missing years, 1914 through 1923, were estimated at the key points from U. S. Weather Bureau gage-height records and other data available during that period.

The 57-year records of historical flows thus obtained at pertinent points, from Fort Quitman to the site of Falcon Dam, are summarized on the following page.

Historical River Flows - Rio Grande 1900-1956, Inclusive
Annual Quantities in Acre-Feet

Location	River Mile	Average	Maximum	Minimum
Fort Quitman	0	335,300	1,550,200	5,900
Lower Presidio (Below Mouth of Rio Conchos)	214	1,380,700	3,526,500	117,700
Langtry (Above Devils and Pecos Rivers)	533	1,874,700	4,279,400	326,100
Diablo Dam Site (Del Rio Station) (Below Devils and Pecos Rivers)	602	2,985,000	6,307,000	727,700
Site of Falcon Dam	893	4,058,600	8,407,100	818,700

30. Source of River Flows. The sources of historic inflows above the Diablo site are tabulated as follows:

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Sources of Historical Flows
Passing the Diablo Dam Site 1900-1956
Average Annual Amounts

Source	Acre-Feet	Percent of Total
Rio Grande, Fort Quitman	335,300	11.2
Rio Conchos	1,064,000	35.6
Terlingua Creek)		
Alamito Creek)	54,700	1.8
Pecos River	393,300	13.2
Devils River	515,600*	17.3
Goodenough Spring	97,700	3.3
Unmeasured Sources	524,400	17.6
Total	2,985,000	100

Included in the above total flows are relatively small but important contributions from springs located along the Rio Grande upstream from the Diablo site, a distance of about 300 miles, and along the Devils and Pecos Rivers. The largest, Goodenough Spring, contributes a minimum annual flow of 60,000 acre-feet to the river, and the combined average annual flow of all springs is estimated to amount to about 400,000 acre-feet. The flows are relatively uniform and provide a minimum base flow at the Diablo site of about 500 c.f.s.

The sources of inflows to the river from the Diablo site to Falcon Dam are tabulated as follows:

Sources of Historical Flows
Between Diablo Dam Site and Falcon Dam
Average Annual Amounts

Source	Acre-Feet	Percent of Total
San Felipe and Pinto Creeks	63,600	5.9
San Rodrigo, Escondido,)		
San Diego and Salado Rivers)	670,500	62.5
and Arroyo las Vacas)		
Unmeasured Sources	339,500	31.6
Total	1,073,600	100

Downstream from Falcon Dam to the Gulf, the principal inflows to the river are from the Mexican tributaries Rio San Juan and Rio Alamo, the waters of which are, by the terms of the 1944 Water Treaty, wholly allotted to Mexico. The remaining inflows are from ordinarily dry arroyos which drain the narrow watershed bordering the river below Falcon Dam comprising 2,440 square miles, and are estimated to amount to an average of 226,000 acre-feet annually.

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* Includes an estimated quantity of 100,000 acre-feet annually contributed below the Devils River gaging station 4.5 miles upstream from mouth, as determined by records secured since August 1954 at mouth of river.

The river flows, largely derived from the highly variable precipitation, vary erratically over wide ranges from year to year and from month to month. Review of the historic flows at Diablo Dam site shows that 50% of the total flow in the 57-year record period occurred in 30% of the years. Characteristic of the historical flows is the occurrence of periods of up to 11 consecutive years of subnormal flows, usually separated by one or two years of much above-normal flows.

31. Channel and Other Losses. The records show that in the section of the river from the Diablo Dam site to Falcon Reservoir, there are during ordinary flows net gains in the river discharge, excluding measured tributary inflows; but at times of floods large net losses occur in the same section. Net losses were especially significant during the 1954 flood when the records show a loss of about 405,000 acre-feet after taking into account seepage returns to the channel which occurred for several months after the flood. Analysis of the records shows that net losses occur in this section whenever river discharges exceed about 50,000 c.f.s. and that the total of the net losses averaged about 30,000 acre-feet annually over the 57-year period of record.

In addition, records of losses from Falcon Reservoir since storage began in August 1953, reflect large losses over and above those due to water-surface evaporation, when the total quantity in storage exceeds about 1,000,000 acre-feet. Such additional losses apparently due to seepage and transpiration amounted to an estimated 300,000 acre-feet during the 1954 flood alone. Study of such losses, assuming Falcon Reservoir had been in operation since 1900 without upstream storage, indicates that they may be expected to average about 145,000 acre-feet annually.

Since about 93% of the flows of the 1954 flood were waters allocated to the United States, of the total of about 705,000 acre-feet of channel and reservoir losses incident to that flood, approximately 650,000 acre-feet of the losses were suffered by the United States. In addition, this country suffered a loss of about 320,000 acre-feet in 1954 by reason of a transfer, under Article 8(b) of the 1944 Water Treaty, of that amount of water to Mexico in Falcon Reservoir, since the United States inflows in that year were more than sufficient to fill its portion of the total conservation storage in Falcon Reservoir. Thus, in 1954 alone, the United States lost nearly 1,000,000 acre-feet of water sorely needed in the years immediately following.

32. Quality of Waters. The records available of chemical analysis of samples of water taken from the Rio Grande below Fort Quitman are summarized in the following table:

Rio Grande Stations	Period of Record	Total Dissolved Solids In Tons Per Acre-Foot		
		Average	Annual Max.	Annual Min.
Fort Quitman	1930 - 1956	2.36	5.25	0.51
La Nutria	1936 - 1941	2.27	2.79	1.96
Upper Presidio	1935 - 1956	1.92	2.74	0.38
Johnson Ranch	1948 - 1956	0.92	1.29	0.84
Langtry	1945 - 1956	0.77	0.83	0.64
Eagle Pass	1935 - 1954	0.95	1.53	0.49
Laredo	July 1955 - 1956	0.71		
Roma	1944 - 1954	0.72	0.95	0.51
Rio Grande City	1934 - 1946	0.88	1.15	0.68
Las Palmas	1946 - 1948	0.69	0.74	0.63
Lower Brownsville	1934 - 1936	0.80	1.03	0.69

According to criteria developed by the U. S. Department of Agriculture, Bulletin No. 962, the results of the sampling indicate that except for the flows in the uppermost reach from Fort Quitman to Upper Presidio, the waters of the Rio Grande may be generally classified as "good".

33. Estimated Future River Flows. In order to develop the quantities of probable future flows of the Rio Grande below Fort Quitman available for regulation and utilization by the two countries, the historical flows for each year were modified by subtracting therefrom the estimated increased depletions which have developed to the present over those which actually obtained in each year beginning in 1900 and were further modified by deducting such additional depletions as are contemplated in the future.

In addition to the historic river and tributary flows, basic data available and used in developing the probable future flows, included information on areas historically irrigated on the United States side contained in the water bulletins of the International Boundary and Water Commission, from an irrigated area survey made in 1932, diversion census in 1938, and irrigated and irrigable area surveys made in 1939 and 1940, all by the United States Section. On the Mexican side, in addition to the irrigated area data contained in the water bulletins, a detailed field investigation was made in 1940 by the Mexican authorities. From these data, estimates were made by each Section of the Commission of areas actually irrigated each year since 1900 in the portions of the basin in its country. To develop the water requirements of the irrigated lands, studies were made by engineers of the two Sections, developing consumptive use coefficients for each portion of the basin using available temperature and precipitation data. In addition, studies were made to develop the effects upon river flows of the reservoirs and regulation works constructed in the basin since 1900, assuming each had been in operation throughout the past 57 years.

Future depletions in the United States portion of the basin were assumed to be those required to serve existing developments. In the Mexican portion of the basin, future depletions included certain increases over those for present developments according to the advice of the Mexican section.

The future flows of the Rio Grande at Fort Quitman were estimated by adjusting the historic flows to indicate the quantities which would have passed that station, if existing works upstream had been in operation since 1900, including: Elephant Butte storage dam (where storage began in 1915), Caballo storage dam (1938), and the irrigation projects downstream therefrom, the American diversion dam and canal (completed in 1938), and the Rio Grande Rectification Project (1938) and Canalization Project (1943). The historic flows at Fort Quitman, estimated to average 335,300 acre-feet per year, were thus reduced to an amount averaging about 191,900 acre-feet per year to reflect probable future flows which will consist principally of irrigation drainage and waste waters.

With respect to tributaries in the United States: on the Pecos River, account was taken that its future flows at the mouth will be limited largely to runoff from the watershed below Red Bluff Dam (completed in 1936) plus return flows from the irrigation project downstream therefrom, with only occasional spills at that dam. The resulting modification of historical flows, which averaged 393,000 acre-feet annually, indicate that future flows of the Pecos River at the mouth will probably amount to an average of about 325,800 acre-feet annually. The historical inflows from Alamito, Terlingua, San Felipe, and Pinto Creeks, which together averaged

118,300 acre-feet, were modified on the basis that the acreage irrigated in the future on these creeks may include the total area under existing works, amounting to 7,700 acres. On this basis, future flows from these named creeks are estimated to average 109,100 acre-feet annually. Neither in the Devils River basin nor near Goodenough Spring is there any irrigation existing or anticipated in the future, and hence the historic flows from these sources which averaged 515,600 and 97,700 acre-feet, respectively, are assumed to obtain in the future.

With respect to tributaries in Mexico: on the Rio Conchos, estimates made by the Mexican Section of future inflows assumed that each of the reservoirs - Boquilla (where storage began in 1914), La Colina (1940), Rosetilla (1940), and Madero (1948), were in operation and that the full contemplated irrigation development in the Rio Conchos basin comprising 286,394 acres was in operation throughout the past 57-year study period. Accordingly, the historical inflows from the Rio Conchos, which averaged 1,064,400 acre-feet per year, were modified such that the average annual future inflows to the Rio Grande are estimated to amount to about 622,500 acre-feet per year. The historical flows of the Arroyo las Vacas, Rio San Diego, Rio San Rodrigo, Rio Escondido, and Rio Salado which together averaged 670,800 acre-feet, were similarly modified to take into account existing and contemplated future depletions, such that the probable future total flow of these tributaries is estimated to average 556,200 acre-feet annually.

From the channel of the Rio Grande, Fort Quitman to Falcon Dam, total future depletions on the United States side were assumed to be those required for irrigation of lands presently under irrigation works which surveys indicate amount to 19,700 acres in the section above the Diablo Dam site, and 66,000 acres in the section downstream therefrom to Falcon Dam. On the Mexican side, future depletions from the main channel were reported by the Mexican Section to be the quantities required for irrigation of about 19,700 acres from Fort Quitman to Diablo Dam site and about 89,500 acres in the section downstream to Falcon Dam. The total quantities of water diverted from the main stream for the contemplated future irrigation of lands on the two banks of the river, estimated from consumptive use studies by the two Sections of the Commission and taking into account the availability of flows in the main stream, amount to an average of about 108,000 acre-feet annually in the section from Fort Quitman to Diablo Dam site, and 413,000 acre-feet annually in the section downstream therefrom to Falcon Dam.

The estimated annual total future flows of the Rio Grande at the Diablo Dam site and at the site of Falcon Dam, as developed from the historical flows on the bases described above, are listed for the 57-year period, 1900 to 1956, in Table 2, appended.

Below Falcon Dam, no depletions are anticipated in the runoff from the portion of the watershed bordering the river (excluding the Rio Alamo and Rio San Juan whose waters are allocated to Mexico), so that the historic inflows from this portion of the watershed estimated to average 226,000 acre-feet annually are expected to obtain in the future.

