

Quality of Surface Waters of the United States 1956

Parts 7 and 8. Lower Mississippi River Basin and Western Gulf of Mexico Basins

Prepared under the direction of S. K. LOVE, Chief, Quality of Water Branch

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of Arkansas, Louisiana, New Mexico,
Oklahoma, and Texas, and with other
agencies*



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PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas, and with other agencies.

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QUALITY OF SURFACE WATERS OF THE UNITED STATES, 1956

PARTS 7 and 8

INTRODUCTION

The quality-of-water investigations of the United States Geological Survey are concerned with chemical and physical characteristics of the surface and ground water supplies of the Nation. Most of the investigations carried on in cooperation with States and other Federal agencies deal with the amounts of matter in solution and in suspension in streams.

The records of chemical analysis, suspended sediment, and temperature for surface waters given in this volume serve as a basis for determining the suitability of the waters examined for industrial, agricultural, and domestic uses insofar as such use is affected by the dissolved or suspended mineral matter in the waters. The discharge of a stream and, to a lesser extent, the chemical quality are related to variations in rainfall and other forms of precipitation. In general, lower concentrations of dissolved solids may be expected during the periods of high flow than during periods of low flow. The concentration in some streams may change materially with relatively small variations in flow, whereas for other streams the quality may remain relatively uniform throughout large ranges in discharge. The quantities of suspended sediment carried by streams are also related to discharge, and during flood periods the sediment concentrations in many streams vary over wide ranges.

Publication of annual records of chemical analyses, suspended sediment, and water temperature was begun by the Geological Survey in 1941. The records prior to 1948 were published each year in a single volume for the entire country. Beginning in 1948, the records were published in two volumes, and beginning in 1950, in four volumes, covering the drainage basins shown in Figure 1. The samples for which data are given in this volume were collected from October 1, 1955, to September 30, 1956. The records are arranged by drainage basins according to Geological Survey practice in reporting records of streamflow: Stations on tributary

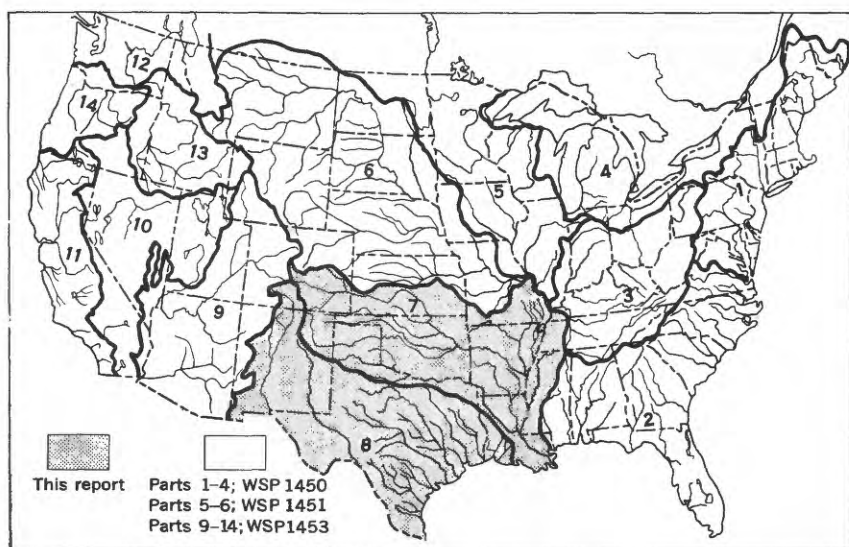


Figure 1.--Map of the United States showing basins covered by the four water-supply papers on quality of surface waters in 1956. The shaded portion represents the section of the country covered by this volume; the unshaded portion represents the section of the country covered by other water-supply papers.

streams are listed between stations on the main stem in the order in which those tributaries enter the main stem. Descriptive statements are given for each sampling station for which regular series of chemical analyses, temperature observations, or sediment determinations have been made. These statements include the location of the stream-sampling station, drainage area, length of time for which records are available, extremes of mineralization, hardness, water temperature, sediment loads, and other pertinent data. Records of water discharge of the streams at or near the sampling period are included in most tables of analyses.

During the year ending September 30, 1956, 157 regular sampling stations on 95 streams for the study of the chemical character of surface waters were maintained by the Geological Survey in the area covered by this volume. Samples were collected less frequently during the year at many other points. Water temperatures were measured daily at 82 stations. Not all analyses of samples of surface water collected during the year have been included. Single analyses of an incomplete nature generally have been omitted. Also, analyses made of the daily samples before compositing have not been reported. The specific conductance of almost all daily samples was determined, and as noted in the table head-

ings this information is available for reference at the district offices listed under Division of Work, on page 22.

Quantities of suspended sediment are reported for 24 stations during the year ending September 30, 1956. The sediment samples were collected one or more times daily at most stations, depending on the rate of flow and changes in stage of the stream. Sediment samples were collected less frequently during the year at many other points. In connection with measurements of sediment discharge, sizes of sediment particles were determined at 21 of the stations.

Material which is transported almost in continuous contact with the stream bed and the material that bounces along the bed in short skips or leaps is termed "bed load" and is not considered in this report. All other undissolved fragmental material in transport is termed "suspended sediment" and generally constitutes the major part of the total sediment load. At the present time no reliable routine method has been developed for determining bed load.

COLLECTION AND EXAMINATION OF SAMPLES

CHEMICAL QUALITY

Samples of chemical analyses were usually collected at or near points on streams where gaging stations are maintained for measurement of water discharge. Two methods of compositing water samples for analysis are used by the Geological Survey: (1) Equal volume method—Three composite samples were usually prepared each month by mixing together equal volumes of daily samples collected from the 1st to the 10th, from the 11th to the 20th, and from the 21st to the end of the month. Composite samples were prepared for shorter periods if the specific conductance of the daily samples indicated that the mineral content of the water had changed significantly. Conversely, composite samples were occasionally prepared for longer periods if the specific conductance of the daily samples indicated that the mineral content had remained nearly uniform. (2) Discharge method—Composite samples were prepared by mixing together a volume from each sample in proportion to the product of the rate of water discharge at the time of sampling and the time interval represented by that sample. Generally, each daily sample is assumed to represent an equal time interval; therefore, the volume from each sample is proportional only to the water discharge at the time of sampling. Compositing samples by the discharge method was limited to some streams west of the Mississippi River.

The samples were analyzed according to methods regularly used by the Geological Survey. These methods are essentially the same as, or are modifications of, methods described in recognized authoritative publications for the mineral analysis of water samples (Collins, 1928; Am. Public Health Assoc., 1955).

TEMPERATURE

Daily water temperatures were measured at most of the stations when chemical quality or sediment samples were collected. So far as practicable, the water temperatures were taken at about the same time each day for an individual station in order that the data would be relatively unaffected by diurnal variations in temperature. Most large, swiftly flowing streams probably have a small diurnal variation in water temperature, whereas sluggish or shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. The thermometers used for determining water temperature were accurate to plus or minus 0.5°F.

At stations where thermographs are located, the records consist of maximum and minimum temperatures for each day, and the monthly averages of maximum daily and minimum daily temperatures.

SEDIMENT

In general, suspended-sediment samples were collected daily with U. S. depth-integrating cable-suspended samplers (U. S. Interagency, 1948, p. 70-76 and U. S. Interagency, 1952, p. 86-90) from a fixed sampling point at one vertical in the cross section. The US DH-48 hand sampler was used at many stations during periods of low flow. Depth-integrated samples were collected periodically at three or more verticals in the cross section to determine the cross-sectional distribution of the concentration of suspended sediment with respect to that at the daily sampling vertical. In streams where transverse distribution of sediment concentration ranges widely, samples were taken regularly at two or more verticals to determine the average concentration across the section. During periods of high flow, samples were taken two or more times throughout the day at many sampling stations, and during periods of rapidly changing flow samples were taken hourly at some stations.

Sediment concentrations were determined by filtration or evaporation of the samples as required. At many stations the daily mean concentration for some days was obtained by plotting the instantaneous concentrations on the original or copies of the original gage-height chart. The plotted concentrations, adjusted if necessary for cross-sectional distribution with respect to that at the daily sampling vertical, were connected or averaged by continuous curves

to obtain a concentration graph. This graph represented the estimated concentration at any time and, for most periods, daily mean concentrations were determined from the graph. When the concentration and water discharge were changing rapidly, the day was often subdivided for this computation. For some periods when the day-to-day variation in the concentration was negligible, the data were not plotted, and the average concentration of the samples was used as the mean concentration for the day. For certain stations, when the discharge and concentrations were relatively low and varied only slightly from day to day, the samples for a number of days were composited and the mean daily concentrations and mean daily loads are shown.

For some periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately preceding and following the periods, and suspended-sediment loads for other periods of similar discharge. The estimates were further guided by weather conditions and sediment discharge for other stations.

In many instances where there were no observations for several days, the suspended-sediment loads for individual days are not estimated, because numerous factors influencing the quantities of transported sediment made it very difficult to make accurate estimates for individual days. However, estimated loads of suspended sediment for missing days in otherwise continuous period of sampling have been included in monthly and annual totals for most streams to provide a complete record. For some streams, samples were collected about weekly, monthly, or less frequently, and only rates of sediment discharge at the time of sampling are shown.

In addition to the records of quantities of suspended sediment transported, records of the particle sizes of sediment are included. The particle sizes of the suspended sediments for many of the stations, and the particle sizes of the bed material for some of the stations were determined periodically. As much of the material carried in suspension is finer than 0.062 mm, the pipet method (Kilmer and Alexander, 1949) or the bottom withdrawal tube method (U. S. Interagency, 1943, p. 82-90) were used in most of the analyses. For most samples, material between 1.0 mm and 0.062 mm was analyzed by the visual accumulation tube method (U. S. Interagency 1957). Separation of sand from the silt-clay-colloid fraction was by sieve. For some samples all sediment coarser than 0.062 mm was analyzed by the sieve method. For material finer than 0.062 mm the settling medium used was native water or distilled water to which a dispersing agent had been added. Because sedimentation diameters of the clay and colloidal fractions are often affected by the chemical character of the settling medium, analyses made with native water may more nearly simulate particle sizes existing in the stream. Results of analyses with dis-

tilled water containing a dispersing agent approximate ultimate particle sizes of the finer fractions. The concentration of sediment suspension for analysis was reduced to less than 5,000 parts per million where necessary by means of a sample splitter, in order to stay within limits recommended for the bottom-withdrawal tube or pipet method; therefore, the concentration of sediment for analyses was often different from the concentration in the stream. The concentration at which analyses were made is indicated in the appropriate tables.

EXPRESSION OF RESULTS

The dissolved mineral constituents are reported in parts per million. A part per million is a unit weight of a constituent in a million unit weights of water. Equivalents per million are not given in this report although the expression of analyses in equivalents per million is sometimes preferred. An equivalent per million is a unit chemical combining weight of a constituent in a million unit weights of water. Equivalents per million are calculated by dividing the concentration in parts per million by the chemical combining weights of the individual constituents. For convenience in making this conversion the reciprocals of chemical combining weights of the most commonly reported constituents (ions) are given in the following table:

Constituent	Factor	Constituent	Factor
Iron (Fe^{++}).....	0.0358	Carbonate (CO_3^{--}) ..	0.0333
Iron (Fe^{+++}).....	.0537	Bicarbonate (HCO_3^-)..	.0164
Calcium (Ca}^{++}) .....	.0499	Sulfate (SO_4^{--}) .....	.0208
Magnesium (Mg}^{++}) ...	.0822	Chloride (Cl^-).....	.0282
Sodium (Na}^+) .....	.0435	Fluoride (F}^-) .....	.0526
Potassium (K}^+) .....	.0256	Nitrate (NO_3^-) .....	.0161

Results given in parts per million can be converted to grains per United States gallon by dividing by 17.12. A calculated quantity of sodium and potassium is given in some analyses and is the quantity of sodium needed in addition to the calcium and magnesium to balance the acid constituents.

The hardness, expressed in terms of an equivalent quantity of calcium carbonate (CaCO_3), is calculated from the equivalents of calcium and magnesium, or is determined by direct titration. The hardness caused by calcium and magnesium (and other ions if significant) equivalent to the carbonate and bicarbonate is called carbonate hardness; the hardness in excess of this quantity is called noncarbonate hardness.

The value usually reported as dissolved solids is the residue

on evaporation after drying at 180°C for 1 hour. For some waters, particularly those containing moderately large quantities of soluble salts, the value reported is calculated from the quantities of the various determined constituents using the carbonate equivalent of the reported bicarbonate. The calculated sum of the constituents may be given instead of or in addition to the residue. In the analyses of most waters used for irrigation, the quantity of dissolved solids is given in tons per acre-foot as well as in parts per million.

Percent sodium is computed for those analyses where sodium and potassium are reported separately by dividing the equivalents per million of sodium by the sum of the equivalents per million of calcium, magnesium, sodium, and potassium and multiplying the quotient by 100. In analyses where sodium and potassium were calculated and reported as a combined value, the value reported for percent sodium will include the equivalent quantity of potassium. In most waters of moderate to high concentration the proportion of potassium is much smaller than that of sodium.