The resulting estimated average annual depletions and future flows at the key points below Fort Quitman are summarized as follows:

	Total Flows (United States and Mexico) Average Annual Quantities in Acre-Feet		
	Historical Flows	Estimated Average Increased Depletions Over Historical Depletions	Estimated Probable Future Flows
1) At Diablo Dam Site	2,985,000	691,000	2,294,000
2) At Site of Falcon Dam	4,058,600	1,171,600	2,887,000
3) Inflows Below Falcon Dam (excluding Rio Alamo and Rio San Juan)	226,000	0	226,000
Totals 2) + 3)	4,284,600	1,171,600	3,113,000

34. United States Share of Future River Flows. From the estimated total future inflows to the Rio Grande, there were computed the allocations to this country pursuant to the 1944 Water Treaty, which comprise: All of the estimated future waters reaching the main channel from the Pecos and Devils Rivers, Goodenough Spring, Alamito, Terlingua, San Felipe, and Pinto Creeks; one-third of the flow reaching the main channel from the Mexican tributaries, - Conchos, San Diego, San Rodrigo, Escondido, and Salado Rivers and the Arroyo las Vacas, taking into account in accord with the terms of the Treaty that this third shall not be less, as an average annual amount in cycles of five consecutive years, then 350,000 acre-feet, with the proviso that any deficiencies existing at the end of a five-year cycle shall be made up in the following five-year cycle with water from said Mexican tributaries; and one-half of all other flows in the main stream of the river below Fort Quitman not otherwise allotted in the Treaty.

From the allocations thus computed which included allowance for channel losses chargeable to the United States, there were deducted the estimated future uses in this country from the river above Falcon Dam. These, assumed for the purposes of this study to be the quantities of water required to serve domestic uses and lands presently under irrigation works, amount to an average of 54,000 acre-feet annually in the section from Fort Quitman to the Diablo Dam site, and 175,000 acre-feet annually in the section from the Diablo Dam site to Falcon Reservoir, less shortages in this country's share of the supply of natural flows estimated from monthly analysis of available flows and requirements in each section over the 57-year study period, to average 4,000 and 1,000 acre-feet per year, respectively, in the two sections. The resulting estimated uses in the United States amount to an average of 50,000 acre-feet per year in the upper section and 174,000 in the middle section, and total 224,000 acre-feet above Falcon Dam.

The estimated United States share of future flows computed on a monthly basis throughout the 57-year study period at the Diablo site and at the site of Falcon Dam are listed by years in Table 3, appended, and are summarized in average annual amounts in the following tabulation which also shows the estimated United States share of inflows below Falcon Dam:

United States Share of Estimated Future Flows of Rio Grande Below Fort Quitman
Average Annual Amounts in Acre-Feet

	Total Allotted Waters Less U.S. Share of Channel Losses	Estimated Future Upstream Uses	Future Flows	% of Total
1) At Diablo Dam Site	1,536,000	50,000	1,486,000	80
2) At Site of Falcon Dam	1,971,000	224,000	1,747,000	94
3) Inflows Below Falcon	113,000	---	113,000	6
Totals 2) + 3)	2,084,000	224,000	1,860,000	100

35. United States Future Usable Supply With Falcon Reservoir Alone. Under existing conditions of storage on the main stream, the United States future usable water supply from the Rio Grande consists of this country's diversions from the river above Falcon Dam plus its regulated releases at the dam plus the portion of its inflows below the dam which may be diverted as follows:

a. Estimated Future Quantities of Waters Diverted for Use in the United States from its Share of the Natural River Flows Above Falcon Dam, which as described in the previous paragraph, are assumed to amount to an average of 224,000 acre-feet annually.

b. Estimated Future Regulated Releases of United States Waters at Falcon Dam. The probable future flows belonging to the United States at the site of Falcon Dam estimated to amount to an average of 1,747,000 acre-feet, were routed through this country's share of the conservation capacity in the reservoir (1,430,000 acre-feet*), with releases to the extent of the availability of waters in storage** corresponding to present irrigation demands, indicated to average 1,531,000 acre-feet annually. Evaporation from the reservoir water surface and rainfall on the water surface, in excess of that included in the stream-flow records, was estimated from meteorological records in the area to amount to an annual average of 82 inches and 17 inches, respectively. The studies were performed by months throughout the 57-year study period, 1900-1956, beginning with the reservoir empty in 1900, and necessarily also included separate routing of Mexican waters as anticipated by the Mexican Section. The studies were made in accordance with the terms of the 1944 Water Treaty relating to regulation of waters: Evaporation and other losses from the reservoir were divided in proportion to the ownership of waters in storage; and the ownership of inflows belonging to one country whose conservation capacity in Falcon Reservoir was filled and in excess of that needed to keep it filled, passed to the other country, to the extent that that country had unfilled conservation capacity.

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* During winter months, United States conservation storage capacity in Falcon Reservoir increased to 1,654,000 acre feet.

** Except for 60,000 acre-feet, which it was assumed will be reserved in storage by the State of Texas for domestic use.

The results of the studies indicate that with Falcon Reservoir alone, the United States annual regulated releases therefrom for the downstream will vary from a minimum of about 410,000 acre-feet in a drought year like 1952 to a maximum of 1,878,000 acre-feet and average about 1,348,000 acre-feet.

c. Estimated Future Quantities of Waters Diverted for Use in the United States from its Share of Natural Inflows to the River Below Falcon Dam. Studies made of the records of inflows to the river below Falcon Dam allocated to the United States, estimated to average 113,000 acre-feet annually, indicate that without additional storage and regulation facilities the United States users can divert amounts averaging only about 29,000 acre-feet annually.

To summarize the foregoing: Under future conditions, the total United States usable supply below Fort Quitman with Falcon Reservoir alone is estimated to amount to an average of 1,601,000 acre-feet, comprising:

	United States Usable Supply with Falcon Alone Average Annual Amounts in Acre-Feet
a) Diversions from River Above Falcon Dam.....	224,000
b) Regulated Releases at Falcon Dam.....	1,348,000
c) Diversions from Natural Inflows to River Below Falcon Dam.....	29,000
Total	1,601,000

TABLE 2

ESTIMATED FUTURE TOTAL RIO GRANDE FLOW
AT DIABLO DAM SITE AND AT FALCON
(United States and Mexican Waters)
in Thousand Acre-Feet

Year	At Diablo Dam Site	At Site of Falcon Dam
1900	2,550	4,758
1901	1,746	1,729
1902	1,692	1,645
1903	1,669	2,950
1904	3,083	4,028
1905	3,227	4,280
1906	3,734	4,887
1907	2,131	2,544
1908	2,323	2,697
1909	1,667	2,746
1910	1,253	1,908
1911	1,613	1,782
1912	1,578	1,837
1913	2,088	2,636
1914	4,171	5,769
1915	2,340	2,740
1916	2,030	2,113
1917	2,323	2,396
1918	1,797	1,755
1919	4,860	6,335
1920	4,766	5,432
1921	1,427	1,625
1922	3,419	3,746
1923	2,246	3,147
1924	1,933	2,720
1925	3,030	4,393
1926	2,422	2,838
1927	1,550	1,658
1928	1,721	2,300
1929	1,321	1,563
1930	1,757	2,800
1931	1,654	2,401
1932	5,287	6,877
1933	2,479	3,000
1934	1,324	1,429
1935	3,571	5,240
1936	2,407	3,355
1937	1,803	1,607
1938	3,438	3,589
1939	1,627	1,924
1940	1,696	2,537

TABLE 2 - Continued

Year	At Diablo Dam Site	At Site of Falcon Dam
1941	4,523	5,134
1942	3,582	4,068
1943	1,682	1,907
1944	1,733	2,785
1945	1,700	1,875
1946	1,721	2,466
1947	1,395	1,968
1948	1,820	2,525
1949	2,204	3,511
1950	1,627	1,645
1951	1,159	1,469
1952	949	665
1953	633	1,154
1954	4,564	4,410
1955	1,837	2,523
1956	861	759
Total	130,743	164,580
Average	2,294	2,887

TABLE 3

ESTIMATED FUTURE UNITED STATES SHARE OF RIO GRANDE FLOW
AT DIABLO AND FALCON DAM SITES
In Thousand Acre-Feet

Year	At Diablo Dam Site	At Site of Falcon Dam
1900	1,810	2,827
1901	1,257	1,266
1902	1,101	1,106
1903	1,151	1,758
1904	1,854	2,248
1905	2,091	2,555
1906	2,308	2,822
1907	1,388	1,593
1908	1,525	1,707
1909	1,088	1,588
1910	933	1,238
1911	1,046	1,148
1912	969	1,087
1913	1,372	1,632
1914	2,439	3,150
1915	1,454	1,660
1916	1,282	1,354
1917	1,331	1,362
1918	1,156	1,173
1919	3,004	3,675
1920	2,577	2,901
1921	942	1,051
1922	2,184	2,380
1923	1,406	1,833
1924	1,230	1,530
1925	1,923	2,558
1926	1,412	1,613
1927	1,088	1,166
1928	1,184	1,441
1929	870	1,010
1930	1,220	1,660
1931	1,173	1,498
1932	3,524	4,025
1933	1,573	1,727
1934	883	933
1935	2,615	3,389
1936	1,675	2,137
1937	1,179	1,108
1938	1,995	2,095
1939	1,034	1,201
1940	1,058	1,458

TABLE 3 - Continued

Year	At Diablo Dam Site	At Site of Falcon Dam
1941	2,894	3,142
1942	1,983	2,224
1943	1,076	1,210
1944	1,062	1,499
1945	1,100	1,183
1946	1,117	1,451
1947	875	1,139
1948	1,384	1,776
1949	1,589	2,225
1950	1,035	1,087
1951	691	838
1952	598	444
1953	457	596
1954	3,768	3,326
1955	1,188	1,310
1956	572	478
Total	84,693	99,591
Average	1,486	1,747

TABLE 4

REGULATED SUPPLY, SPILLS, AND SHORTAGES WITH ONLY FALCON RESERVOIR
UNITED STATES SHARE OF WATERS
BELOW DIABLO DAM SITE
In Thousand Acre-Feet

Study Period 1900-1956, Average Annual Demand - 1,706*

Year	Regulated** Supply	Spills From Falcon	Shortages Below Falcon Dam	%	Shortages Above Falcon To Diablo Site	%	Total Shortages Below Diablo Site	%
1900	1,745	0	40	2.4	0	0	40	2.2
1901	1,999	0	0	0	0	0	0	0
1902	1,544	0	700	34.6	0	0	700	31.2
1903	1,376	0	78	5.9	0	0	78	5.4
1904	1,565	0	0	0	0	0	0	0
1905	1,416	585	0	0	0	0	0	0
1906	1,466	1,284	0	0	0	0	0	0
1907	1,961	42	0	0	0	0	0	0
1908	1,728	0	0	0	0	0	0	0
1909	1,917	0	0	0	0	0	0	0
1910	1,733	0	228	13.2	0	0	228	11.6
1911	1,428	0	481	27.8	0	0	481	25.2
1912	1,165	0	517	35.5	5	2.2	522	30.9
1913	1,403	0	201	13.7	0	0	201	12.5
1914	1,447	445	0	0	0	0	0	0
1915	1,786	294	0	0	0	0	0	0
1916	1,756	0	0	0	0	0	0	0
1917	2,053	0	267	12.7	0	0	267	11.5
1918	1,181	0	572	34.5	0	0	572	32.6
1919	1,380	666	0	0	0	0	0	0
1920	1,830	1,055	0	0	0	0	0	0
1921	1,994	0	0	0	0	0	0	0
1922	1,472	0	0	0	0	0	0	0
1923	1,650	0	0	0	0	0	0	0
1924	1,756	0	0	0	0	0	0	0
1925	1,343	328	0	0	0	0	0	0
1926	1,331	330	0	0	0	0	0	0
1927	1,879	0	0	0	0	0	0	0
1928	1,510	0	0	0	0	0	0	0
1929	1,506	0	63	4.5	0	0	63	4.2
1930	1,065	0	58	6.0	0	0	58	5.2
1931	1,494	0	0	0	0	0	0	0
1932	1,465	1,076	0	0	0	0	0	0
1933	1,404	400	0	0	0	0	0	0
1934	1,677	0	0	0	0	0	0	0
1935	1,380	723	0	0	0	0	0	0

TABLE 4 - Continued

Study Period 1900-1956, Average Annual Demand - 1,706*

Year	Regulated** Supply	Spills From Falcon	Shortages Below Falcon Dam	%	Shortages Above Falcon To Diablo Site	%	Total Shortages Below Diablo Site	%
1936	1,334	673	0	0	0	0	0	0
1937	1,762	0	0	0	0	0	0	0
1938	1,799	0	0	0	0	0	0	0
1939	1,746	0	0	0	0	0	0	0
1940	1,548	0	10	0.7	0	0	10	0.6
1941	958	742	0	0	0	0	0	0
1942	1,773	523	0	0	0	0	0	0
1943	1,612	0	0	0	0	0	0	0
1944	1,566	0	0	0	0	0	0	0
1945	1,571	0	320	18.9	0	0	320	16.9
1946	1,543	0	190	12.1	0	0	190	11.0
1947	1,340	0	484	29.1	0	0	484	26.5
1948	1,379	0	464	27.8	0	0	464	25.2
1949	1,630	0	0	0	0	0	0	0
1950	1,875	0	372	18.1	0	0	372	16.6
1951	964	0	1,067	59.0	0	0	1,067	52.5
1952	585	0	1,562	82.2	0	0	1,562	72.8
1953	748	0	1,528	75.1	36	13.0	1,564	67.6
1954	1,358	0	472	28.1	0	0	472	25.7
1955	1,901	0	0	0	0	0	0	0
1956	959	0	779	50.4	0	0	779	44.8
Total	86,756	9,166	10,453		41		10,494	
Average Annual	1,522	161	183	12	1	0.4	184	11

Average annual reservoir loss including evaporation and other losses: 238

* For irrigation and domestic use on United States side below Diablo Dam site.

** Regulated releases at Falcon Dam plus diversions from natural flows from Diablo site to Falcon.

APPENDIX G

ESTIMATED SPECIAL RUNOFF ADJUSTMENTS IN THE RIO GRANDE WATERSHED

PART II

APPLICATION OF PART I TO STUDY

APPENDIX G PART II

APPLICATION OF PART I TO STUDY

The analysis made by the I.B.W.C. and described in Appendix G, Part I provides a determination of the estimated total flows available to the United States under a combination of Treaty provisions, present conditions of use, including anticipated full use of existing developments, and storage in Falcon reservoir and those completed in Mexico.

The results are shown by the tabulation in paragraph 34 of Appendix G, Part I, and subsequent paragraphs. The amounts of flow so determined as compared to the cumulative total runoff obtained from the analysis in this study are as follows:

ALL QUANTITIES IN ACRE FT./YR.

	ESTIMATED BY IBWC				
	Total Available to U.S.	Diversions not incl. in flow measurement	Remainder	Results of this study	Additional Water not incl. in study Avail. to U.S.
At Diablo Dam Site (Subbasin 15G)	1,536,000	50,000	1,486,000	1,142,378	343,622
Inflow, Diablo D.S. to Chapeno Gage 15H & 15I Falcon Dam Site Subbasin 15I	435,000	124,000	261,000	37,843	223,157
Sub-total	1,971,000	224,000	1,747,000	1,180,221	566,779
Inflow Sub-basin 15J	113,000	1,560,000	-1,447,000	-1,323,299	-123,701
Total Mouth of River	2,084,000	1,784,000	300,000*	-143,078 (Deficiency)	443,078

The amounts shown in the right-hand column of the above tabulation may be taken to represent the additional water available to the United States which is not included in the runoff results obtained by this study.

These additions are included as separate items on the summary in Table 6 and are indicated by notes on Map No. 2.

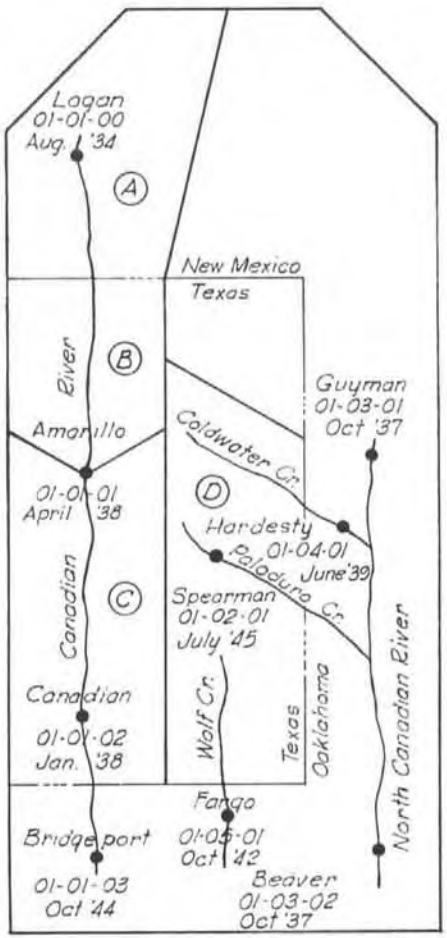
* Deficiency exists in years when flow is below average.

APPENDIX H

SUMMARY OF RUNOFF

BY WATERSHEDS

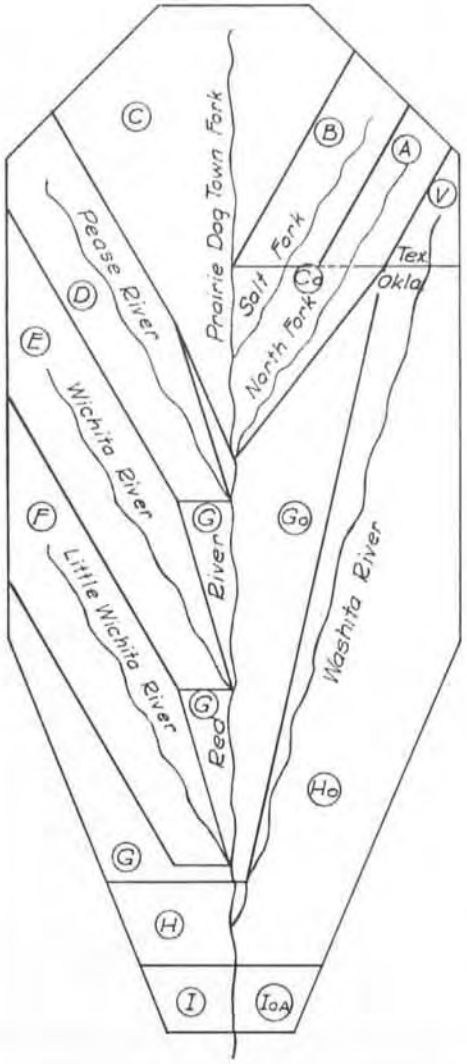
SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 1 CANADIAN RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A			12,244	2,995	0 At Times	20 10/40	46,606 1952	80,337	80,337	267,421	267,421
B	3,132	1,074			0 At Times	-1,125 8/47	9,028 1947	43,505	123,842	69,581	337,002
C	3,142	621			0 At Times	-6,980 9/49	-29,091 1952	30,845	154,687	127,091	464,093
D	3,131	1,554			N.D.	0 At Times	19,981 1956	64,853	64,853	120,788	120,788
Total	9,405	3,249	12,244	2,995					219,540		584,881

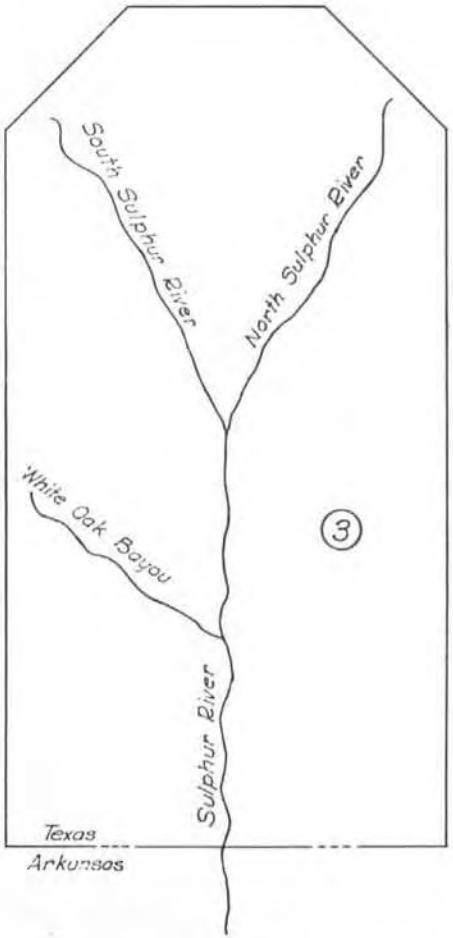
N.D. = Not Determined

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 2 RED RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
V	443				0	0 At Times	3,421 1940	8,151	8,151	18,295	18,295
WX YZ		5,272		644	0	0	0	0	0	0	0
A	1,512				0 At Times	0 At Times	11,468 1940	37,610	37,610	87,095	87,095
B	1,171				0 At Times	0 At Times	8,609 1940	52,499	52,499	53,414	53,414
C	4,154				0 At Times	0 At Times	104,234 1956	206,428	446,583	298,982	728,648
C_o			4,148		0 At Times	-580 12/48	55,927 1954	150,046	240,155	289,157	429,666
D	3,016				0 At Times	0 At Times	72,344 1956	177,174	177,174	246,109	246,109
E	3,483				0 At Times	1,915 2/53	90,209 1952	201,633	201,633	267,632	267,632
F	1,477				0 At Times	0 At Times	30,662 1952	86,331	86,331	152,378	152,378
G	478				5	-1,076 6/53	11,110 1956	26,389	938,110	51,280	1,446,047
G_o			3,308		38	693 9/54	149,940 1956	555,358	1,493,468	553,662	1,999,709
H	1,187				8	-561,484 5/57	-66,063 1944	106,359	1,599,827	277,324	2,277,033
H_o			9,424		62	-375,499 5/55	144,480 1944	726,681	2,334,659	1,776,708	4,072,036
I	2,270				110	-1,332 12/56	276,936 1956	564,277	2,898,936	.924,008	4,996,044
I_{oA}			5,983		290	2,483 9/56	1,127,114 1956	2,708,067	5,607,003	4,516,180	9,512,224
Total	19,191	5,272	22,903	664							

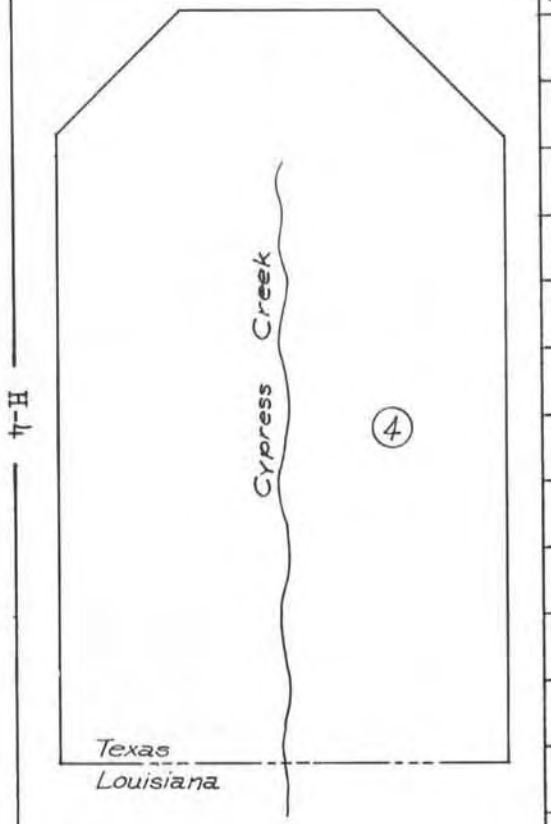
SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 3 - SULPHUR RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
Total	3,558				N.D.	0 At Times	543,768 1956	1,388,648	1,388,648	2,381,965	2,381,965