Specific conductance is given for most analyses and was determined by means of a conductance bridge and using a standard potassium chloride solution as reference. Specific conductance values are expressed in micromhos per centimeter at 25°C . Specific conductance in micromhos is 1 million times the reciprocal of specific resistance at 25°C . Specific resistance is the resistance in ohms of a column of water 1 centimeter long and 1 square centimeter in cross section. The discharge of the streams is reported in cubic feet per second (see Streamflow, p. 17) and the temperature in degrees Fahrenheit. Color is expressed in units of the platinum-cobalt scale proposed by Hazen (1892, p. 427-428). Hydrogen-ion concentration is expressed in terms of pH units. By definition the pH value of a solution is the negative logarithm of the concentration of gram ions of hydrogen. However, the pH meter that is generally used in Survey laboratories determines the activity of the hydrogen ions as distinguished from concentration.

An average of analyses for the water year is given for most daily sampling stations. Most of these averages are arithmetical or time-weighted; when analyses during a year are all on 10-day composites of daily samples with no missing days, the arithmetical and time-weighted averages are equivalent. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the river each day for the water year. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all of the water passing a given station during the year after thorough mixing in the reservoir. A discharge-weighted average is computed by multiplying the discharge for the sampling period by the concentrations of the individual constituents for the corresponding period and dividing the sum of the products

by the sum of the discharges. Discharge-weighted averages are usually lower than arithmetical averages for most streams because at times of high discharge the rivers generally have lower concentrations of dissolved solids.

The concentration of sediment in parts per million is computed as 1,000,000 times the ratio of the weight of sediment to the weight of water-sediment mixture. Daily sediment loads are expressed in tons per day and except for subdivided days are usually obtained by multiplying daily mean sediment concentration in parts per million by the daily mean discharge, and the appropriate conversion factor, normally 0.0027.

Particle-size analyses are expressed in percentages of material finer than indicated sizes in millimeters. The size classification used in this report is that recommended by the American Geophysical Union subcommittee on Terminology (Lane and others, 1947, p. 937). Other data included as pertinent to the size analyses for many streams are the date of collection, the stream discharge and sediment concentration when sample was collected, the concentration of the suspension during analysis, and the method of analysis.

COMPOSITION OF SURFACE WATERS

All natural waters contain dissolved mineral matter. Water in contact with soils or rock, even for only a few hours, will dissolve some rock materials. The quantity of dissolved mineral matter in a natural water depends primarily on the type of rocks or soils with which the water has been in contact and the length of time of contact. Some streams are fed by both surface runoff and ground water from springs or seeps. Such streams reflect the chemical character of their concentrated underground sources during dry periods and are more dilute during periods of heavy rainfall. Ground water is generally more highly mineralized than surface runoff because it remains in contact with the rocks and soils for much longer periods. The concentration of dissolved solids in a river water is frequently increased by drainage from mines or oil fields, by the addition of industrial or municipal wastes, or--in irrigated regions--by drainage from irrigated lands.

The mineral constituents and physical properties of natural waters reported in the tables of analyses include those that have a practical bearing on the value of the waters for most purposes. The analyses generally include results for silica, iron, calcium, magnesium, sodium, potassium (or sodium and potassium together as sodium), bicarbonate, sulfate, chloride, fluoride, nitrate, boron, pH, and dissolved solids. Aluminum, manganese, color, acidity, oxygen consumed, and other dissolved constituents and physical properties are reported for certain streams. Phenolic

material and minor elements including strontium, chromium, nickel, copper, lead, zinc, cobalt, arsenic, cadmium, and others are occasionally determined for a few streams in connection with specific problems in local areas and the results are reported when appropriate. The source and significance of the different constituents and properties of natural waters are discussed in the following paragraphs.

MINERAL CONSTITUENTS IN SOLUTION

Silica (SiO_2)

Silica is dissolved from practically all rocks. Some natural surface waters contain less than 5 parts per million of silica and a few contain more than 50 parts, but most waters contain from 1 to 30 parts per million. Silica affects the usefulness of a water because it contributes to the formation of boiler scale; it usually is removed from feed water for high-pressure boilers. Silica also forms troublesome deposits on the blades of stream turbines.

Aluminum (Al)

Aluminum is generally present only in negligible quantities in natural waters except in areas where the waters have been in contact with the more soluble rocks of high aluminum content such as bauxite and certain shales. Acid waters often contain large amounts of aluminum. It may be troublesome in feed waters where it tends to be deposited as a scale on boiler tubes.

Manganese (Mn)

Manganese is dissolved in appreciable quantities from rocks in some sections of the country. Waters impounded in large reservoirs may contain manganese that has been dissolved from the mud on the bottom of the reservoir by action of carbon dioxide produced by anaerobic fermentation of organic matter. Manganese is not regularly determined in areas where it is not present in the waters in appreciable amounts. It is especially objectionable in water used in laundry work and in textile processing. Concentrations as low as 0.2 part per million may cause a dark-brown or black stain on fabrics and porcelain fixtures. Appreciable quantities of manganese are often found in waters containing objectionable quantities of iron.

Iron (Fe)

Iron is dissolved from many rocks and soils. On exposure to the air, normal basic waters that contain more than 1 part per million of iron soon become turbid with the insoluble reddish ferric oxide produced by oxidation. Surface waters, therefore, seldom contain as much as 1 part per million of dissolved iron, although some acid waters carry large quantities of iron in solution. Iron causes reddish-brown stains on white porcelain or enameled ware and fixtures and on fabrics washed in the water.

Calcium (Ca)

Calcium is dissolved from almost all rocks and soils, but the highest concentrations are usually found in waters that have been in contact with limestone, dolomite, and gypsum. Calcium and magnesium make water hard and are largely responsible for the formation of boiler scale. Most waters associated with granite or silicious sands contain less than 10 parts per million of calcium; waters in areas where rocks are composed of dolomite and limestone contain from 30 to 100 parts per million; and waters that have come in contact with deposits of gypsum may contain several hundred parts per million.

Magnesium (Mg)

Magnesium is dissolved from many rocks, particularly from dolomitic rocks. Its effect in water is similar to that of calcium. The magnesium in soft waters may amount to only 1 or 2 parts per million, but water in areas that contain large quantities of dolomite or other magnesium-bearing rocks may contain from 20 to 100 parts per million or more of magnesium.

Sodium and potassium (Na and K)

Sodium and potassium are dissolved from almost all rocks. Sodium is the predominant cation in some of the more highly mineralized waters found in the Western United States. Natural waters that contain only 3 or 4 parts per million of the two together are likely to carry almost as much potassium as sodium. As the total quantity of these constituents increases, the proportion of sodium becomes much greater. Moderate quantities of sodium and potassium have little effect on the usefulness of the water for most purposes, but waters that carry more than 50 or 100 parts per million of the two may require careful operation of steam boilers

boilers to prevent foaming. More highly mineralized waters that contain a large proportion of sodium salts may be unsatisfactory for irrigation.

Carbonate and bicarbonate (CO_3 and HCO_3)

Bicarbonate occurs in waters largely through the action of carbon dioxide, which enables the water to dissolve carbonates of calcium and magnesium. Carbonate as such is not usually present in appreciable quantities in natural waters. The bicarbonate in waters that come from relatively insoluble rocks may amount to less than 50 parts per million; many waters from limestone contain from 200 to 400 parts per million. Bicarbonate in moderate concentrations in water has no effect on its value for most uses. Bicarbonate or carbonate is an aid in coagulation for the removal of suspended matter from water.

Sulfate (SO_4)

Sulfate is dissolved from many rocks and soils but in especially large quantities from gypsum and from beds of shale. It is formed also by the oxidation of sulfides of iron and is therefore present in considerable quantities in waters from mines. Sulfate in waters that contain much calcium and magnesium causes the formation of hard scale in steam boilers and may increase the cost of softening the water.

Chloride (Cl)

Chloride is dissolved from rock materials in all parts of the country. Surface waters in the humid regions are usually low in chloride content, whereas streams in arid or semiarid regions may contain several hundred parts per million of chloride leached from soils and rocks, especially where the streams receive return drainage from irrigated lands or are affected by ground-water inflow carrying appreciable quantities of chloride. Large quantities of chloride may affect the industrial use of water by increasing the corrosiveness of waters that contain large quantities of calcium and magnesium.

Fluoride (F)

Fluoride has been reported as being present in some rocks in about the same amount as chloride. However, the quantity of

fluoride in natural surface waters is ordinarily very small compared to that of chloride. Recent investigations indicate that the incidence of dental caries is less when there are small amounts of fluoride present in the water supply than when there is none. However, excess fluoride in water is associated with the dental defect known as mottled enamel if the water is used for drinking by young children during calcification or formation of the teeth (Dean, 1936, p. 1269-1272). This defect becomes increasingly noticeable as the quantity of fluoride in water increases above 1.5 to 2.0 parts per million.

Nitrate (NO_3)

Nitrate in water is considered a final oxidation product of nitrogenous material and may indicate contamination by sewage or other organic matter. The quantities of nitrate present in surface waters are generally less than 5 parts per million (as NO_3) and have no effect on the value of the water for ordinary uses.

It has been reported that as much as 2 parts per million of nitrate in boiler water tends to decrease intercrystalline cracking of boiler steel. Studies made in Illinois indicate that nitrates in excess of 70 parts per million (as NO_3) may contribute to methemoglobinemia ("blue babies") (Faucett and Miller, 1946, p. 593), and more recent investigations conducted in Ohio show that drinking water containing nitrates in the range of 44 to 88 parts per million or more (as NO_3) may cause methemoglobinemia (Waring, 1949). In a report published by the National Research Council, Maxcy (1950, p. 271) concludes that a nitrate content in excess of 44 parts per million (as NO_3) should be regarded as unsafe for infant feeding.

Boron (B)

Boron in small quantities has been found essential for plant growth, but irrigation water containing more than 1 part per million of boron is detrimental to citrus and other boron-sensitive crops. Boron is reported in Survey analyses of surface waters in arid and semiarid regions where irrigation is practiced or contemplated, but few of the surface waters analyzed have harmful concentrations of boron.

Dissolved solids

The reported quantity of dissolved solids--the residue on evaporation--consists mainly of the dissolved mineral constituents in the water. It may also contain some organic matter and water of crystallization. Waters with less than 500 parts per million of dissolved solids are usually satisfactory for domestic and some industrial uses. Water containing several thousand parts per million of dissolved solids are sometimes successfully used for irrigation where practices permit the removal of soluble salts through the application of large volumes of water on well-drained lands, but generally water containing more than about 2,000 ppm is considered to be unsuitable for long-term irrigation under average conditions.

PROPERTIES AND CHARACTERISTICS OF WATER

Water temperature

Large quantities of water are used in industrial operation; therefore temperature and seasonal fluctuations of that temperature are major considerations in planning the use of water for cooling in industrial plants. Water at high temperature can carry less oxygen in solution than at low temperature. Consequently water temperature can affect or determine the pollution characteristics of a stream. Temperature data are required in studies of water intended for aquatic life. A few degrees rise in temperature may seriously limit the capacity of a stream to support fish life.

Oxygen consumed

The amount of oxygen consumed furnishes an approximation of the oxidizable matter in the unfiltered and filtered samples and gives a partial measure of polluting materials such as sewage and oxidizable industrial wastes. Waters of naturally high color may have relatively high values for oxygen consumed, and waters that are not noticeably colored may contain oxidizable material.

Color

In water analysis the term "color" refers to the appearance of water that is free from suspended solids. Many turbid waters

that appear yellow, red, or brown when viewed in the stream show very little color after the suspended matter has been removed. The yellow-to-brown color of some waters is usually caused by organic matter extracted from leaves, roots, and other organic substances in the ground. In some areas objectionable color in water results from industrial wastes and sewage. Clear deep water may appear blue as the result of a scattering of sunlight by the water molecules. Water for domestic use and some industrial uses should be free from any perceptible color. A color less than 10 units generally passes unnoticed. Some swamp waters have natural color of 200 to 300 units or more.

Hydrogen-ion concentration (pH)

The degree of acidity or alkalinity of water, as indicated by the hydrogen-ion concentration, expressed as pH (see p.7), is related to the corrosive properties of water and is useful in determining the proper treatment for coagulation that may be necessary at water-treatment plants. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity. The pH of most natural surface waters ranges between 6 and 8. Some alkaline surface waters have pH values greater than 8.0, and waters containing free mineral acid usually have pH values less than 4.5.

Specific conductance (micromhos per centimeter at 25°C)

The specific conductance of a water is a measure of its capacity to conduct a current of electricity (see p.7). The conductance varies with the concentration and degree of ionization of the different minerals in solution and with the temperature of the water. When considered in conjunction with results of determinations for other constituents, specific conductance is a useful determination and plays an important part in indicating changes in concentration of the total quantity of dissolved minerals in surface waters.

Hardness

Hardness is the characteristic of water that receives the most attention in industrial and domestic use. It is commonly recognized by the increased quantity of soap required to produce lather. The use of hard water is also objectionable because it contributes to the formation of scale in boilers, water heaters, radiators, and

pipes, with the resultant decrease in rate of heat transfer, possibility of boiler failure, and loss of flow.

Hardness is caused almost entirely by compounds of calcium and magnesium. Other constituents--such as iron, manganese, aluminum, barium, strontium, and free acid--also cause hardness, although they usually are not present in quantities large enough to have any appreciable effect. Water that has less than 60 parts per million of hardness is usually rated as soft and suitable for many purposes without further softening. Waters with hardness ranging from 61 to 120 parts per million may be considered moderately hard, but this degree of hardness does not seriously interfere with the use of water for many purposes except for use in high-pressure steam boilers and in some industrial processes. Waters with hardness ranging from 121 to 200 parts per million are considered hard, and laundries and industries may profitably soften such supplies. Water with hardness above 200 parts per million generally requires some softening before being used for most purposes.