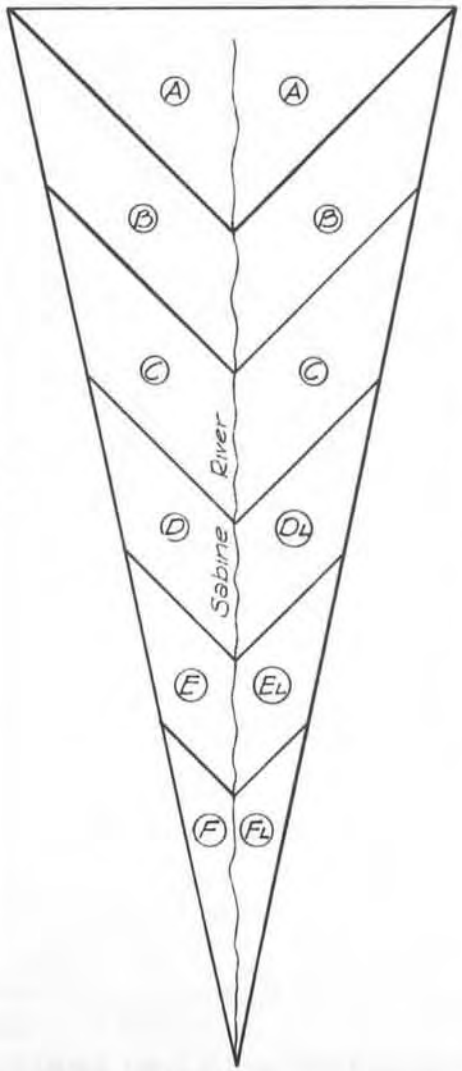
N.D. = Not Determined

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 4 - CYPRESS CREEK



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
Total	2,812				N.D.	0 At times	365,831 1956	860,483	860,483	1,601,393	1,601,393
		N.D. = Not Determined									

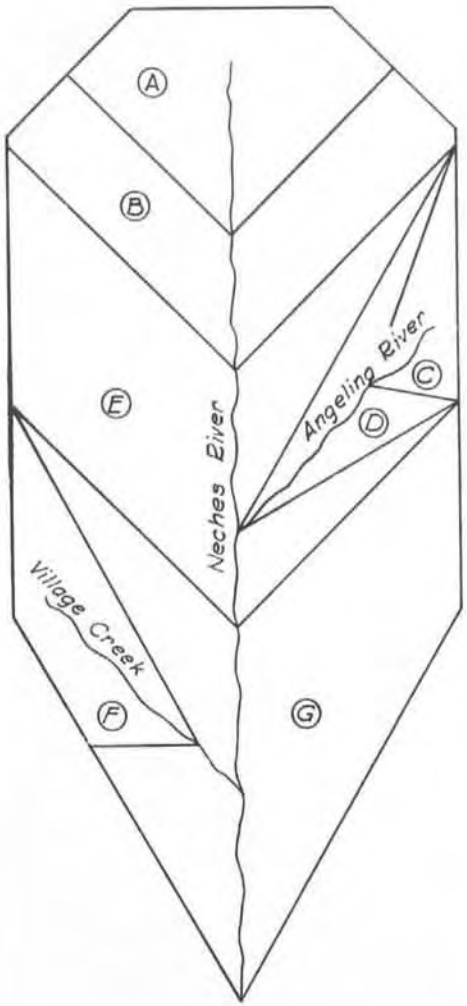
SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 5 -SABINE RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	1,445				0 At times	0 At times	47,405 1956	202,647	202,647	584,759	584,759
B	1,401				6	530 8/56	121,832 1956	426,530	629,177	813,865	1,398,624
C	1,944				7 9/39	-629 10/52	235,646 1943	810,852	1,440,029	1,240,827	2,639,451
D	759				3 9/56	158 10/56	32,383 1943	303,429	1,743,458	495,579	3,135,030
D_L			994		4 9/56	201 9/47	42,485 1943	397,830	2,141,288	649,759	3,784,789
E	1,514				126 9/56	8,128 10/56	637,473 1943	1,214,660	3,355,948	1,637,151	5,421,940
E_L			1,383		115 9/56	7,412 10/56	581,407 1943	1,107,823	4,463,771	1,493,157	6,915,097
F	320				N.D.	N.D.	42,865 1951	154,184	4,617,955	266,146	7,181,243
F_L			108		N.D.	N.D.	71,429 1951	109,184	4,727,139	147,157	7,328,400
Total	7,383		2,485								

N.D.= Not Determined

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 6 NECHES RIVER

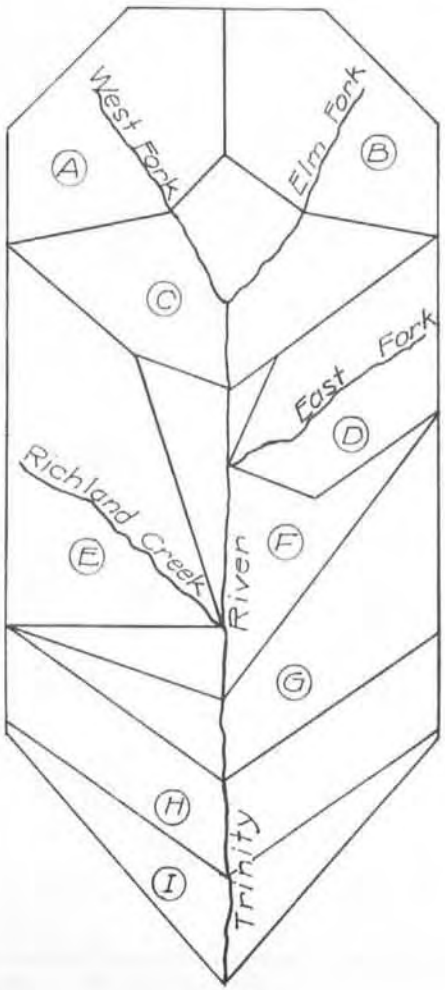


Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	1,903				0 9/56	65 9/54	205,764 1956	477,957	477,957	897,735	897,735
B	1,636				0 9/56	-30 11/56	108,070 1951	469,412	947,369	963,738	1,861,473
C	1,630				1 9/56	0 At Times	255,598 1943	516,277	516,277	908,249	908,249
D	1,889				N.D.**	2,077 9/54	410,589 1955	749,016	1,265,293	1,384,936	2,293,185
E	850				N.D.		178,478 1956	510,987	2,723,649	724,868	4,879,526
F	837				N.D.	1,580 9/56	183,290 1956	360,982	360,982	645,777	645,777
G	1,250				N.D.	N.D.	286,500 1956	42,920	3,127,551	347,970	5,873,273
Total	9,995										

N.D. = Not Determined

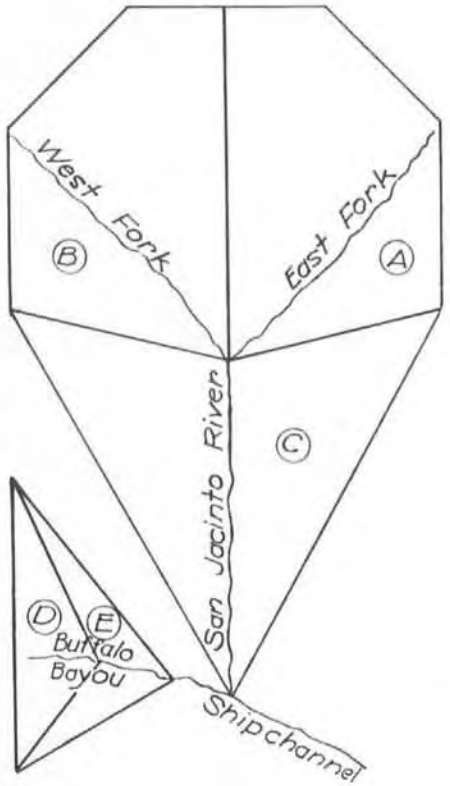
N.D.** Depends on Releases from Storage

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 7 TRINITY RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	2,627				0 At Times	0 At Times	8,270 1956	21,794	21,794	292,813	292,813
B	2,457				0 At Times	0 At Times	40,140 1955	79,740	79,740	534,714	534,714
C	1,036				1	-8,720 8/51	7,198 1951	34,134	135,668	235,769	1,063,296
D	1,309				0 At Times	0 8/44	47,548 1956	130,192	130,192	510,066	510,066
E	1,990				0 At Times	0 At Times	65,853 1954	252,774	252,774	661,914	661,914
F	3,493				0 At Times	878 8/42	261,224 1956	606,487	1,125,121	1,240,890	3,476,166
G	2,707				4	109 8/54	122,214 1951	566,102	1,691,223	1,131,111	4,607,277
H	1,920				N.D.	250 9/56	157,631 1956	341,160	2,032,383	1,094,461	5,701,738
I	306				N.D.	N.D.	-783,483 1953	-316,971	1,715,412	-10,486	5,691,252
Total	17,845										
		Addition water conveyed to Trinity Watershed from Upper Sabine in Dallas Area									112,000
				Total, Incl. Sabine Diversion							5,803,252
	N.D. = Not Determined										

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 8 - SAN JACINTO RIVER

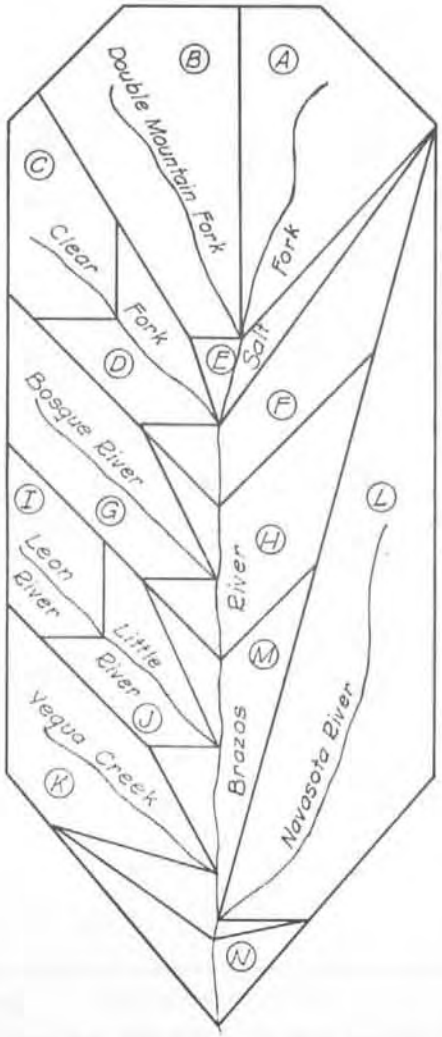


Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	931				3	0 12/56	56,904 1956	213,413	213,413	553,282	553,282
B	1,856				0	512 11/56	82,602 1956	307,045	307,045	803,967	803,967
C	101				N.D.**	N.D.	-145,500 1952	-71,300	449,158	-46,782	1,310,467
D	310				0 At times	0 9/53	17,795 1951	71,287	71,287	156,656	156,656
E	734				N.D.	N.D.	90,000 1951	175,000	246,287	464,000	620,653
Total	3,978								695,445		1,931,120

N.D. = Not Determined

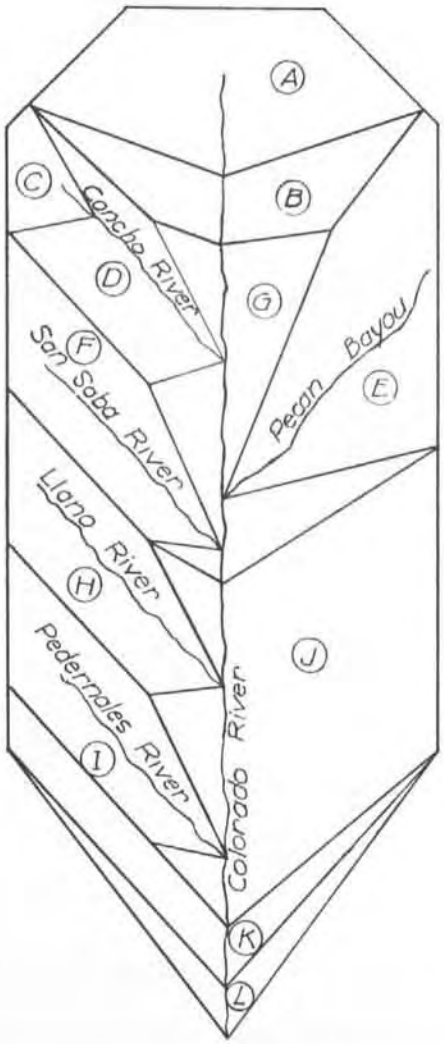
N.D.**= Depends on Releases from Reservoir

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 9- BRAZOS RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
X		2,590		1,800	0	0	0	0	0	0	0
Y		4,850			0	0	0	0	0	0	0
A	2,269				0	0	11,536 1952	110,244	110,244	116,786	116,786
B	1,779				0 At times	0 At times	11,709 1952	111,218	111,218	118,856	118,856
C	2,220				0 At times	0 At times	4,951 1952	19,639	19,639	46,911	46,911
D	3,544				0 At times	-1,685 8/43	117 1956	67,520	87,159	167,542	214,453
E	2,548				0 At times	-484 8/56	18,971 1956	193,366	414,828	186,608	422,250
F	3,240				N.D.**	-7,133 11/54	90,524 1955	96,370	598,357	356,200	992,903
G	1,639				N.D.**	0 At times	22,272 1955	63,774	63,774	227,276	227,276
H	2,021				N.D.**	-298 10/47	43,304 1955	97,632	759,763	363,267	1,583,446
I	3,513				N.D.**	0 At times	96,456 1952	114,108	114,108	455,898	455,898
J	3,982				0 At times	-3,923 9/55	89,941 1954	385,659	499,767	1,169,239	1,625,137
K	1,112				0 At times	0 At times	15,446 1951	75,979	75,979	215,611	215,611
L	2,159				0 At times	0 At times	43,390 1951	223,397	223,397	661,434	661,434
M	3,374				N.D.**	-11,980 7/56	110,717 1956	461,518	2,020,424	897,074	4,982,702
N	2,000				N.D.	N.D.	-351,559 1956	-151,274	1,869,150	332,956	5,315,658
Total	35,400	7,440	-0-	1,800	N.D.= Not Determined			N.D.**= Depends on Releases from Reservoirs			

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 10 - COLORADO RIVER

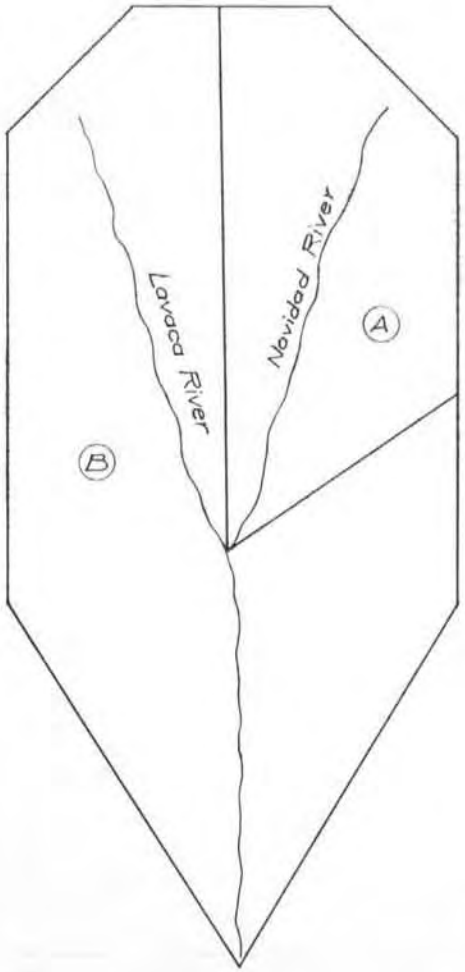


Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
X		2,000		1,870	0	0	0	0	0	0	0
Y		7,730			0	0	0	0	0	0	0
Z		300			0	0	0	0	0	0	0
A	1,492				0 At times	N.D.	1,830 1953	19,868	19,868	23,910	23,910
B	3,748				0 At times	-1,013 8/49	11,853 1952	93,017	112,885	119,707	143,617
C	4,217				0 At times	N.D.	960 1952	29,918	29,918	52,471	52,471
D	1,237				0 At times	0 At times	20,420 1951	66,715	96,633	105,555	158,026
E	2,194				0 At times	0 At times	10,721 1948	107,219	107,219	118,569	118,569
F	3,143				0 At times	0 At times	35,098 1954	125,203	125,203	125,373	125,373
G	2,669				0 At times	-766 8/51	53,775 1948	240,797	682,737	193,417	739,002
H	4,491				0 At times	0 At times	29,211 1956	146,064	146,064	187,844	187,844
I	1,288				0 At times	0 At Times	6,911 1956	147,844	147,844	139,565	139,565
J	2,021				N.D.**	-942,475 9/52	-818,080 1952	-185,754	790,891	199,014	1,265,425
K	2,670				N.D.	-20,420 8/51	22,440 1956	170,236	961,127	553,569	1,818,994
L	693				N.D.	N.D.	-415,543 1956	-216,618	744,509	-72,313	1,746,681
Total	29,863	10,030	-0-	1,870							

N.D.= Not Determined

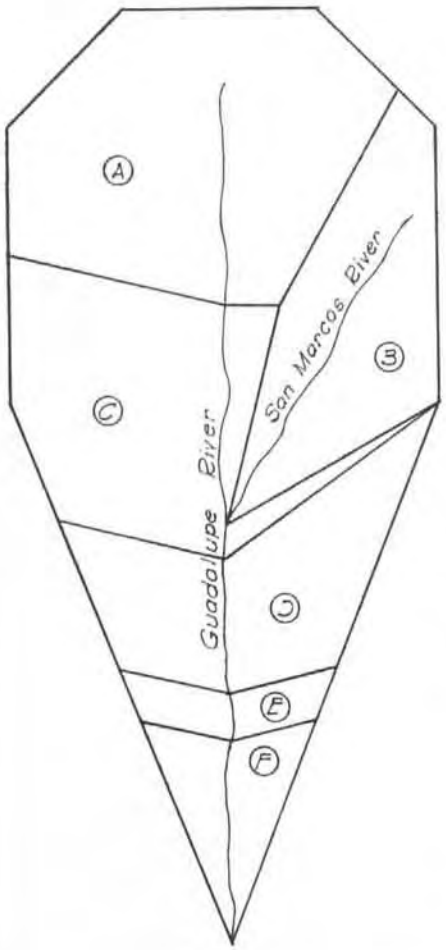
N.D.**= Depends on Releases from Reservoir

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 11 LAVACA RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	1,424				0 At Times	0 At Times	17,582 1956	159,561	159,561	384,338	384,338
B	1,051				0 At Times	0 At Times	6,219 1956	84,212	243,773	250,201	634,539
Total	2,475										

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 12 GUADALUPE RIVER

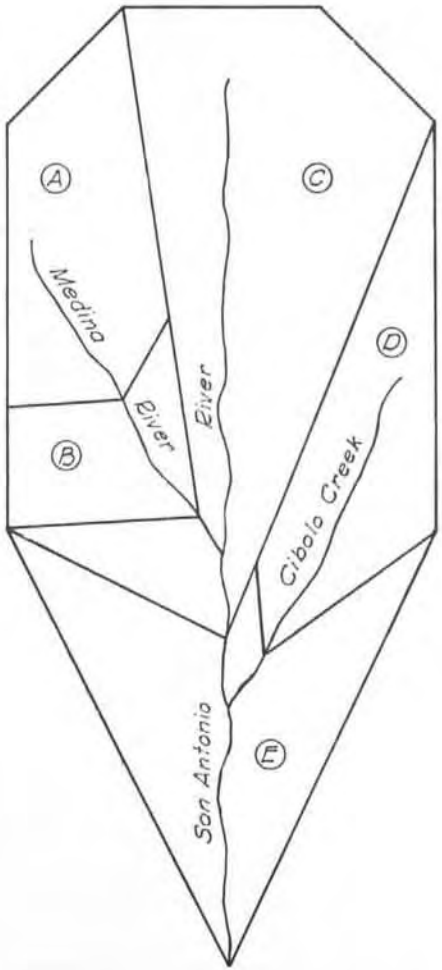


Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	1,516				N.D.**	3 7/56	100,128 1940	108,478	108,478	212,386	212,386
B	1,350				43	3451 6/56	62,857 1956	149,627	149,627	285,852	285,852
C	587				0	277 9/56	31,112 1956	117,019	375,124	249,643	747,881
D	1,470				0	-2,800 10/54	9,799 1956	56,728	431,852	184,262	932,143
E	238				0	-991 8/47	1,479 1954	8,900	440,752	29,103	961,246
F	872				N.D.	N.D.	-88,000 1954	-41,000	399,752	-300	960,946
Total	6,033										

N.D. = Not Determined

N.D.** = Depends on Releases from Reservoirs

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 13 SAN ANTONIO RIVER

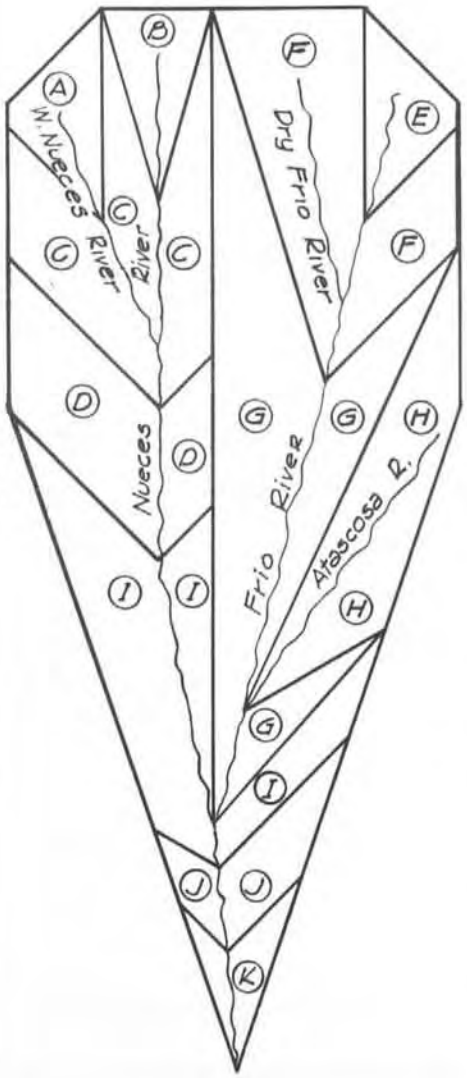


Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	623				0 N.D.		0 At Times	N.D.	0	1,148*	1,148
B	602				3	0 At Times	8,529 1954	17,864	17,864	63,233	64,381
C	846				14 6/56	1,322 8/54	51,278 1954	66,612	84,476	137,428	201,809
D	831				0 At Times	121 6/56	10,650 1954	31,330	31,330	76,364	76,364
E	1,315				N.D.	-1,937 7/56	10,013 1950	72,373	188,179	122,372	400,545
Total	4,217										