Acidity

The acidity of a natural water represents the content of free carbon dioxide and other uncombined gases, organic acids, mineral acids and salts of strong acids and weak bases that hydrolyze to give hydrogen ions. Sulfate of iron and aluminum in mine and industrial wastes are common sources of acidity.

Corrosiveness

The corrosiveness of a water is that property which makes the water aggressive to metal surfaces and frequently results in the appearance of the "red-water" caused by solution of iron. The disadvantages of iron in water have been discussed previously. Additionally, corrosion causes the deterioration of water pipes, steam boilers, and water-heating equipment. Many waters that do not appreciably corrode cold-water lines will aggressively attack hot-water lines. Oxygen, carbon dioxide, free acid, and acid-generating salts are the principal constituents in water that cause corrosion. In a general way, very soft waters of low mineral content tend to be more corrosive than hard waters containing appreciable quantities of carbonates and bicarbonates of calcium and magnesium.

Percent sodium

The proportion of sodium to the total cation concentration is termed "percent sodium", and is reported in most of the analyses

of waters collected from streams in the western part of the country where irrigation is practiced extensively. The proportion of sodium to all the constituents in the water is explained on page 10 under "Sodium and potassium". Waters in which the percent sodium is more than 60 may be injurious when applied to certain types of soils, particularly when adequate drainage is not provided (Magistad and Christiansen, 1944, p. 8-9).

Sodium-adsorption-ratio

Of more significance than percent sodium for use as an index of the sodium or alkali hazard to the soil is the sodium-adsorption-ratio because it relates more directly to the adsorption of sodium by the soil. The term, "sodium-adsorption-ratio (SAR)" was introduced by the U. S. Salinity Laboratory Staff (1954), and is a ratio expressing the relative activity of sodium ions in exchange reactions with the soil. It is expressed by the equation:

$$SAR = \frac{\frac{Na^{+}}{Ca^{++} + Mg^{++}}}{2}$$

where the concentrations of the ions are expressed in milliequivalents per liter (or equivalents per million for most irrigation waters).

Waters are divided into four classes with respect to sodium or alkali hazard: low, medium, high, and very high, depending upon the SAR and the specific conductance. At a conductance of 100 micromhos per centimeter the dividing points are at SAR values of 10, 18, and 26, but at 5,000 micromhos the corresponding dividing points are SAR values of approximately 2.5, 6.5, and 11. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

SEDIMENT

Fluvial sediment is generally regarded as that sediment which is transported by, suspended in, or deposited by water. Suspended sediment is that part of it which remains in suspension in water owing to the upward components of turbulent currents or by colloidal suspension. Most fluvial sediment results from the normal process of erosion, which in turn is part of the geologic cycle of

rock transformation. In some instances, this normal process may have been accelerated by agricultural practices. Sediment also results from a number of industrial activities. In certain sections, waste materials from mining, logging, oil-field, and other industrial operations introduce large quantities of suspended as well as dissolved material.

The quantity of sediment, transported or available for transportation, is affected by climatic conditions, form or nature of precipitation, plant cover, topography, and land use. An important property of fluvial sediment is the fall velocity of the particles in transport. Particle sizes, as determined by various methods, represent mechanical diameters, which are related to sedimentation diameters indirectly. Sediment particles in the sand-size (larger than 0.062 mm) range do not appear to be affected by flocculation or dispersion resulting from the mineral constituents in solution. The sedimentation diameter of clay and silt particles in suspension may vary considerably from point to point in a stream or reservoir, depending on the mineral matter in solution and in suspension and the degree of turbulence present. The size of sediment particles in transport at any point depends on the type of erodible and soluble material in the drainage area, the degree of flocculation present, time in transport, and characteristics of the transporting flow. The flow characteristics include velocity of water, turbulence, and the depth, width, and roughness of the channel. As a result of these variable characteristics, the size of particles transported, as well as the total sediment load, is in constant adjustment with the characteristics and physical features of the stream and drainage area.

STREAMFLOW

Most of the records of stream discharge, used in conjunction with the chemical analyses and in the computation of sediment loads in this volume, are published in Geological Survey reports on the surface-water supply of the United States. The discharge reported for a composite sample is usually the average of daily mean discharges for the composite period. The discharges reported in the tables of single analyses are either daily mean discharges or discharges for the time at which samples were collected, computed from a stage-discharge relation or from a discharge measurement.

PUBLICATIONS

Reports giving records of chemical quality and temperatures of surface waters and suspended-sediment loads of streams in the

area covered by this volume for the water years 1941-56, are listed below:

Numbers of water-supply papers containing records for
Parts 7-8, 1941-56

Year	WSP	Year	WSP	Year	WSP	Year	WSP
1941	942	1945	1030	1949	1163	1953	1292
1942	950	1946	1050	1950	1188	1954	1352
1943	970	1947	1102	1951	1199	1955	1402
1944	1022	1948	1133	1952	1252	1956	1452

Geological Survey reports containing chemical quality, temperature, and sediment data obtained before 1941 are listed below. Publications dealing largely with the quality of ground-water supplies and only incidentally covering the chemical composition of surface waters are not included. Publications that are out of print are preceded by an asterisk.

PROFESSIONAL PAPER

- *135. Composition of river and lake waters of the United States, 1924.

BULLETINS

- *479. The geochemical interpretation of water analyses, 1911.
- 770. The data of geochemistry, 1924.

WATER-SUPPLY PAPERS

- *108. Quality of water in the Susquehanna River drainage basin, with an introductory chapter on physiographic features, 1904.
- *161. Quality of water in the upper Ohio River basin and at Erie, Pa., 1906.
- *193. The quality of surface waters in Minnesota, 1907.
- *236. The quality of surface waters in the United States, Part 1, Analyses of waters east of the one hundredth meridian, 1909.
- *237. The quality of the surface waters of California, 1910.
- *239. The quality of the surface waters of Illinois, 1910.
- *273. Quality of the water supplies of Kansas, with a preliminary report on stream pollution by mine waters in southeastern Kansas, 1911.

- *274. Some stream waters of the western United States, with chapters on sediment carried by the Rio Grande and the industrial application of water analyses, 1911.
- *339. Quality of the surface waters of Washington, 1914.
- *363. Quality of the surface waters of Oregon, 1914.
- *418. Mineral springs of Alaska, with a chapter on the chemical character of some surface waters of Alaska, 1917.
- *596-B. Quality of water of Colorado River in 1925-26, 1928.
- *596-D. Quality of water of Pecos River in Texas, 1928.
- *596-E. Quality of the surface waters of New Jersey, 1928.
- *636-A. Quality of water of the Colorado River in 1926-28, 1930.
- *636-B. Suspended matter in the Colorado River in 1925-28, 1930.
- *638-D. Quality of water of the Colorado River in 1928-30, 1932.
- *839. Quality of water of the Rio Grande basin above Fort Quitman, Tex., 1938.
- *889-E. Chemical character of surface water of Georgia, 1944.
- *998. Suspended sediment in the Colorado River, 1925-41, 1947.
- 1048. Discharge and sediment loads in the Boise River drainage basin, Idaho, 1939-40, 1948.
- 1110-C. Quality of water of Conchas Reservoir, New Mexico, 1939-49, 1952.

Many of the reports listed are available for consultation in the larger public and institutional libraries. Copies of Geological Survey publications still in print may be purchased at a nominal cost from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, upon request, furnish lists giving prices.

COOPERATION

The table on p. 20 lists State and local agencies that cooperated in quality-of-water investigations in the drainage basins included in this volume. The locations of quality-of-water district or regional offices responsible for the data collected are also given in this table.

Financial assistance was furnished by the Bureau of Reclamation of the United States Department of the Interior for some of the investigations in Oklahoma and New Mexico and by the Corps of Engineers, Department of the Army, for some investigations in Texas. The Corps also provided financial assistance and made most determinations of sediment concentrations and of particle-size of bed material in connection with the sedimentation investigations of the Mississippi River at St. Louis, Mo. Assistance in collecting data was given by many individuals and by municipal, State, and Federal agencies.

State	Cooperating agency	Drainage basin	District or regional office
Arkansas	Engineering Experiment Station University of Arkansas, Dean George F. Branigan, director.	Lower Mississippi River.	P. O. Box 32, University Station 205 Ozark St. Fayetteville, Ark.
Louisiana	Louisiana Department of Public Works, Roy T. Sessums, director.	Lower Mississippi River, Western Gulf of Mexico.	807 Brazos St. Austin 14, Tex.
Missouri	Corps of Engineers, Department of Army.	Lower Mississippi River (sediment investigations at St. Louis).	510 Rudge-Guenzel Bldg. Lincoln, Nebr.
New Mexico	New Mexico Interstate Stream Commission, S. E. Reynolds, secretary. Pecos River Commission, J. H. Bliss, commissioner for New Mexico, J. C. Wilson, commissioner for Texas. Sherman O. Decker, secretary.	Lower Mississippi River, Western Gulf of Mexico	P. O. Box 4217, Albuquerque, N. Mex.

State	Cooperating agency	Drainage basin	District or regional office
Oklahoma	Oklahoma Water Resources Board, Francis J. Borelli, executive director.	Lower Mississippi River.	P. O. Box 4355 Oklahoma City, Okla..
Texas	Texas State Board of Water Engineers, consisting of R. M. Dixon, chairman, H. A. Beckwith, and O. F. Dent; Red Bluff Water Power Control District, Lower Colorado River Authority, the Canadian River Municipal Water Authority, Brazos River Authority, Sabine River Authority, the Lower Neches River Authority, and the West Central Texas Municipal Water District. The cities of Fort Worth and Wichita Falls; the Chambers-Liberty Counties Navigation District; and the Greenbelt Industrial and Municipal Water Authority.	Lower Mississippi River, Western Gulf of Mexico.	807 Brazos St. Austin, Tex.

In addition, many of the investigations were supported by funds appropriated directly to the Geological Survey. Studies of suspended-sediment loads in the middle Rio Grande in New Mexico were begun in 1948 as a Federal project.

DIVISION OF WORK

The quality-of-water program was conducted by the Water Resources Division of the Geological Survey, Carl G. Paulsen, chief hydraulic engineer, succeeded by L. B. Leopold, and S. K. Love, chief of the Quality of Water Branch. The data were collected and prepared for publication under the supervision of district or regional chemists and engineers as follows: In Missouri--P. C. Benedict; in Oklahoma and in the Arkansas River basin in Kansas--T. B. Dover; in Arkansas--J. W. Geurin; in Texas and Louisiana--Burdge Irelan; in New Mexico and in the Rio Grande and Arkansas River basins in Colorado--J. M. Stow. Any additional information on file can be obtained by writing the responsible Survey district office.

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MISSISSIPPI RIVER MAIN STEM

LOCATION.--At McArthur Bridge, 1.1 miles below gaging station, which is 15 miles downstream from Missouri River and 180 miles upstream from Ohio River.

DRAINAGE AREA.--701,000 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1956.

Sediment records: April 1948 to September 1956

EXTREMES, 1955-56.--Water temperatures: Maximum, 85°F Aug. 6; minimum, freezing point Dec. 13.

Sediment concentrations: Maximum daily, 1,500 ppm July 15; minimum daily, 35 ppm

Jan. 23, 25

Sediment loads: Maximum daily, 850,000 tons Oct. 8: minimum daily, 4,250 tons Jan. 25.

EXTREMES, 1948-56. --Water temperatures (1950-56): Maximum, 89°F Aug. 2, 1955; minimum, freezing point on several days during winter months.

Sediment concentrations: Maximum daily, 6,420 ppm June 7, 1951; minimum daily, 35 ppm Jan. 23, 25, 1956.

Sediment loads: Maximum daily, 7,010,000 tons May 5, 1951; minimum daily, 4,250 tons Jan. 25, 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Temperature (°F) of water, water year October 1955 to September 1956

Once-daily measurement generally between 9 a. m. and 2 p. m.

[illegible]

MISSISSIPPI RIVER MAIN STEM

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MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER AT ST. LOUIS, MO.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	102,000	855	180,000	77,700	240	a 50,000	49,000	70	a 9,300
2.....	104,000	800	a 170,000	85,000	210	a 48,000	49,000	85	a 8,600
3.....	104,000	520	a 150,000	80,500	198	a 43,000	53,500	80	a 8,700
4.....	94,400	355	90,500	79,100	210	a 45,000	59,400	80	a 9,600
5.....	91,200	420	a 100,000	78,400	220	46,600	57,400	70	a 11,000
6.....	143,000	440	170,000	79,100	220	a 47,000	52,200	69	9,720
7.....	199,000	510	a 270,000	76,300	220	a 45,000	49,000	85	a 11,000
8.....	225,000	1,400	a 850,000	74,900	229	46,300	52,200	95	a 13,000
9.....	194,000	1,200	a 630,000	75,600	230	a 47,000	51,600	107	14,900
10.....	171,000	851	393,000	75,600	240	a 49,000	49,000	110	a 15,000
11.....	144,000	720	a 280,000	73,500	240	47,600	49,000	90	a 12,000
12.....	127,000	670	a 230,000	73,500	200	39,700	50,900	85	a 12,000
13.....	112,000	654	198,000	73,500	190	a 38,000	52,200	76	10,700
14.....	104,000	630	a 180,000	72,100	190	a 37,000	52,800	75	a 11,000
15.....	97,600	500	132,000	69,300	166	31,100	56,100	70	a 11,000
16.....	92,000	430	a 110,000	70,700	140	a 27,000	53,500	75	a 11,000
17.....	88,000	398	94,800	63,900	150	a 26,000	50,900	95	a 13,000
18.....	82,800	350	a 78,000	62,600	158	26,700	51,600	85	a 12,000
19.....	79,100	310	a 66,000	62,000	138	23,100	52,200	85	a 12,000
20.....	74,900	312	63,100	60,600	120	a 20,000	52,200	85	a 12,000
21.....	73,500	300	a 60,000	58,000	110	a 17,000	50,900	60	a 8,200
22.....	72,100	273	53,100	56,800	109	16,700	50,200	55	a 7,500
23.....	68,600	250	a 46,000	58,000	130	a 20,000	51,600	70	a 9,800
24.....	70,000	250	a 47,000	55,400	120	a 18,000	57,400	75	a 12,000
25.....	67,900	240	44,000	54,200	132	19,300	58,700	75	a 12,000
26.....	66,500	250	a 45,000	52,200	94	13,200	56,100	75	a 11,000
27.....	65,200	248	43,700	51,600	75	a 10,000	57,400	85	13,200
28.....	72,100	270	a 53,000	52,200	75	a 11,000	57,400	80	a 12,000
29.....	82,000	295	65,300	50,900	75	a 10,000	55,400	70	a 10,000
30.....	80,500	260	a 57,000	50,200	70	a 9,500	55,400	66	9,870
31.....	82,000	240	53,100	--	--	--	54,800	70	10,000
Total.	3,229,400	--	5,022,400	2,003,400	--	927,800	1,649,000	--	343,090
Day	January			February			March		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	54,800	65	a 9,600	54,200	67	9,800	32,800	150	a 34,000
2.....	52,200	70	a 9,900	52,800	60	a 8,600	33,500	216	48,700
3.....	54,200	71	10,400	52,800	69	9,840	32,800	200	a 50,000
4.....	56,800	75	a 12,000	52,800	70	a 10,000	36,500	170	a 40,000
5.....	55,400	82	12,300	53,500	80	a 12,000	38,000	160	a 38,000
6.....	54,800	82	12,100	55,400	80	12,000	37,200	146	34,400
7.....	56,800	75	a 12,000	56,100	75	a 11,000	35,200	139	35,700
8.....	56,100	70	a 11,000	55,400	66	9,870	30,400	160	a 39,000
9.....	53,500	63	9,100	55,400	65	a 9,700	36,500	170	a 40,000
10.....	52,800	55	a 7,800	55,400	65	a 9,700	35,800	177	41,000
11.....	52,200	55	a 7,800	56,800	70	a 11,000	39,800	180	a 39,000
12.....	52,200	48	6,770	56,800	70	a 11,000	32,000	160	a 35,000
13.....	54,200	53	7,760	56,100	63	9,540	33,500	130	a 29,000
14.....	54,800	60	a 8,900	56,100	64	9,690	31,000	120	a 26,000
15.....	53,500	50	a 7,200	56,100	60	a 9,100	38,400	130	a 28,000
16.....	52,200	50	a 7,000	55,400	85	a 13,000	39,100	140	a 30,000
17.....	47,000	50	a 6,300	56,100	75	11,400	37,700	150	a 31,000
18.....	44,400	45	a 5,400	56,100	65	a 9,800	37,700	140	a 29,000
19.....	45,700	45	a 5,600	56,100	65	a 9,800	37,700	122	25,600
20.....	47,000	40	a 5,100	56,100	60	9,090	34,200	110	a 22,000
21.....	49,000	45	a 6,000	56,100	59	8,940	38,600	120	22,200
22.....	47,000	40	a 5,100	57,400	65	a 10,000	36,500	120	a 22,000
23.....	46,400	35	a 4,400	59,400	65	a 10,000	36,500	111	19,900
24.....	46,400	40	a 5,000	61,300	78	12,900	34,200	140	a 28,000
25.....	45,000	35	4,250	77,000	150	a 31,000	37,700	400	a 84,000
26.....	44,400	40	a 4,800	67,900	160	a 29,000	31,200	521	114,000
27.....	45,000	49	5,950	67,200	149	27,000	32,800	470	a 110,000
28.....	47,600	60	a 7,700	79,800	140	a 30,000	38,000	400	95,000
29.....	52,800	70	a 10,000	85,000	113	25,900	39,800	420	a 100,000
30.....	56,800	84	12,900	--	--	--	33,600	391	98,600
31.....	56,100	120	a 18,000	--	--	--	38,400	380	a 100,000
Total.	1,587,100	--	258,130	1,716,600	--	390,670	2,557,100	--	1,489,300

a Computed from estimated concentration graph and daily turbidity readings.

LOWER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER AT ST. LOUIS, MO.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	105,000	320	a 91,000	203,000	741	406,000	153,000	534	221,000
2.....	109,000	290	a 85,000	206,000	989	550,000	151,000	440	a 180,000
3.....	103,000	293	81,500	184,000	1,050	522,000	151,000	490	a 200,000
4.....	106,000	290	a 83,000	165,000	741	330,000	153,000	605	250,000
5.....	108,000	360	a 100,000	157,000	680	a 280,000	136,000	630	a 230,000
6.....	123,000	340	a 110,000	151,000	480	a 190,000	123,000	504	187,000
7.....	137,000	320	a 120,000	144,000	306	119,000	120,000	470	a 150,000
8.....	133,000	330	a 120,000	150,000	330	a 130,000	114,000	388	119,000
9.....	139,000	340	a 130,000	159,000	401	172,000	101,000	330	a 90,000
10.....	153,000	418	173,000	153,000	370	a 150,000	97,600	420	a 110,000
11.....	151,000	424	173,000	146,000	292	115,000	97,600	470	124,000
12.....	152,000	500	a 210,000	148,000	240	a 95,000	94,400	470	a 120,000
13.....	158,000	453	193,000	144,000	250	a 97,000	96,800	451	118,000
14.....	160,000	440	a 190,000	147,000	351	139,000	93,600	460	a 120,000
15.....	160,000	460	a 200,000	150,000	501	203,000	88,800	432	104,000
16.....	162,000	400	a 170,000	146,000	380	a 150,000	79,100	390	a 83,000
17.....	165,000	389	173,000	139,000	330	a 120,000	79,100	340	a 73,000
18.....	157,000	400	a 170,000	136,000	292	107,000	80,500	400	a 87,000
19.....	152,000	420	a 170,000	138,000	300	a 110,000	88,000	484	115,000
20.....	158,000	390	a 170,000	148,000	310	a 120,000	102,000	645	178,000
21.....	165,000	360	a 160,000	154,000	340	a 140,000	116,000	419	131,000
22.....	165,000	360	a 160,000	143,000	440	170,000	120,000	293	94,900
23.....	169,000	378	172,000	130,000	435	153,000	121,000	250	a 82,000
24.....	169,000	370	a 170,000	121,000	702	229,000	116,000	280	a 88,000
25.....	168,000	380	a 170,000	116,000	642	201,000	123,000	370	a 120,000
26.....	169,000	374	171,000	118,000	550	a 180,000	125,000	370	a 120,000
27.....	165,000	419	187,000	116,000	380	a 110,000	131,000	420	a 150,000
28.....	160,000	350	a 150,000	115,000	293	91,000	125,000	566	191,000
29.....	166,000	330	a 150,000	116,000	250	a 78,000	113,000	309	94,300
30.....	194,000	427	224,000	128,000	290	a 100,000	111,000	290	a 87,000
31.....	--	--	--	139,000	550	a 210,000	--	--	--
Total.	4,481,000	--	4,628,500	4,508,000	--	5,787,000	3,400,500	--	3,997,200
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	113,000	270	82,000	77,700	343	72,000	98,400	360	a 96,000
2.....	108,000	243	70,900	87,200	330	a 78,000	99,200	300	a 80,000
3.....	111,000	270	a 81,000	107,000	374	108,000	97,600	290	a 76,000
4.....	131,000	270	a 95,000	117,000	500	a 160,000	100,000	249	67,200
5.....	162,000	630	276,000	116,000	600	a 190,000	76,300	250	a 52,000
6.....	168,000	786	357,000	108,000	519	151,000	78,400	227	48,100
7.....	164,000	820	a 360,000	124,000	930	a 310,000	77,700	221	46,400
8.....	159,000	1,100	a 470,000	130,000	843	298,000	77,700	220	a 46,000
9.....	154,000	1,020	424,000	138,000	588	219,000	76,300	210	a 43,000
10.....	151,000	780	a 320,000	143,000	542	209,000	73,500	216	42,900
11.....	145,000	1,260	493,000	132,000	630	a 220,000	73,500	250	a 50,000
12.....	126,000	1,390	473,000	128,000	670	a 230,000	77,000	238	49,500
13.....	112,000	1,070	324,000	122,000	626	206,000	83,500	267	60,200
14.....	102,000	1,400	a 390,000	118,000	480	a 150,000	77,000	469	97,500
15.....	105,000	1,500	a 430,000	132,000	345	123,000	72,800	800	a 160,000
16.....	108,000	915	267,000	132,000	341	122,000	71,400	710	a 140,000
17.....	111,000	920	a 280,000	124,000	388	130,000	70,000	493	93,200
18.....	124,000	1,140	382,000	116,000	470	a 150,000	69,300	319	59,700
19.....	131,000	1,080	382,000	114,000	470	a 140,000	70,000	269	50,800
20.....	125,000	1,020	344,000	102,000	371	102,000	71,400	220	a 42,000
21.....	111,000	1,000	a 300,000	97,600	290	a 76,000	70,000	198	37,400
22.....	106,000	1,000	a 290,000	103,000	256	71,200	67,900	180	a 33,000
23.....	106,000	826	236,000	101,000	230	a 63,000	67,900	200	a 37,000
24.....	116,000	770	a 240,000	92,800	226	56,600	65,200	197	34,700
25.....	112,000	665	201,000	85,800	230	a 53,000	62,000	210	a 35,000
26.....	103,000	680	a 190,000	86,500	290	a 68,000	61,300	219	36,200
27.....	94,400	618	158,000	90,400	645	157,000	60,000	210	a 34,000
28.....	85,000	700	a 160,000	82,800	720	a 160,000	60,000	192	31,100
29.....	85,000	640	a 150,000	77,700	681	143,000	60,000	210	a 34,000
30.....	87,200	473	111,000	75,600	650	a 130,000	59,400	230	a 37,000
31.....	85,000	410	a 94,000	80,500	439	95,400	--	--	--
Total.	3,700,600	--	3,430,900	3,341,600	--	4,439,200	2,224,700	--	1,749,900
Total discharge for year (cfs-days).....									34,399,000
Total load for year (tons).....									37,422,090

a Computed from estimated concentration graph and daily turbidity readings.

MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER AT ST. LOUIS, MO.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	
In discolored water, 1% of the primary suspension, 1% of the secondary suspension, 1% of the tertiary suspension, 1% of the quaternary suspension, 1% of the quinary suspension, 1% of the quaternary suspension, 1% of the															

Particle-size analyses of bed material, water year October 1955 to September 1956

Date of Collection	Number of sampling points	Discharge (cfs)	Water temperature (°F)	Bed material										Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.062	0.125	0.250	0.500	1.000	2.000		4.000	8.000	16.000
Dec. 28, 1955	15	57,400				0	1	33	76	89	95	99	100	--	S
Feb. 22, 1956	15	57,400				0	2	32	78	93	98	99	100	--	S
Apr. 25	14	169,000			--	--	0	33	79	90	93	96	98	100	SV
Apr. 27	4	165,000					7	89	95	100	--	--	--	--	SV
May 10	14	153,000			--	--	0	33	86	96	98	99	99	100	SB
July 10	14	150,000					1	23	78	93	97	99	100	--	S
Aug. 6	14	106,000				0	1	27	82	94	98	99	100	--	S

LOWER MISSISSIPPI RIVER BASIN

ST. FRANCIS RIVER BASIN

MISCELLANEOUS ANALYSES OF STREAMS IN ST. FRANCIS RIVER BASIN IN ARKANSAS

Chemical analyses, in parts per million, water year October 1955 to September 1956

Chemical analyses, in parts per million, water year October 1955 to September 1956										
Date of collection	Discharge (cfs)	Bicar- bonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH
							Calcium, mag- nesium	Non- carbon- ate		
ST. FRANCIS RIVER AT ST. FRANCIS										
Nov. 23, 1955	965	116	2	21	2.8	1.1	132	34	170	8.3
June 19, 1956	626	220	7	22	10	.5	203	11	394	8.6
June 28	1,080	86	0	14	3.5	1.8	82	11	165	7.8
ST. FRANCIS RIVER AT LAKE CITY										
Nov. 23, 1956	315	134	5	4.0	4.2	1.6	131	13	198	8.4
June 27, 1956	1,280	134	4	4.0	4.0	1.3	125	9	246	8.5
RIGHT HAND CHUTE OF LITTLE RIVER AT RIVERVALE										
Nov. 22, 1955	350	207	14	20	12	0.4	234	41	335	8.6
July 6, 1956	1,070	190	14	12	14	.9	194	15	388	8.8
ST. FRANCIS RIVER FLOODWAY NEAR MARKED TREE										
Nov. 8, 1955	301	228	10	17	12	0.8	244	34	399	8.5
June 19, 1956	856	138	6	12	2.5	2.1	125	2	243	8.6
ST. FRANCIS RIVER AT MARKED TREE										
Nov. 8, 1955	107	166	0	16	6.0	0.4	162	26	310	8.2
ST. FRANCIS BAY NEAR RIVERFRONT										
Nov. 22, 1955	682	188	10	22	8.0	0.3	196	25	295	8.5
June 26, 1956	1,270	177	0	13	2.5	1.0	158	13	299	8.0
ST. FRANCIS RIVER AT PARKIN										
Nov. 22, 1955	333	187	5	22	4.5	0.8	187	25	285	8.4
June 26, 1956	1,860	218	6	18	10	.9	202	13	392	8.4

WHITE RIVER BASIN

WAR EAGLE CREEK NEAR HINDSVILLE, ARK.