N.D. = Not Determined

* Average for 1922-33 and 53-56

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 14 NUECES RIVER

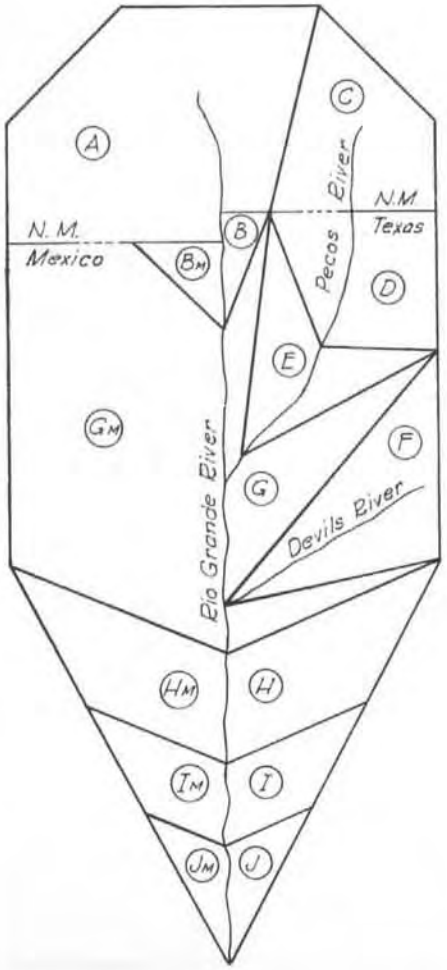


Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
A	700				0 At Times	N.D.	0 1951	25,771	25,771	13,380	13,380
B	764				5 8/53	283 2/57	15,745 1956	62,247	62,247	65,074	65,074
C	483				0 At Times	-87,500 9/55	-120,938 1955	-45,168	42,850	-43,397	35,057
D	3,313				0 At Times	-2,844 9/49	27,972 1951	31,691	74,541	99,815	134,872
E	405				0 At Times	0 At Times	3,416 1956	13,065	13,065	40,545	40,545
F	3,088				0 At Times	-8,880 10/46	-27,320 1940	12,386	25,451	2,255	42,800
G	2,095				0 At Times	-2,730 9/44	12,156 1948	59,147	84,598	110,300	153,100
H	1,423				0 At Times	0 At Times	24,809 1955	43,009	43,009	103,684	103,684
I	3,329				0 At Times	0 At Times	-15,329 1955	56,021	258,169	143,639	535,295
J	1,060				N.D.**	N.D.	-77,300 1945	-44,480	213,689	-9,920	525,375
K	294				N.D.	N.D.	-71,000 1950	-60,000	153,689	-49,058	476,317
Total	16,954										

N.D. = Not Determined

N.D.** = Depends on Releases from Reservoir

SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 15 RIO GRANDE RIVER



Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
					Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
	Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
XY		8,214			0	0	0	0	0	0	0
A			29,169		0 At Times	151 10/56	57,481 1956	153,295	153,295	451,777	451,777
B	1,437				0 At Times	-38,338 8/43	-192,877 1943	-68,556	84,739	-131,025	320,752
C			19,745		0 At Times	573 7/54	32,743 1953	88,504	88,504	216,208	216,208
D	9,808				4 10/54	-36,052 8/43	-204,525 1941	-30,665	57,839	-62,577	153,631
E	5,600				N.D.	3,420 8/52	72,099 1952	480,236	538,075	255,573	409,204
F	4,305				N.D.	N.D.	150,000 1956	373,916	373,916	424,554	424,554
G	12,617				N.D.	0 At Times	170,000 1953	337,000	1,333,730	309,000	1,463,510*
H	3,028				0	N.D.	-190,571 1941	-19,969	1,313,761	2,750	1,466,260
I	2,044				N.D.	-916,527 6/54	-1,284,997 1954	-174,563	1,139,198	35,093	1,501,353*
J	1,206				N.D.	-640,441 8/44	-136,197 1956	-628,603	510,595	-1,323,299	178,054*
Total	40,045	8,214			N.D. = Not Determined						

As developed in Appendix G, it is estimated under present conditions that the Cumulative Average Flows available to the U.S. after diversion are as follows:

At Subbasin 15G 1,486,000 Ac.Ft/Yr.
At Subbasin 15I 1,747,000 Ac.Ft/Yr.
At Subbasin 15J 300,000 Ac.Ft/Yr.

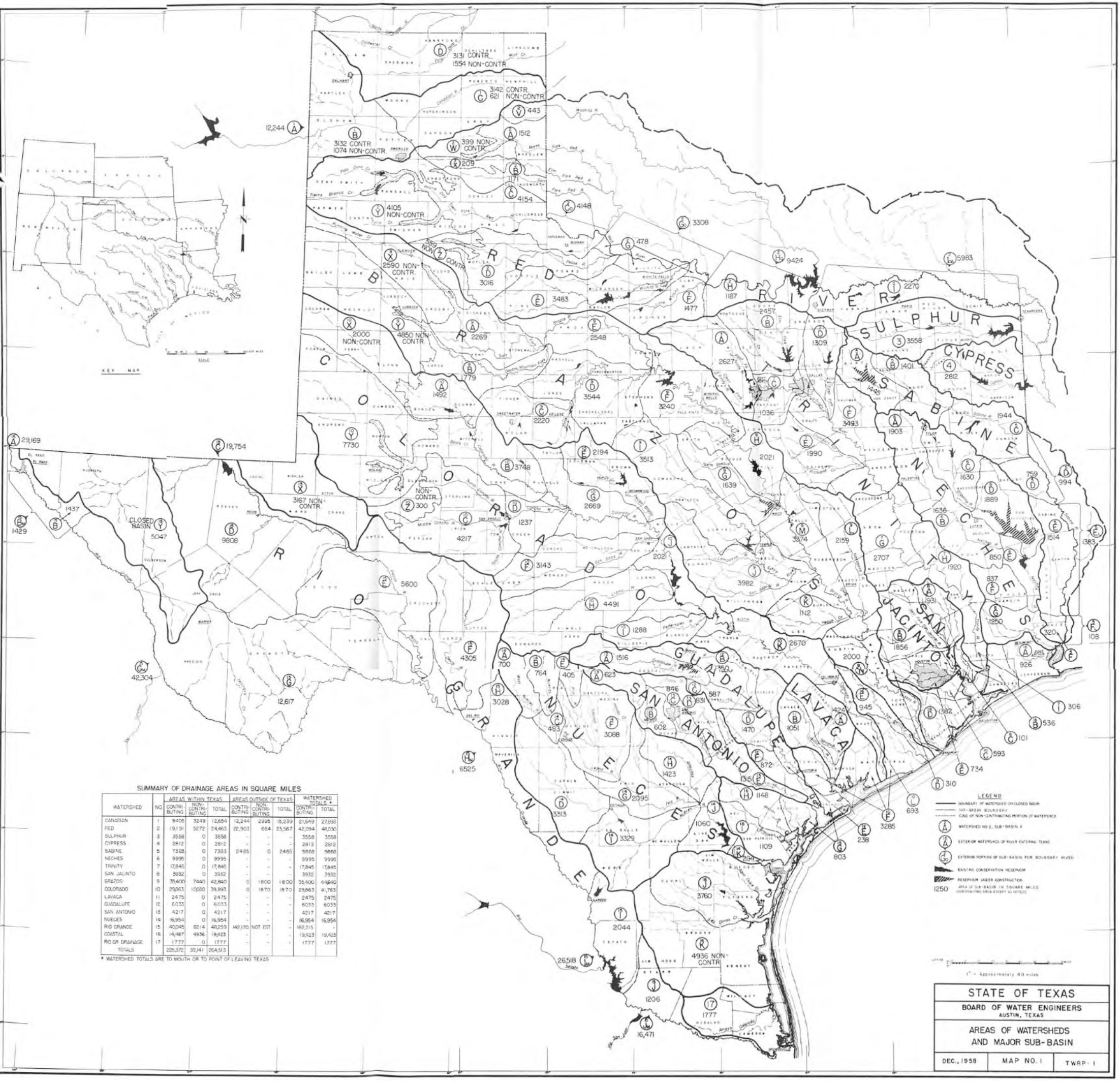
SUMMARY OF RUNOFF AND RUNOFF RATES FOR WATERSHED NO. 16 - COASTAL STREAMS 17 - RIO GRANDE DRAINAGE

	Sub-Basin	Drainage Area in Texas		Drainage Area Outside Texas		Net Minimum Run-Off			Net Average Run-off			
						Daily C.F.S.	Monthly Ac-Ft	Annual Ac-Ft	1952 - 1956		1940-- 1956	
		Contrib. Sq. Mi.	Non-Contrib Sq. Mi.	Contrib. Sq. Mi.	Non-Contrib. Sq. Mi.	Amount Date	Amount Date	Amount Date	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.	Sub-Basin Ac-Ft/Yr.	Cumlative Ac-Ft/Yr.
#16	A	926				N.D.	N.D.	146,000 1954	346,000	346,000	735,647	735,647
	B	536				N.D.	N.D.	75,000 1954	203,000	549,000	414,000	1,149,647
	C	593				N.D.	N.D.	45,000 1951	199,000	748,000	377,000	1,526,647
	D	1,382				N.D.	N.D.	56,000 1951	358,200	1,106,200	771,353	2,298,000
	E	945				N.D.	N.D.	23,000 1956	174,000	1,280,200	409,800	2,707,800
	F	3,285				N.D.	N.D.	170,000 1956	592,000	1,872,200	1,326,500	4,034,300
	G	803				N.D.	N.D.	6,120 1956	64,372	1,936,572	134,446	4,168,746
	H	1,148				N.D.	N.D.	7,000 1955	43,000	1,979,572	97,294	4,266,040
	I	1,109				N.D.	N.D.	7,000 1955	35,000	2,014,572	78,000	4,344,040
	J	3,760				N.D.	N.D.	4,000 1950	30,400	2,044,972	91,588	4,435,628
	K		4,396			N.D.	0	0	0	2,044,972	0	4,435,628
	Total	14,487	4,936									
#17	#17	1,777				N.D.	N.D.	24,349 1943	N.D.	2,044,972	61,339*	4,496,967

N.D. = Not Determined

* = Net Average Runoff for Period 1941-51

FOR DIAGRAM SEE APPENDIX E LAST CHART



SUMMARY OF DRAINAGE AREAS IN SQUARE MILES

WATERSHED	NO.	AREAS WITHIN TEXAS			AREAS OUTSIDE OF TEXAS			WATERSHED TOTALS *	
		CONTRIBUTING	NON-CONTRIBUTING	TOTAL	CONTRIBUTING	NON-CONTRIBUTING	TOTAL	CONTRIBUTING	TOTAL
CANADIAN	1	9405	3249	12,654	12,244	2995	15,239	21,649	27,893
RED	2	19,131	5272	24,463	22,903	664	23,567	42,094	48,030
SULPHUR	3	3558	0	3558	-	-	-	3558	3558
CYPRESS	4	2812	0	2812	-	-	-	2812	2812
SABINE	5	7383	0	7383	2485	0	2485	9868	9868
NECHES	6	9995	0	9995	-	-	-	9995	9995
TRINITY	7	17,845	0	17,845	-	-	-	17,845	17,845
SAN JACINTO	8	3932	0	3932	-	-	-	3932	3932
BRAZOS	9	38,400	7440	42,840	0	1800	1800	38,400	44,640
COLORADO	10	29,863	10030	39,893	0	1870	1870	29,863	41,763
LAVACA	11	2475	0	2475	-	-	-	2475	2475
GUADALUPE	12	6033	0	6033	-	-	-	6033	6033
SAN ANTONIO	13	4217	0	4217	-	-	-	4217	4217
NUECES	14	16,954	0	16,954	-	-	-	16,954	16,954
RIO GRANDE	15	40,045	8214	48,259	142,170	NOT EST	-	182,215	-
COASTAL	16	14,487	4936	19,423	-	-	-	19,423	19,423
RIO GR DRAINAGE	17	1777	0	1777	-	-	-	1777	1777
TOTALS		225,372	39,141	264,513					