LOCATION.--At gaging station at bridge on State Highway 45, 4 miles downstream from Poyner Hollow Creek, and 4 miles north of Hindsville, Madison County. DRAINAGE AREA.--262 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium, magnesium	Non-carbonate			
Oct. 3, 1955	52.8			32	0.9	1.3		92	3.0	3.0		2.8	110	84	8	173	7.4	22
Oct. 24	11.8			40	1.8	2.1		122	1.8	4.0		1.8	136	107	6	216	7.3	5
Nov. 21	11			44	1.3	2.4		133	3.2	4.0		1.8	136	118	6	216	7.3	5
Dec. 21	9.1			45	3.8	2.9		138	4.4	4.7		1.1	129	128	14	236	7.2	5
Jan. 4, 1956	8.4			45	3.8	2.9		140	3.8	4.7		1.1	129	128	14	236	7.2	5
Jan. 23	11			43	3.0	1.4		136	4.4	3.4		1.2	128	120	8	234	7.2	5
Feb. 13	215			18	1.2	2.0		48	7.0	2.6		3.7	77	50	10	110	6.7	--
Mar. 8	141			24	1.7	2.1		74	6.0	3.0		2.2	98	67	6	144	8.3	10
Apr. 17	474			14	1.3	2.6		47	5.4	2.2		1.8	82	40	2	96.0	7.7	--
May 4	444			16	2.6	1.5		51	8.2	2.0		1.5	72	51	9	106	7.5	15
June 4	120			20	3.6	1.8		66	4.0	4.5		2.2	90	65	11	140	7.4	15
Aug. 7	21			29	2.9	2.0		102	4.0	2.0		.7	104	84	1	176	8.0	5
Sept. 5	5.0			40	1.4	2.8		123	1.0	4.0		2.0	119	106	5	210	7.6	5

a Includes equivalent of 2 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued

KINGS RIVER NEAR BERRYVILLE, ARK.

LOCATION.--At gaging station at bridge on county road, 1½ miles downstream from Bee Creek, 2½ miles upstream from Clabber Creek, and 5½ miles northwest of Berryville, Carroll County.
 DRAINAGE AREA.--532 square miles.
 RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.
 REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium, magnesium	Non-carbonate			
Oct. 4, 1955	72			38	8.6	1.5	--	152	3.4	3.0		0.6	144	130	6	253	7.8	7
Oct. 25	14			42	10	2.3	--	170	6.4	3.5		.5	156	146	7	283	8.2	5
Nov. 22	23			44	12	3.3	--	186	6.8	5.0		.5	170	159	7	310	7.8	5
Dec. 22	19			43	12	2.8	--	a 180	6.2	4.5		.3	156	157	9	292	8.4	5
Jan. 5, 1956	17			44	13	2.2	--	190	5.8	3.8		.7	162	164	8	306	7.9	--
Jan. 24	22			42	13	2.0	--	184	6.3	4.4		.8	158	158	7	296	7.7	--
Feb. 14	333			32	5.8	1.4	--	110	7.1	2.2		3.9	115	104	14	204	7.9	--
Mar. 9	246			31	6.0	2.6	--	115	4.0	3.8		2.4	137	102	8	203	8.0	7
Mar. 2	1,770			25	5.7	1.8	1.1	92	9.6	2.5		1.6	102	86	10	168	8.9	10
June 5	214			30	8.4	2.0	1.1	126	8.0	2.2		.4	126	109	6	212	8.0	8
July 19	20			36	14	2.7	1.3	165	8.4	3.2		.4	157	147	12	271	8.0	5
Aug. 8	50			36	10	2.8	1.6	a 158	4.0	3.0		.6	126	131	1	248	8.5	5
Sept. 5	9.0			39	10	3.0	--	163	4.6	3.5		.6	144	138	5	268	7.8	5

a Includes equivalent of 3 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued

WHITE RIVER AT BULL SHOALS DAM, ARK.

LOCATION.--At dam on White River, 6.3 miles northeast of Flippin, 12½ miles downstream from Little North Fork, and at mile 418.6.

DRAINAGE AREA.--6,036 square miles.

RECORDS AVAILABLE.--Chemical analyses: July 1954 to September 1956.

Water temperatures: October 1954 to September 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (interpolated at 25°C)	pH	Color
														Calcium	Non-magnesium carbonate			
Oct. 3-7, 10-14, 17-18, 20-21, 24-28, 31, 1955.				36	11	2.4		146	9.4	3.0		4.3	155	135	15	256	7.9	15
Nov. 1-4, 7-10, 14-18, 21-23, 28-30				35	11	2.4		147	10	3.0		2.5	153	133	12	253	8.2	10
Dec. 1-2, 5-9, 12-16, 19-23, 27-30				34	12	3.1		150	9.2	3.0		2.5	162	134	11	257	8.2	15
Jan. 3-6, 9-13, 16-18, 20, 23-27, 30, 1956				36	11	2.1		151	7.2	2.5		1.6	162	135	11	254	8.1	5
Feb. 1-3, 6-9, 13-17, 20-21, 23-24, 27-28				35	11	2.1		149	8.0	3.5		1.6	159	133	10	253	8.1	5
Mar. 1-2, 5-8, 12-16, 18-23, 26-30				36	11	2.3		152	8.4	3.0		2.1	149	135	10	249	8.2	5
Apr. 1-2, 5-8, 13, 16-20, 23-27, 30				37	11	2.5		a156	6.6	3.5		2.2	152	138	10	249	8.5	5
May 1-4, 7-11, 14-15, 17-18, 21-24, 27-28, 31				38	10	2.8		156	8.0	2.5		3.3	143	136	8	267	8.1	7
June 1-4-8, 11-15, 18-22, 25-30				40	9.3	2.9		156	7.0	2.5		3.0	152	138	10	266	8.0	7
July 2-3, 5-6, 9-13, 16-20, 23-27, 30-31				40	10	2.6		162	8.0	3.0		3.0	160	141	8	274	7.9	7
Aug. 1-3, 6-10, 13-16, 20-23, 27-31				42	10	2.6		165	7.4	3.5		2.9	161	146	11	280	8.1	5
Sept. 4-6, 10-14, 17-21, 24-28				40	11	2.7		b170	5.6	3.0		3.0	164	145	6	285	8.3	5

a Includes equivalent of 7 parts per million of carbonate (CO₃).

b Includes equivalent of 2 parts per million of carbonate (CO₃).

LOWER MISSISSIPPI RIVER BASIN

WHITE RIVER BASIN--Continued

WHITE RIVER AT BULL SHOALS DAM, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

[illegible]

WHITE RIVER BASIN--Continued
WHITE RIVER AT COTTER, ARK.

LOCATION.--At bridge on U. S. Highway 62 at Cotter, Baxter County, about 5 miles downstream from gaging station near Flippin.
DRAINAGE AREA.--6,067 square miles (above gaging station).

RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1956.

Water temperatures: October 1947 to May 1955, December 1955 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 221 ppm Jan. 23; minimum, 146 ppm Jan. 1-9, 11-22, 24-29, 31.

Hardness: Maximum, 158 ppm Aug. 14; minimum, 126 ppm Jan. 10.

Specific conductance: Maximum daily, 375 micromhos Jan. 23; minimum daily, 225 micromhos Aug. 19.

Water temperatures: Maximum, 72 F Aug. 13; minimum, 41 F Jan. 24 Feb. 2.

EXTREMES, 1951-56.--Dissolved solids: Maximum, 344 ppm Feb. 3, 7, 1954; minimum, 140 ppm May 13-17, 19-21, 23, 25-29, 31, 1955.

Hardness: Maximum, 191 ppm Feb. 11-29 Mar. 11-19, 1952; minimum, 118 ppm May 13-17, 19-21, 23, 25-29, 31, 1955.

Specific conductance: Maximum daily, 405 micromhos May 17, 1954; minimum daily, 160 micromhos May 28, 1955.

Water temperatures: Maximum, 79 F Sept. 20, 1954; minimum, 35 F Feb. 11, 1955.

REMARKS.--Records of specific conductance of daily samples available; district office at Fayetteville, Ark. Records of discharge for gaging station near Flippin for water year October 1955 to September 1956 given in WSP 1441. Flow regulated by Bull Shoals Reservoir since July 23, 1951.

Chemical analyses, in parts per million, December 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium, mg./nesium	Non-carbonate			
Dec. 7-12, 14-15, 19, 24-26, 28-31, 1955.	2,709			36	12	3.0	155	0	5.6	4.0		3.5	157	139	12	264	8.2	7
Jan. 1-9, 11-22, 24-29, 31, 1956.	2,781			36	12	3.2	155	0	8.8	4.0		3.0	146	139	12	263	7.8	7
Jan. 10	3,830						131	0	6.0	4.2		2.4	215	126	19	365	8.0	--
Jan. 23	2,500						153	0	5.0	36		2.6	221	153	28	375	8.1	--
Jan. 30	2,460						152	3	7.0	18		2.0	2187	157	27	318	8.4	--
Feb. 1-29	2,731			32	17	1.1	169	0	5.8	4.7		2.0	152	148	10	280	7.8	--
Mar. 1	3,280						120	7	5.0	3.5		19	2166	144	34	282	8.6	--
Mar. 2-10	3,037			37	12	1.8	155	2	7.4	2.8		2.1	166	142	11	265	8.3	5
Mar. 11-20	3,121			37	11	1.8	157	0	3.2	3.2		1.5	162	138	9	263	8.2	5
Mar. 21-25, 27-31	3,139			39	11	2.3	160	0	7.4	4.0		1.6	161	143	11	270	8.1	5
Mar. 26	2,810						142	8	4.0	10		3.3	2172	149	19	292	8.6	--
Apr. 1-30	3,182			35	13	5.1	158	0	7.2	8.0		1.6	166	141	11	279	7.2	5
May 1-31	3,386			36	12	2.9	162	0	7.2	4.0		1.4	156	139	6	266	7.6	5
June 1-30	4,009			37	12	3.8	152	5	8.0	4.0		1.7	161	142	9	266	8.7	5
July 1-31	4,814			38	11	2.9	163	0	6.8	3.5		3.0	156	140	6	269	8.0	5
Aug. 1-13, 15-31	5,538			39	11	3.1	162	0	7.2	4.5		3.6	160	143	10	276	7.7	7
Aug. 14	4,600						174	0	7.0	24		3.1	2185	158	15	331	8.1	--
Sept. 1-30	4,083			38	11	2.8	162	0	7.0	4.0		3.1	160	140	7	271	7.9	7
Average	b 3,470			37	12	2.8	155	1	6.4	8.1		3.2	170	142	14	289	--	--

a. Estimated from specific conductance.

b. Mean discharge for water year October 1955 to September 1956 was 3,317 cfs.

LOWER MISSISSIPPI RIVER BASIN

WHITE RIVER BASIN--Continued

WHITE RIVER AT COTTER, ARK.--Continued

Temperature (°F) of water, December 1955 to September 1956												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			--	--	42	50	56	54	61	67	64	67
2			--	--	41	53	58	58	62	65	65	67
3			--	--	43	53	59	60	56	61	67	67
4			--	--	43	55	58	66	64	65	67	66
5			--	--	44	59	57	64	63	65	68	65
6			--	--	46	62	60	64	56	--	70	67
7			49	--	48	43	52	61	62	67	71	64
8			48	--	46	50	58	58	63	67	70	63
9			45	--	44	53	49	62	62	66	70	63
10			48	52	43	56	48	62	64	61	63	63
11			48	48	44	47	55	64	62	63	67	67
12			46	--	47	43	59	67	--	63	69	66
13			--	--	50	45	59	62	--	65	72	65
14			48	46	52	45	62	53	--	63	67	64
15			45	46	46	48	52	56	68	66	69	70
16		--	--	42	49	48	55	59	64	63	68	67
17		--	--	43	47	54	57	64	68	62	71	65
18		--	--	42	45	52	57	--	71	61	69	66
19			44	43	46	47	59	66	69	61	70	67
20			--	46	50	48	57	65	64	63	65	65
21		--	--	46	50	46	61	71	65	63	62	66
22		--	--	45	49	49	60	63	62	61	66	68
23		--	--	42	49	53	54	65	63	60	69	63
24			48	41	58	54	57	56	70	63	67	65
25			46	43	52	55	59	53	61	64	66	65
26			45	44	50	57	59	59	63	64	69	65
27		--	--	43	54	59	63	64	63	64	71	65
28			46	56	49	55	62	68	63	64	69	65
29			50	46	54	53	61	67	63	65	67	66
30			46	45	--	54	55	66	64	65	68	65
31			43	44	--	50	--	62	--	63	65	--
Average			--	--	48	51	57	62	64	64	68	66

WHITE RIVER BASIN--Continued

BUFFALO RIVER NEAR ST. JOE, ARK.