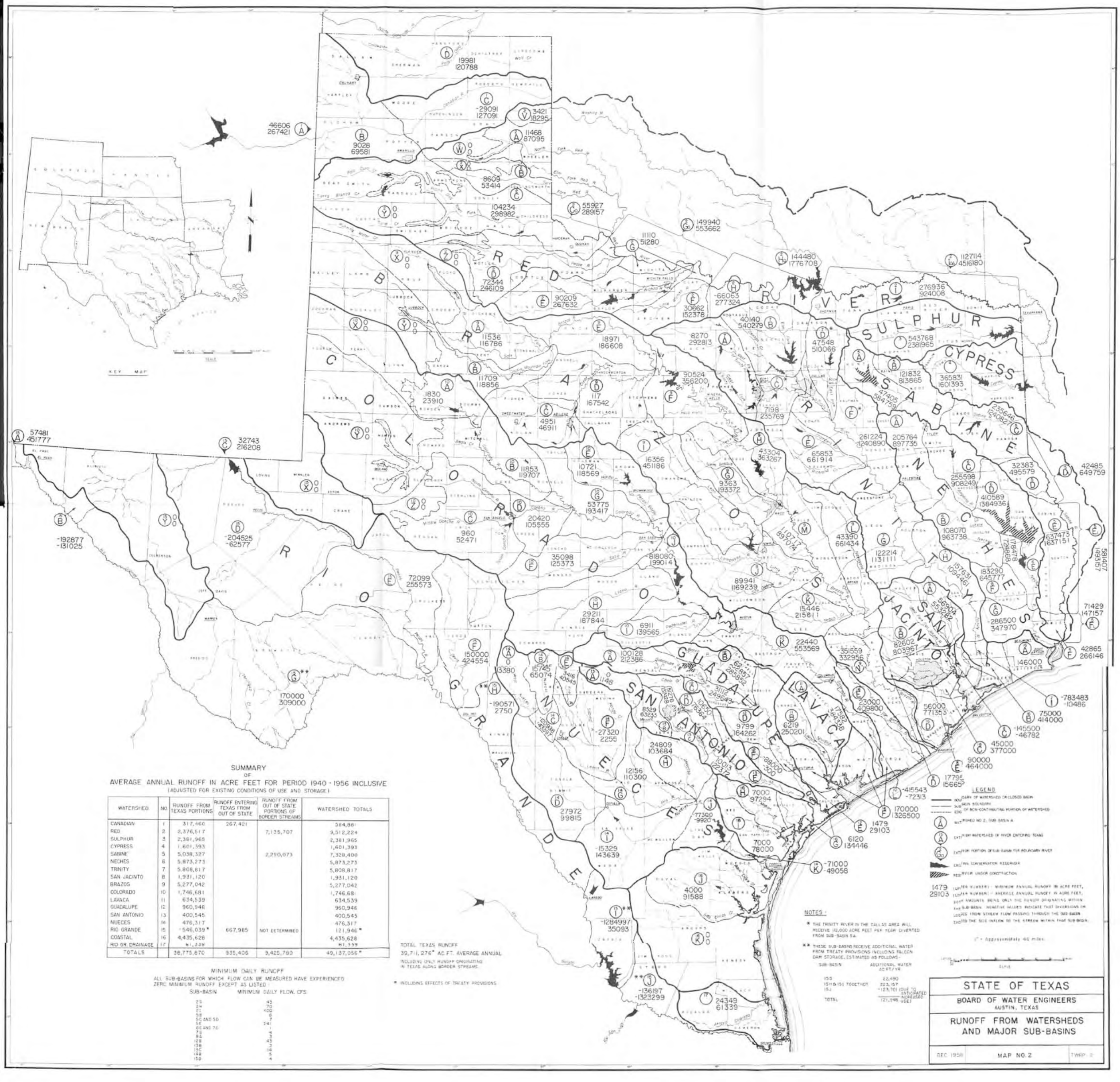
* WATERSHED TOTALS ARE TO MOUTH OR TO POINT OF LEAVING TEXAS

STATE OF TEXAS

BOARD OF WATER ENGINEERS
AUSTIN, TEXAS

AREAS OF WATERSHEDS AND MAJOR SUB-BASIN

DEC., 1958 | MAP NO. 1 | TWRP-1



SUMMARY
OF
AVERAGE ANNUAL RUNOFF IN ACRE FEET FOR PERIOD 1940 - 1956 INCLUSIVE
(ADJUSTED FOR EXISTING CONDITIONS OF USE AND STORAGE)

WATERSHED	NO	RUNOFF FROM TEXAS PORTIONS	RUNOFF ENTERING TEXAS FROM OUT OF STATE	RUNOFF FROM OUT OF STATE PORTIONS OF BORDER STREAMS	WATERSHED TOTALS
CANADIAN	1	317,460	267,421		584,881
RED	2	2,376,517		7,135,707	9,512,224
SULPHUR	3	2,381,965			2,381,965
CYPRESS	4	1,601,393			1,601,393
SABINE	5	5,038,327		2,290,073	7,328,400
NECHES	6	5,873,273			5,873,273
TRINITY	7	5,808,817			5,808,817
SAN JACINTO	8	1,931,120			1,931,120
BRAZOS	9	5,277,042			5,277,042
COLORADO	10	1,746,681			1,746,681
LAVACA	11	634,539			634,539
GUADALUPE	12	960,946			960,946
SAN ANTONIO	13	400,545			400,545
NUECES	14	476,317			476,317
RIO GRANDE	15	-546,039*	667,985	NOT DETERMINED	121,946*
COASTAL	16	4,435,628			4,435,628
RIO GR. DRAINAGE	17	61,339			61,339
TOTALS		38,775,870	935,406	9,425,780	49,137,056*

TOTAL TEXAS RUNOFF
39,711,276* AC FT. AVERAGE ANNUAL
INCLUDING ONLY RUNOFF ORIGINATING IN TEXAS ALONG BORDER STREAMS

* INCLUDING EFFECTS OF TREATY PROVISIONS

MINIMUM DAILY RUNOFF

ALL SUB-BASINS FOR WHICH FLOW CAN BE MEASURED HAVE EXPERIENCED ZERO MINIMUM RUNOFF EXCEPT AS LISTED:

SUB-BASIN	MINIMUM DAILY FLOW, CFS
2G	43
2H	70
2I	400
5B	6
5C AND 5D	7
5E	341
6C AND 7C	1
7G	4
8A	3
12B	43
13B	3
13C	14
14B	5
15D	4

NOTES:

* THE TRINITY RIVER IN THE DALLAS AREA WILL RECEIVE 112,000 ACRE FEET PER YEAR DIVERTED FROM SUB-BASIN 5A.

** THESE SUB-BASINS RECEIVE ADDITIONAL WATER FROM TREATY PROVISIONS INCLUDING FALCON DAM STORAGE, ESTIMATED AS FOLLOWS:

SUB-BASIN	ADDITIONAL WATER AC FT/YR
15G	22,490
15H & 15I TOGETHER	223,157
15J	-123,701 (DUE TO ANTICIPATED INCREASED USE)
TOTAL	121,946

LEGEND

BOUNDARY OF WATERSHED OR CLOSED BASIN
SUB-BASIN BOUNDARY
EDGE OF NON-CONTRIBUTING PORTION OF WATERSHED
WATERSHED NO 2, SUB-BASIN A
EXIT FROM WATERSHED OF RIVER ENTERING TEXAS
EXIT FROM PORTION OF SUB-BASIN FOR BOUNDARY RIVER
EXISTING CONSERVATION RESERVOIR
RESERVOIR UNDER CONSTRUCTION
1479 (UPPER NUMBER) - MINIMUM ANNUAL RUNOFF IN ACRE FEET,
29103 (LOWER NUMBER) - AVERAGE ANNUAL RUNOFF IN ACRE FEET, BOTH AMOUNTS BEING ONLY THE RUNOFF ORIGINATING WITHIN THE SUB-BASIN. NEGATIVE VALUES INDICATE THAT DIVERSIONS OR LOSSES FROM STREAM FLOW PASSING THROUGH THE SUB-BASIN EXCEED THE SIDE INFLOW TO THE STREAM WITHIN THAT SUB-BASIN.