LOCATION.--At gaging station at bridge on U. S. Highway 65, 1½ miles downstream from Mill Creek, 4 miles upstream from Bear Creek, and 4½ miles southeast of St. Joe, Searcy County.
DRAINAGE AREA.--825 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 180°C)	Hardness as CaCO ₃		Specific conductance (micro- mhos at 25°C)	pH	Color
														Calcium, mag- nesium	Non- carbon- ate			
Oct. 7, 1955	138			43	3.5	1.4	--	a145	3.6	2.2		0.7	141	122	3	237	8.3	7
Oct. 31	66			45	3.5	2.2	--	147	6.0	2.0		.4	142	127	7	248	7.9	5
Nov. 23	126			47	3.1	2.2	--	151	7.0	3.0		.5	142	130	6	254	7.9	5
Feb. 17, 1956	2,280			24	2.4	1.1	--	74	5.4	1.0		1.1	77	70	10	138	7.3	--
Mar. 12	349			35	2.5	1.9	--	a112	5.8	2.2		.6	116	98	6	188	8.3	5
Apr. 9	272			36	1.2	2.0	0.7	106	8.8	2.5		.0	106	95	8	186	8.1	5
May 7	776			28	2.6	2.0	.7	92	7.8	3.0		.0	92	81	5	161	8.2	5
June 7	233			37	2.7	2.1	--	124	6.2	1.5		.2	120	103	2	208	8.0	5
Aug. 27	36			38	3.6	2.1	--	130	5.4	2.5		.7	123	110	3	215	7.7	5
Sept. 24	14			42	3.7	2.3	--	142	5.6	2.5		.8	133	120	4	233	8.0	5

a Includes equivalent of 2 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued
NORTH FORK RIVER AT NORFORK DAM, NEAR NORFORK, ARK.

LOCATION.--At Norfolk Dam, 4.3 miles northeast of Norfolk, Baxter County.

DRAINAGE AREA.--1,806 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, November 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 180°C)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH	Color
														Calcium, magnesium	Non-carbon- ate			
Nov. 1, 1955	1,280	--	--	38	22	2.0	--	a 216	6.2	2.8	--	4.1	100	185	8	342	8.4	5
Nov. 10	1,170	2.2	0.00	37	23	2.7	1.8	b 216	6.8	3.2	0.0	1.6	189	187	10	327	7.6	5
Nov. 29	1,990	--	--	37	23	2.4	--	b 205	6.8	3.2	--	2.7	180	179	11	327	8.3	5
Dec. 16	1,210	2.8	--	37	23	1.6	1.4	209	10.0	2.5	--	2.5	186	187	16	336	7.6	7
Dec. 27	1,300	2.8	0.00	34	21	1.5	1.7	202	5.6	2.2	0	1.0	174	171	6	316	7.8	7
Jan. 30, 1956	1,280	.5	0.00	34	22	1.4	1.5	206	6.4	2.0	.1	1.1	175	175	6	329	7.5	5
Feb. 14	1,980	.5	0.00	34	22	1.9	2.0	204	6.0	3.0	.1	1.3	175	175	8	330	7.4	5
Mar. 13	1,470	--	--	35	23	1.6	--	c 214	4.2	2.5	--	1.1	179	182	6	315	8.7	5
Mar. 26	2,140	--	0.00	34	22	1.5	1.9	206	6.6	2.0	.2	1.7	178	175	6	334	7.6	5
Apr. 10	1,980	--	--	37	21	2.1	--	d 206	3.8	2.5	--	1.3	183	179	10	308	8.6	7
Apr. 13	1,230	.9	0.00	35	22	1.4	1.5	202	5.8	2.5	.1	1.4	180	178	12	328	7.5	5
May 28	63	1.9	0.00	36	21	2.0	2.6	206	5.0	2.5	.1	2.1	174	176	7	323	7.7	5
June 8	220	1.7	.05	37	21	2.1	2.8	205	4.8	4.0	.1	1.6	174	179	11	326	7.8	5
July 16	142	1.0	.05	35	22	1.6	2.3	207	3.8	2.5	.1	1.5	173	178	8	323	8.0	5
Sept. 10	905	3.2	0.00	36	21	1.1	1.0	208	6.2	2.5	.0	1.8	172	176	6	325	7.6	5

a Includes equivalent of 4 parts per million of carbonate (CO₃).

b Includes equivalent of 2 parts per million of carbonate (CO₃).

c Includes equivalent of 7 parts per million of carbonate (CO₃).

d Includes equivalent of 12 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued

BLACK RIVER NEAR CORNING, ARK.

LOCATION.---At gaging station at bridge on U. S. Highway 62, 2½ miles east of Corning, Clay County, 13.9 miles downstream from Cane Creek, and at mile 152.2. DRAINAGE AREA.--1,749 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1956.

REMARKS.---Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 180°C)	Hardness as CaCO ₃		Specific conductance (micro- mhos at 25°C)	pH	Color
														Calcium, mag- nesium	Non- carbon- ates			
Oct. 4, 1955	262			33	15	2.1		168	4.0	2.0		1.0	150	144	6	273	8.0	5
Nov. 3	292			34	16	2.2		176	4.2	3.2		.8	158	151	6	284	8.0	5
Dec. 1	392			35	15	2.2		173	4.2	3.8		.8	155	149	7	285	7.9	5
Jan. 17, 1956	299			33	16	1.6		172	3.5	2.2		.5	152	148	7	291	7.7	--
Feb. 16	1,450			19	12	1.4		104	6.3	1.8		2.6	105	95	10	184	7.0	--
Mar. 15	1,210			20	13	1.6		114	7.8	2.0		2.6	109	103	10	196	7.8	10
Apr. 12	1,755			23	14	3.7		128	10	3.0		2.7	129	115	10	227	7.5	5
May 10	890			25	14	2.4		140	7.8	3.0		1.8	132	120	5	235	7.9	5
June 5	1,440			20	13	1.2		114	7.0	2.0		1.8	110	103	10	197	7.5	10
July 11	620			25	15	2.2	1.3	145	4.6	2.5		.7	126	124	5	236	8.1	--
Aug. 29	301			31	15	2.8		162	5.4	4.0		2.4	141	139	6	267	7.5	5
Sept. 26	272			32	16	3.4		a170	5.4	3.5		2.2	145	146	6	273	8.4	5

a Includes equivalent of 4 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued
CURRENT RIVER NEAR POCAHONTAS, ARK.

LOCATION.--At bridge on U. S. Highway 67, near Pocahontas, Randolph County.

RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1956.

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium-magnesium	Non-carbonate			
Oct. 4, 1955.....				38	20	1.2	--	212	5.4	2.5		0.4	174	177	3	324	8.2	5
Nov. 3.....				40	20	1.8	--	218	3.8	2.2		.6	182	182	3	336	7.8	5
Dec. 1.....				40	21	1.6	--	220	3.0	2.8		.4	184	186	6	342	7.8	5
Jan. 11, 1956.....				38	28	1.2	--	236	3.1	3.0		.7	184	204	10	356	7.4	--
Feb. 16.....				33	20	1.4	--	184	4.4	2.2		1.9	149	164	13	293	7.3	--
Mar. 15.....				30	16	1.7	--	a 166	3.4	4.5		1.6	152	141	4	286	8.6	5
Apr. 12.....				34	18	1.8	--	b 187	2.8	2.2		1.3	166	159	6	286	8.4	5
May 10.....				30	17	1.7	--	188	5.0	2.5		1.9	165	181	7	293	8.1	5
June 5.....				24	17	1.0	--	148	5.0	2.0		1.8	134	130	10	239	7.8	5
July 11.....				31	20	2.1	1.1	c 189	2.8	2.0		1.8	154	160	5	294	8.7	5
Aug. 29.....				36	20	2.3	--	202	4.6	2.5		1.6	168	172	6	319	8.1	5
Sept. 26.....				24	20	1.9	--	b 187	4.2	3.0		1.1	132	142	5	259	8.4	7

a Includes equivalent of 8 parts per million of carbonate (CO₃).

b Includes equivalent of 4 parts per million of carbonate (CO₃).

c Includes equivalent of 2 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued

SPRING RIVER AT IMBODEN, ARK.

LOCATION.--At gaging station at bridge on U. S. Highway 62 at Imboden, Lawrence County, 3.9 miles downstream from Janes Creek, 8.5 miles upstream from Big Point River, and 12.1 miles upstream from mouth.

DRAINAGE AREA, 1,162 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.

MAINTENANCE.--Discontinued December 1955 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 312 ppm Jan. 6; minimum, 98 ppm July 25.

Hardness: Maximum, 248 ppm Jan. 21-31; minimum, 96 ppm July 25.

Specific conductance: Maximum daily, 157 microhos Jan. 6; minimum daily, 175 microhos July 25.

Water temperatures: Maximum, 82° F on several days during July and August; minimum 35° F on several days during December and January.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, December 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 100° C)	Hardness as CaCO ₃		Specific conductance (microhmhos at 25° C)	pH	Color
															Calcium, mg./liter	Non-carbonate			
Dec. 1-10, 1955	313	5.6	0.02	39	29	2.2	1.4	257	0	3.8	2.5	0.1	1.0	199	217	6	382	8.2	5
Dec. 11-20	293	6.4	0.02	34	29	2.3	1.4	235	0	4.8	3.5	0.1	2.7	191	204	12	367	8.2	5
Dec. 21-31	285	6.6	0.02	34	29	2.3	1.3	228	6	5.0	3.0	0.1	1.0	188	204	7	362	8.4	5
Jan. 1-5, 7-10, 1956	272	5.9	0.00	43	31	3.1	1.5	278	0	5.0	4.0	0.0	0.7	220	235	7	424	8.1	5
Jan. 6	289	6.6	0.00	45	31	2.6	1.5	244	0	1.0	3.3	0.0	1.4	232	239	39	557	8.2	5
Jan. 11-20	275	6.4	0.00	45	31	2.6	1.5	283	0	4.6	3.5	0.0	0.4	220	240	8	428	8.1	5
Jan. 21-31	308	6.5	0.00	50	30	3.0	1.4	284	0	4.6	4.0	0.0	0.4	234	248	8	445	8.1	5
Feb. 1	532	--	--	--	--	--	--	178	8	3.0	3.0	--	1.8	231	170	11	413	8.5	--
Feb. 2-5	2,862	--	--	29	16	1.0	--	156	0	5.6	3.1	--	2.5	150	140	12	254	7.8	--
Feb. 6-11	1,548	--	0.02	40	20	2.0	2.0	206	0	6.4	2.8	0.1	3.2	200	182	13	342	8.2	17
Feb. 12-17	1,672	4.5	0.00	43	21	2.0	1.6	220	2	3.8	2.2	0.1	2.5	202	194	10	353	8.3	10
Feb. 18-20	5,920	--	--	26	13	1.4	--	136	0	4.8	1.8	--	2.6	139	120	8	227	7.8	--
Feb. 21	1,970	--	--	--	--	--	--	176	8	9.0	2.5	--	5.7	172	172	15	309	8.6	--
Feb. 22-29	1,229	4.3	0.02	45	21	2.2	1.6	226	2	5.4	3.5	0.1	4.0	225	199	10	364	8.3	10
Mar. 1	905	--	--	--	--	--	--	148	3	5.0	3.8	--	4.4	181	143	17	324	8.3	--
Mar. 2, 7, 10	755	--	--	38	24	1.5	--	221	0	5.8	2.2	--	3.0	194	194	12	348	8.1	5
Mar. 3	830	--	--	--	--	--	--	134	10	2.0	2.5	--	4.4	179	141	34	320	8.1	--
Mar. 4-6, 8-9	740	--	--	34	24	1.6	--	212	0	5.0	2.2	--	3.7	190	184	10	336	8.1	10
Mar. 11, 14, 20	672	--	--	40	25	1.4	--	230	0	5.6	2.5	--	2.0	199	203	14	360	8.0	5
Mar. 12-13, 15-16	676	--	--	36	24	1.5	--	213	0	4.8	2.8	--	2.7	187	188	14	335	8.1	7
Mar. 17	708	--	--	--	--	--	--	216	8	5.0	2.5	--	3.6	216	147	11	385	8.5	--
Mar. 21-30	569	2.2	0.03	32	25	2.2	1.6	216	0	4.2	3.0	0.0	2.8	199	183	6	336	7.9	5
Mar. 31	506	--	--	--	--	--	--	168	6	4.0	3.0	--	2.0	222	157	11	396	8.5	--
Apr. 1-8, 10	561	--	--	38	25	1.6	--	228	0	4.8	2.8	--	2.0	202	198	11	351	8.2	10

a Estimated from specific conductance.