1" = Approximately 40 miles

SCALE

STATE OF TEXAS

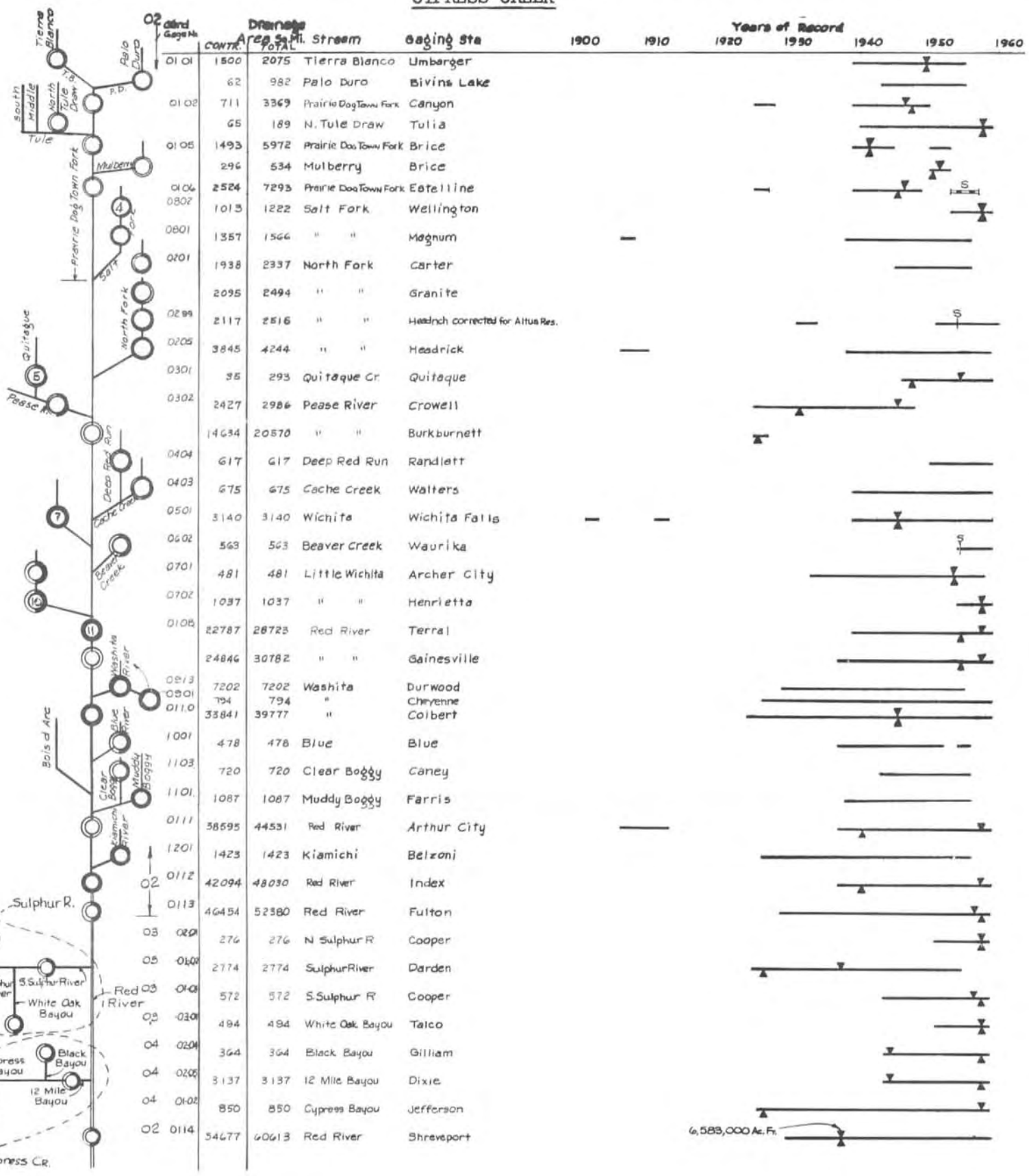
BOARD OF WATER ENGINEERS
AUSTIN, TEXAS

RUNOFF FROM WATERSHEDS AND MAJOR SUB-BASINS

DEC 1958 | MAP NO. 2 | TWRP 2

CHART E-1

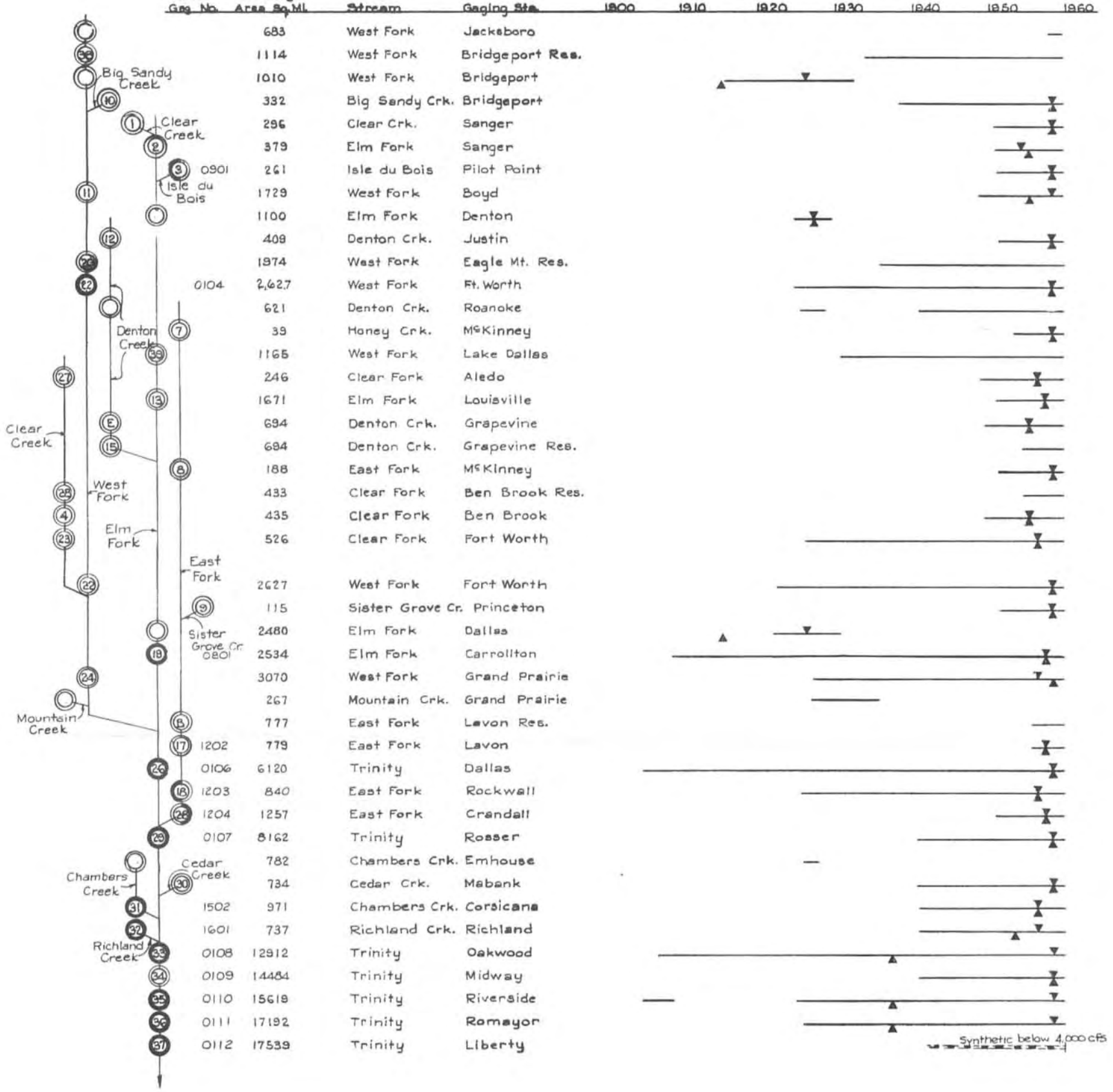
NO. 02 RED RIVER VALLEY - STREAMFLOW RECORDS - INCL. NO. 03 SULPHUR RIVER AND NO. 04 CYPRESS CREEK



Gaging Sta No	Contr.	Total	Stream	Gaging Sta
01 01	1500	2075	Tierra Blanco	Umbarger
	62	982	Palo Duro	Bivins Lake
01 02	711	3369	Prairie Dog Town Fork	Canyon
	65	189	N. Tule Draw	Tulia
01 05	1493	5972	Prairie Dog Town Fork	Brice
	296	534	Mulberry	Brice
01 06	2524	7293	Prairie Dog Town Fork	Estelline
0802	1013	1222	Salt Fork	Wellington
0801	1357	1566	" "	Magnum
0201	1938	2337	North Fork	Carter
	2095	2494	" "	Granite
0299	2117	2516	" "	Headrick corrected for Altus Res.
0205	3845	4244	" "	Headrick
0301	35	293	Quitaque Cr.	Quitaque
0302	2427	2986	Pease River	Crowell
	14634	20570	" "	Burkburnett
0404	617	617	Deep Red Run	Randlett
0403	675	675	Cache Creek	Walters
0501	3140	3140	Wichita	Wichita Falls
0602	563	563	Beaver Creek	Waurika
0701	481	481	Little Wichita	Archer City
0702	1037	1037	" "	Henrietta
0108	22787	28723	Red River	Terral
	24846	30782	" "	Gainesville
0813	7202	7202	Washita	Durwood
0801	794	794	"	Cheyenne
011.0	33841	39777	"	Colbert
1001	478	478	Blue	Blue
1103	720	720	Clear Boggy	Caney
1101	1087	1087	Muddy Boggy	Farris
0111	38595	44531	Red River	Arthur City
1201	1423	1423	Kiamichi	Belzoni
0112	42094	48030	Red River	Index
0113	46454	52380	Red River	Fulton
03 020	276	276	N Sulphur R	Cooper
05 0102	2774	2774	Sulphur River	Darden
03 0103	572	572	S. Sulphur R	Cooper
03 0301	494	494	White Oak Bayou	Talco
04 0204	364	364	Black Bayou	Gilliam
04 0205	3137	3137	12 Mile Bayou	Dixie
04 0102	850	850	Cypress Bayou	Jefferson
02 0114	54677	60613	Red River	Shreveport

CHART E-4

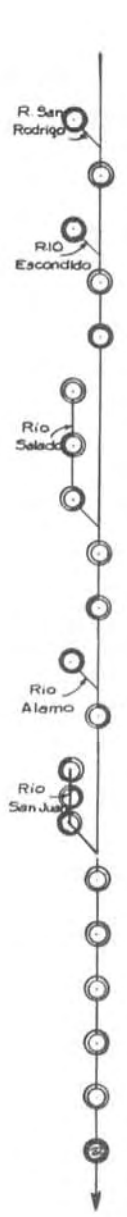
NO. 07 TRINITY RIVER VALLEY - STREAMFLOW RECORDS



Gag No.	Card Drainage Area Sq. Mi.	Stream	Gaging Sta.
	683	West Fork	Jacksboro
	1114	West Fork	Bridgeport Res.
	1010	West Fork	Bridgeport
	332	Big Sandy Crk.	Bridgeport
	296	Clear Crk.	Sanger
	379	Elm Fork	Sanger
0901	261	Isle du Bois	Pilot Point
	1729	West Fork	Boyd
	1100	Elm Fork	Denton
	409	Denton Crk.	Justin
	1974	West Fork	Eagle Mt. Res.
0104	2,627	West Fork	Ft. Worth
	621	Denton Crk.	Roanoke
	39	Honey Crk.	McKinney
	1165	West Fork	Lake Dallas
	246	Clear Fork	Aledo
	1671	Elm Fork	Louisville
	694	Denton Crk.	Grapevine
	684	Denton Crk.	Grapevine Res.
	188	East Fork	McKinney
	433	Clear Fork	Ben Brook Res.
	435	Clear Fork	Ben Brook
	526	Clear Fork	Fort Worth
	2627	West Fork	Fort Worth
	115	Sister Grove Cr.	Princeton
	2480	Elm Fork	Dallas
0801	2534	Elm Fork	Carrollton
	3070	West Fork	Grand Prairie
	267	Mountain Crk.	Grand Prairie
	777	East Fork	Lavon Res.
1202	779	East Fork	Lavon
0106	6120	Trinity	Dallas
1203	840	East Fork	Rockwall
1204	1257	East Fork	Crandall
0107	8162	Trinity	Rosser
	782	Chambers Crk.	Emhouse
	734	Cedar Crk.	Mabank
1502	971	Chambers Crk.	Corsicana
1601	737	Richland Crk.	Richland
0108	12912	Trinity	Oakwood
0109	14484	Trinity	Midway
0110	15619	Trinity	Riverside
0111	17192	Trinity	Romayor
0112	17539	Trinity	Liberty

CHART E-11

NO. 15 RIO GRANDE VALLEY - STREAMFLOW RECORDS (CONT.)



Gage No.	Drainage area sq. mi. By Increment & Subtotals U.S.	Mexico		Stream	Gaging Station
	83052	45046	128078	Forwarded	
15					
3301		668	668	R. San Rodrigo	El Moral
		288	288	El Moral Sta. to mouth	
	1213	326	1539	Rio Grande excl. of tributaries	
	84245	46550	130795	Rio Grande	Eagle Pass
3401		1284	1284	R. Escondido	Villa de Fuente
	237	251	488	Rio Grande excl. of tributary	
	84482	47865	132347		San Antonio Crossing
	1236	2393	3629		
0118	85718	50258	135976		Laredo
	0	17297	17297	Rio Salado	V. Carraza D
3602	0	7580	7580		Las Tortillas
3601	0	235	235		Cd. Guerrero
	2042	1352	3394	Rio Grande	excl. of tributary
	87760	76776	164482		Falcon Dam
0142					Chapeño
3801	0	1692	1692	Rio Alamo	Mier (Inactive 1955)
0120	85	149	234	Rio Grande	excl. of tributary
	87847	78617	166464		Roma
3901				Rio San Juan	Santa Rosalia
3902				Rio San Juan	Below Morita Gomez Dam
3903			13601	Rio San Juan	Mouth
	135	196	331	Rio Grande	excl. of tributary
	87982	92414	180396		Fort Ringgold
	352	780	1742		
	88334	93204	182138		Anzaldúas Dam site
	13	22	35		
	88347	93226	182173		Progresseño
	7	7	14		
	88354	93233	182187		San Benito
	12	12	24		
	88366	93245	182211		Matamoros
	2	2	4		
0127	88368	93247	182215		Lower Brownsville
15					Gulf of Mexico

Years of Record: 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960