WHITE RIVER BASIN--Continued

SPRING RIVER AT IMBODEN, ARK.--Continued

Chemical analyses, in parts per million, December 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
															Calcium	Non-carbonate			
Apr. 9, 1956	483	--	--	--	--	--	--	160	8	2.0	6.5	--	1.8	221	154	10	395	8.6	--
Apr. 11-13, 15-20	972	--	--	43	24	3.8	--	241	0	4.2	6.0	--	1.2	223	206	8	381	8.2	10
Apr. 14	524	--	--	--	--	--	--	161	8	5.0	3.0	--	2.6	219	154	9	347	8.7	--
Apr. 21-30	844	--	--	42	27	3.1	3.2	250	0	5.4	7.0	--	0.0	234	156	11	388	8.2	5
May 1-10	825	4.0	0.01	34	25	2.9	3.2	218	0	4.2	4.5	--	0.0	182	188	9	344	7.8	5
May 11-16, 19-20	1,333	--	--	37	24	2.3	--	227	0	3.8	3.5	--	1.3	198	188	9	343	7.8	10
May 17	2,030	--	--	--	--	--	--	118	8	5.0	1.0	--	3.0	214	120	10	222	8.6	--
May 18	1,430	--	--	--	--	--	--	146	6	4.0	2.5	--	1.9	213	137	7	255	8.6	--
May 21-26, 28-31	1,196	--	--	45	21	2.4	--	216	9	4.4	4.0	--	1.4	216	199	7	351	8.6	10
May 27	1,490	--	--	--	--	--	--	166	8	4.0	2.0	--	2.2	215	188	39	274	8.7	--
June 1-10	690	4.8	0.00	31	24	3.6	1.5	195	0	7.4	7.5	0	5.4	209	176	16	337	7.5	8
June 11-20	566	--	--	34	25	2.0	--	222	0	4.6	3.0	--	0.9	182	188	6	338	8.0	5
June 21-30	627	--	--	40	25	2.1	--	242	0	6.2	2.5	--	1.1	208	203	4	367	7.7	5
July 1-9	471	9.4	0.00	22	24	2.8	1.1	180	0	5.4	3.0	0	2.3	158	154	6	293	8.0	--
July 10	418	--	--	--	--	--	--	196	4	2.0	2.0	--	1.5	220	175	8	392	8.4	--
July 11-12, 14-20	734	--	--	30	20	2.0	--	186	0	4.8	2.5	--	3.4	184	157	5	293	8.0	7
July 13	405	--	--	--	--	--	--	192	4	1.0	2.5	--	2.0	217	170	6	387	8.4	--
July 21-24, 27-31	1,074	--	--	34	20	1.9	--	196	0	5.6	2.5	--	3.8	173	167	6	308	7.9	5
July 25	3,520	--	--	--	--	--	--	110	0	2.0	0.5	--	2.0	298	96	6	175	8.0	--
July 26	1,490	--	--	--	--	--	--	135	0	4.0	1.0	--	2.4	216	125	14	208	8.2	--
Aug. 1-10	515	9.8	0.00	37	28	2.5	1.2	250	0	5.0	2.5	0	1.9	209	207	3	383	8.0	5
Aug. 11-20	394	--	--	29	25	2.2	--	199	2	4.4	4.0	--	3.4	171	175	9	315	8.3	7
Aug. 21-31	372	--	--	35	24	2.9	--	217	0	4.0	5.0	--	3.1	186	186	8	343	8.1	5
Sept. 1-10	328	--	--	30	26	1.8	--	216	0	4.0	2.5	--	2.3	174	182	5	326	8.0	5
Sept. 11-20	283	--	--	33	28	2.1	--	232	0	4.2	2.5	--	1.9	190	190	7	353	7.9	5
Sept. 21-30	280	2.9	0.00	27	23	2.1	1.2	190	0	6.2	2.5	0	2.9	159	162	6	300	8.2	5
Average	670	--	--	38	24	2.3	--	202	2	4.5	3.7	--	2.4	192	194	24	343	--	7

a Estimated from specific conductance.

WHITE RIVER BASIN--Continued

SPRING RIVER AT IMBODEN, ARK.--Continued

Temperature (°F) of water, December 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			38	43	40	49	57	62	71	80	80	76
2			39	44	42	50	60	56	69	82	81	76
3			40	43	40	51	63	63	68	81	80	73
4			45	42	40	51	60	65	69	82	81	73
5			--	42	40	55	60	66	70	82	81	73
6			41	43	42	59	61	70	70	81	82	74
7			42	42	41	60	56	71	71	82	81	70
8			43	40	44	52	54	70	73	80	81	68
9			40	38	44	52	56	70	74	80	82	67
10			40	38	44	53	53	71	74	78	80	68
11			39	39	42	52	52	72	74	77	78	69
12			40	39	43	49	54	73	76	78	78	69
13			--	38	42	47	56	74	76	79	81	70
14			38	38	45	47	59	75	73	79	81	72
15			37	38	48	46	60	70	74	79	80	69
16			35	36	46	46	67	65	74	80	79	74
17			35	36	48	46	55	64	74	79	80	75
18			38	36	48	59	55	66	76	79	82	71
19			36	35	48	49	56	69	77	78	81	71
20			36	35	47	48	57	69	79	78	79	69
21			35	37	47	48	58	72	80	77	73	68
22			36	38	47	49	60	73	80	76	73	68
23			39	36	48	50	59	73	81	76	73	70
24			42	35	52	52	57	71	81	79	75	67
25			44	35	52	51	60	68	79	78	75	66
26			44	36	53	55	62	66	78	76	75	65
27			43	36	54	58	65	66	78	78	75	66
28			42	41	53	57	67	68	79	77	75	66
29			48	44	50	54	67	71	78	78	76	65
30			45	42	--	53	64	73	79	79	74	65
31			44	40	--	55	--	74	--	79	76	--
Average			40	39	46	52	59	69	75	79	78	70

WHITE RIVER BASIN--Continued

ELEVEN POINT RIVER NEAR RAVENDEN SPRINGS, ARK.

LOCATION.--At gaging station at bridge on State Highway 90, 4½ miles downstream from small tributary, 6¼ miles northeast of Ravenden Springs, Randolph County and 21 miles upstream from mouth.

DRAINAGE AREA--123 square miles.

RECORDS AVAILABLE--Chemical analyses: October 1953 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 180°C)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH	Color
														Calcium, mg- nesium	Non- carbon- ate			
Oct. 4, 1955	316			47	24	1.0		259	4.6	2.0		0.7	214	216	4	389	8.2	7
Nov. 2	296			51	23	1.8		262	2.6	1.0		.9	223	222	7	398	7.8	5
Dec. 1	292			51	23	1.8		260	1.8	2.5		.8	224	222	9	412	7.3	5
Jan. 17, 1956	257			46	29	1.6		288	2.8	2.8		1.1	223	236	0	416	7.5	--
Feb. 15	586			33	19	1.2		175	4.0	1.8		3.3	170	160	16	327	7.8	--
Mar. 15	524			33	19	1.4		a186	4.0	2.0		3.4	168	160	8	283	8.6	5
Apr. 12	463			46	22	1.7		b242	3.0	2.0		2.2	209	205	7	361	8.4	5
May 10	541			39	24	1.5		c232	3.8	1.8		1.4	189	196	6	349	8.3	5
June 5	719			31	21	1.3		189	3.8	1.8		2.0	160	164	9	297	8.1	5
July 10	414			37	25	1.7	1.2	d238	2.8	2.5		1.2	174	195	0	341	8.6	5
Aug. 30	339			41	22	1.6		234	3.8	2.2		2.0	186	193	1	355	8.2	5
Sept. 26	277			36	24	1.6		b229	4.6	1.8		1.7	164	188	1	344	8.4	5

a Includes equivalent of 7 parts per million of carbonate (CO₃).

b Includes equivalent of 4 parts per million of carbonate (CO₃).

c Includes equivalent of 3 parts per million of carbonate (CO₃).

d Includes equivalent of 6 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued
 STRAWBERRY RIVER NEAR POUGHKEEPSIE, ARK.

LOCATION.--at gaging station at bridge on State Highway 58, half a mile downstream from Hurricane Creek, and $2\frac{1}{2}$ miles northeast of Poughkeepsie, Sharp County.
 DRAINAGE AREA.--476 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1953 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 180°C)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH	Color
														Calcium, magnesium	Non-carbon- ate			
Oct. 4, 1955	51			48	25	1.1	--	258	5.2	2.2		0.6	214	223	11	332	8.1	5
Nov. 15	51			54	24	1.6	--	275	6.8	2.5		.8	226	233	8	342	7.7	5
Dec. 2	57			52	25	1.7	--	274	6.0	2.0		.6	228	233	8	417	8.1	5
Jan. 5, 1956	48			46	31	1.3	--	292	5.4	1.4		.8	230	244	4	425	7.6	--
Feb. 29	328			37	22	1.5	--	a210	6.4	2.0		3.9	184	183	11	328	8.3	5
Mar. 20	200			42	25	1.8	--	238	6.2	4.0		3.4	218	208	13	380	7.8	7
Apr. 10	164			41	27	1.6	--	a247	6.5	2.2		1.0	207	213	11	376	8.3	5
May 8	164			39	27	1.6	--	b239	6.8	2.2		.9	196	208	12	380	8.4	5
June 15	270			36	25	1.7	1.4	232	4.8	2.5		.9	176	193	2	340	8.2	5
July 10	142			42	27	2.3	1.4	a258	3.6	3.0		.9	205	216	4	386	8.1	5
Aug. 7	82			39	22	1.8	--	a225	5.8	2.5		1.1	176	188	3	341	8.3	5
Sept. 11	46			45	24	3.3	--	252	6.8	3.0		1.3	210	211	4	386	8.1	5

a Includes equivalent of 2 parts per million of carbonate (CO₃).

b Includes equivalent of 4 parts per million of carbonate (CO₃).

WHITE RIVER BASIN--Continued

WHITE RIVER AT NEWPORT, ARK.

LOCATION.---At gaging station at bridge on U. S. Highway 67 at Newport, Jackson County, 7.2 miles downstream from Black River, and at mile 257.6.

DRAINAGE AREA.---19,812 square miles.

RECORDS AVAILABLE.---Chemical analyses: October 1945 to September 1956.

Water temperatures: October 1945 to September 1956.

EXTREMES, 1945-55.---Dissolved solids: Maximum, 388 ppm Jan. 20-21, 23, 30, 1954; minimum, 98 ppm Feb. 1-3, 1949.

Hardness: Maximum, 193 ppm Oct. 4-7, 10, 1954; minimum, 51 ppm Jan. 25-31, 1949.

Specific conductance: Maximum daily, 695 micromhos Jan. 30, 1954; minimum daily, 103 micromhos Jan. 28, 1949.

Water temperatures: Maximum, 87°F Aug. 4, 9, 1947, Aug. 1, 1952; minimum, 34°F Feb. 2-4, 1951.

REMARKS.---Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)		Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
																Calcium, nesium	Non-carbonate			
Oct. 1-10, 1955	7,352	6.4	0.00	38	18	2.7	1.4	188	0	5.2	3.2	0.0	0.5	180	169	169	7	317	7.8	7
Oct. 11-20	6,450	---	---	39	18	2.9	---	186	0	4.6	3.2	---	2.0	186	171	171	8	317	8.2	7
Oct. 21-31	6,229	---	---	38	18	2.8	---	186	0	3.6	3.2	---	1.1	184	169	169	8	317	7.6	5
Nov. 1-10	6,808	---	---	35	19	3.2	---	190	2	5.8	7.0	---	1.6	188	169	169	10	323	8.3	7
Nov. 11-20	7,006	---	---	35	19	3.2	---	176	9	8.0	3.0	---	1.4	160	165	165	6	304	8.5	7
Nov. 21-30	7,006	---	---	36	19	3.1	---	191	4	7.8	3.0	---	1.1	172	168	168	5	313	8.4	7
Nov. 22	6,380	---	---	---	---	---	---	192	0	1.0	16	---	1.4	a203	140	0	0	355	8.2	---
Dec. 1-5, 7-10	7,089	---	---	35	21	2.8	---	166	16	9.6	3.0	---	1.0	174	174	174	11	310	8.6	7
Dec. 6	6,200	---	---	---	---	---	---	176	10	6.0	17	---	1.3	a208	194	33	363	8.4	---	---
Dec. 11-20	6,712	---	---	36	20	3.1	---	192	4	8.2	4.0	---	---	178	172	172	8	315	8.4	7
Dec. 21-31	6,390	---	---	36	20	2.5	---	195	0	6.4	3.5	---	---	175	172	172	12	315	8.2	5
Jan. 1-10, 1956	6,496	9.0	.01	36	21	2.9	1.2	206	0	5.4	5.5	.0	1.9	175	176	176	7	324	7.1	5
Jan. 11-19	6,449	---	---	39	20	2.6	---	208	0	6.3	5.4	---	2.7	176	180	180	10	335	7.4	---
Jan. 20-25	6,040	---	---	20	7.6	1.6	---	90	0	5.8	2.0	---	2.9	106	81	7	159	7.4	15	---
Jan. 21	6,680	---	---	---	---	---	---	154	7	2.0	3.5	---	2.5	a172	148	10	300	8.6	---	---
Jan. 22	6,380	---	---	---	---	---	---	156	6	4.0	3.0	---	2.1	a171	148	10	298	8.6	---	---
Apr. 11-20	13,870	2.9	.04	36	15	2.7	2.2	170	2	5.2	4.5	.0	2.1	158	152	9	280	8.3	5	---
Apr. 21-30	13,850	---	---	35	14	2.2	---	170	0	5.2	2.5	---	2.0	156	145	6	266	8.0	10	---
May 1-10	14,830	---	---	36	14	2.5	---	173	0	6.2	3.0	---	1.1	168	147	6	276	7.9	5	---
May 11-16	12,280	---	---	37	14	2.5	---	177	0	5.2	3.5	---	.9	158	150	5	284	7.7	10	---
May 17-31	20,710	---	---	30	11	2.1	---	140	0	5.2	3.0	---	1.7	146	120	5	233	7.7	10	---
June 1-10	13,740	---	---	32	13	2.4	---	156	0	4.8	2.5	---	2.5	156	133	5	257	7.6	10	---
June 11-20	12,030	---	---	34	14	2.8	---	162	0	4.2	4.0	---	1.4	160	142	10	265	7.6	5	---
June 21-26, 28-30	13,870	---	---	35	14	2.7	---	162	2	3.8	3.0	---	1.5	166	145	9	271	8.3	7	---

a Estimated from specific conductance.

June 27, 1956.....	23,200	--	--	--	--	--	--	105	0	2.0	1.8	--	1.5	a100	95	174	8.0	--
July 1-10.....	10,440	--	--	37	13	--	3.0	--	166	2	4.2	4.0	--	160	146	6	278	8.3
July 11-20.....	9,119	--	--	37	14	--	3.2	--	172	4	6.6	4.5	--	162	150	2	286	8.4
July 21-31.....	10,380	--	--	37	14	--	2.9	--	172	0	5.0	3.5	--	158	150	9	279	8.2
Aug. 1-10.....	9,174	5.6	0.00	39	14	--	3.9	1.3	171	6	5.4	5.5	.0	174	155	5	297	8.4
Aug. 11-20.....	8,328	--	--	37	16	--	2.7	--	182	2	4.2	3.0	--	170	158	6	297	8.3
Aug. 21-31.....	7,044	--	--	38	16	--	3.0	--	185	2	5.0	4.0	--	167	161	6	302	8.3
Sept. 1-10.....	7,259	--	--	41	14	--	2.7	--	184	0	5.2	3.8	--	172	160	9	306	7.7
Sept. 11-20.....	7,464	--	--	43	13	--	3.5	--	183	0	7.0	4.5	--	174	161	11	306	7.9
Sept. 21-30.....	7,368	--	--	38	17	--	3.9	--	188	2	8.0	5.0	--	176	165	7	338	8.3
Average.....	b9,572	--	--	36	16	--	2.9	--	174	2	5.4	4.4	--	187	156	10	293	--

a Estimated from specific conductance.

b Mean discharge for water year October 1955 to September 1956, 11,780 cfs.

LOWER MISSISSIPPI RIVER BASIN

WHITE RIVER BASIN--Continued

WHITE RIVER AT NEWPORT, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	60	50	42			--	63	74	80	82	75
2	71	60	50	42			--	62	73	82	81	75
3	71	60	51	43			--	63	73	83	80	75
4	71	60	51	42			--	64	72	83	79	75
5	71	60	50	--			--	67	73	84	80	77
6	71	60	50	42			--	69	74	83	81	76
7	70	59	49	--			--	70	74	82	81	74
8	69	59	--	42			--	72	76	82	82	69
9	69	59	49	42			--	72	78	83	80	68
10	69	59	47	42			--	72	76	83	81	71
11	69	58	47	43			54	72	79	81	77	72
12	68	58	47	42			55	73	78	81	76	73
13	68	58	46	42			56	74	77	81	78	73
14	68	57	46	42			57	74	76	81	80	74
15	68	59	46	42			60	72	77	81	81	74
16	68	60	45	42			59	71	77	81	80	74
17	68	60	45	42			59	70	77	82	81	74
18	67	60	45	41			58	68	79	81	80	73
19	65	59	44	42			59	69	79	79	80	74
20	65	59	44	40			58	72	79	78	76	71
21	64	58	44	41			61	73	81	77	76	72
22	63	58	44	42			62	74	82	76	74	70
23	63	58	44	42			61	74	81	76	75	70
24	63	52	48	41			61	73	82	76	75	69
25	63	52	42	42			61	73	82	77	76	--
26	62	52	42	--			63	70	79	78	77	70
27	62	52	42	--			64	70	76	78	77	69
28	61	50	42	--			65	69	80	79	77	68
29	61	50	42	--			66	70	80	80	77	67
30	61	50	44	--			65	71	80	79	77	67
31	61	--	42	--			--	72	--	80	76	--
Average	67	57	46	--			--	70	77	80	78	72

WHITE RIVER BASIN--Continued
LITTLE RED RIVER NEAR HEBER SPRINGS, ARK.

LOCATION.--At gaging station, 2½ miles downstream from Peter Creek and 3 miles northeast of Heber Springs, Cleburne County.
DRAINAGE AREA.--1,141 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1949 to September 1952, October 1954 to September 1956.

Water temperatures: November 1949 to September 1952.

EXTREMES, 1949-52.--Dissolved solids: Maximum, 58 ppm Aug. 21-24, 1950; minimum, 21 ppm Mar. 17-20, 1951.

Hardness: Maximum, 31 ppm Nov. 11-16, 1950, Aug. 21-31, 1952; minimum, 10 ppm Jan. 2-6, 1952.

Specific conductance: Maximum daily, 126 microhos Jan. 21, 1951; minimum daily, 25.2 microhos Jan. 3, 1952.

Water temperatures: Maximum, 92°F July 25-28, 1952; minimum, freezing point Feb. 2, 1951.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 100°C)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH	Color
														Calcium, mg- num	Non- carbon- ate			
Oct. 18, 1955	49			7.9	1.8	1.3	--	32	2.8	2.0		0.1	38	27	1	66.0	7.2	7
Nov. 16	105			9.4	.8	1.9	--	34	5.2	2.0		.8	44	27	0	70.8	7.0	15
Dec. 7	149			8.3	.9	2.1	--	26	5.2	2.5		.5	42	24	3	65.4	6.8	5
Jan. 6, 1956	60			7.6	1.7	1.9	--	25	5.4	2.6		.2	36	26	6	61.2	6.3	--
Feb. 20	7,020			4.1	.8	1.0	--	15	2.8	1.0		.4	36	14	1	33.3	7.0	20
Mar. 20	795			5.4	1.3	1.3	0.6	19	6.4	1.5		.2	32	19	3	49.7	7.0	15
Apr. 10	437			5.0	1.7	1.3	.6	20	6.0	2.0		.0	28	20	3	46.0	7.4	5
May 9	826			5.2	1.5	1.4	.6	20	5.2	2.5		.0	29	19	3	44.9	7.3	10
June 29	397			6.5	1.6	2.2	1.2	26	6.0	2.5		1.1	36	23	2	61.9	7.2	10
July 11	132			7.5	1.6	2.0	1.7	29	4.2	2.5		1.4	36	25	2	66.2	7.4	5
Aug. 1	50			7.9	1.3	2.0	--	31	2.0	2.5		.8	37	25	0	60.0	7.2	5
Sept. 13	2.2			7.2	1.3	2.2	--	30	2.4	1.5		1.1	31	23	0	56.7	7.2	5

WHITE RIVER BASIN--Continued

BAYOU DE VIEW NEAR BRASFIELD, ARK.

LOCATION.--At bridge on U. S. Highway 70, Monroe County, about 6 miles northeast of Brasfield, Prairie County, 3.8 miles upstream from mouth, and 36 miles downstream from gaging station near Morton.

DRAINAGE AREA.--625 square miles, approximately, 422 square miles above gaging station.

RECORDS AVAILABLE.--Chemical analyses: January 1955 to September 1956.
 REMARKS.--Records of discharge for the gaging station near Morton furnished by district office, Corps of Engineers, Memphis, Tenn. Appreciable inflow between gaging station and sampling point.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium, mag- nesium	Non-carbon- ate			
Oct. 10, 1955	6			9.0	3.1	8.8	--	54	0.8	5.8		1.7	56	35	0	113	6.8	22
Nov. 7	0			9.5	2.6	8.6	--	54	1.0	5.5		1.5	56	34	0	105	6.8	20
Dec. 5	53			7.2	2.3	7.6	--	42	2.0	3.5		1.8	47	27	0	105.6	6.7	20
Jan. 5, 1956	0			10	4.1	9.0	--	52	4.1	13.5		1.7	67	42	0	145	6.7	--
Feb. 1	1,030			5.2	2.2	5.1	--	18	7.2	9.4		.8	39	22	7	88.7	5.6	--
Mar. 1				4.4	1.5	3.4	--	25	3.8	2.0		1.1	28	17	0	56.5	6.8	--
Mar. 28	412			4.7	2.9	4.5	2.6	30	3.6	4.5		1.0	39	24	0	74.2	7.9	30
May 23	754			6.0	2.7	4.8	2.7	36	3.6	3.0		1.1	42	26	0	77.7	6.8	40
June 20	117			8.3	3.1	3.8	4.0	44	1.2	3.8		1.9	48	33	0	93.2	6.9	40
Sept. 12	83			11	3.4	11	--	46	13	8.0		1.5	71	41	4	146	6.8	70
Sept. 18	19			9.5	4.5	10	4.0	64	3.6	5.8		2.1	72	42	0	131	7.3	--

LOCATION.--At gaging station on Cottonbelt Railroad bridge at Clarendon, Monroe County.
 DRAINAGE AREA.--25,497 square miles.
 RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1956.
 Water temperatures: October 1948 to September 1956.
 EXTREMES, 1955-56.--Dissolved solids: Maximum, 349 ppm Nov. 12; minimum, 58 ppm Mar. 11-12.
 Hardness: Maximum, 202 ppm Apr. 25; minimum, 30 ppm Feb. 22-25, 27-29.
 Specific conductance: Maximum daily, 544 micromhos Nov. 12; minimum daily, 67.9 micromhos Feb. 23.
 Water temperatures: Maximum, 89°F Aug. 6, 7; minimum, 34°F Dec. 20, Jan. 20.
 EXTREMES, 1947-56.--Dissolved solids: Maximum, 349 ppm Nov. 12, 1955; minimum, 38 ppm Feb. 1-9, 1950.
 Hardness: Maximum, 202 ppm Apr. 25, 1956; minimum, 29 ppm Mar. 1-10, 1948.
 Specific conductance: Maximum daily, 544 micromhos Nov. 12, 1955; minimum daily, 60.7 micromhos Feb. 3, 1950.
 Water temperatures: 1948-56: Maximum, 90°F on several days during June and July 1954; minimum, 34°F Dec. 23, 1953, Dec. 20, 1955, Jan. 20, 1956.
 REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 furnished by district office, Corps of Engineers, Memphis, Tenn.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micromhos at 25°C)	pH	Color
															Calcium, mg-nessum	Non-carbonate			
Oct. 1-10, 1955	8,621	6.3	0.00	38	16	4.7	1.8	176	5	5.8	6.8	0.0	1.7	188	161	8	310	8.4	7
Oct. 11-20	7,559			39	15	4.2		180	0	7.2	5.0	--	1.8	181	159	12	305	8.1	5
Oct. 21-31	6,919			39	17	4.6	--	193	0	3.8	6.0	--	1.3	185	167	9	323	7.7	7
Nov. 1, 3-7, 9	6,951			39	17	5.6	--	192	0	5.2	9.0	--	1.3	191	167	10	327	8.2	8
Nov. 2, 8, 10	7,350			39	20	15	--	191	0	2.8	32	--	1.3	235	180	23	407	8.2	10
Nov. 11, 13-20	7,040			38	19	5.5	--	194	0	6.2	9.0	--	1.0	192	173	14	334	8.2	7
Nov. 12	7,050			43	20	37	--	194	0	5.0	70	--	1.0	a 349	190	30	544	8.2	7
Nov. 21-30	6,956			38	18	5.9	--	189	0	6.8	10	--	.8	188	169	14	328	8.2	7
Dec. 1-10	7,834			35	18	4.1	--	181	0	6.4	6.0	--	1.2	166	161	13	309	7.7	5
Dec. 11-16, 18-20	7,757			39	16	3.8	--	186	0	6.8	4.5	--	1.0	172	163	11	310	7.5	5
Dec. 17	7,620			--	--	--	--	180	0	7.0	38	--	4.1	a 265	181	33	413	8.2	--
Dec. 21-31	7,067			37	18	4.9	--	186	0	8.2	7.5	--	.9	174	166	14	318	7.8	5
Jan. 1-10, 1956	6,490	4.2	.00	39	17	5.2	1.4	192	0	6.6	7.5	.1	1.8	170	167	10	327	8.0	5
Jan. 11-20	7,417			35	19	7.5	--	184	0	9.6	12	--	1.8	210	165	15	337	7.2	5
Jan. 21-22, 24-30	7,669			36	16	5.4	--	181	0	7.6	5.0	--	1.3	180	156	7	307	8.1	7
Jan. 23	7,210			--	--	--	--	170	8	5.0	28	--	2.3	a 252	194	42	393	8.4	--
Jan. 31	17,700			--	--	--	--	96	0	5.0	12	--	1.1	a 130	100	21	203	7.9	--
Feb. 1, 3-10	44,330	--	--	12	3.5	4.2	--	44	0	7.6	6.0	--	.9	100	44	8	111	7.2	--
Feb. 2	25,100	--	--	--	--	--	--	76	0	12	40	--	1.1	a 173	82	20	210	8.3	--
Feb. 11-20	62,940	--	--	7.7	3.6	2.9	--	32	0	6.0	5.0	--	1.1	a 86	54	16	146	7.8	--
Feb. 21	64,800	--	--	--	--	--	--	28	0	10	24	--	3.0	a 94	36	18	146	7.8	--
Feb. 22-25, 27-29	76,260	--	--	7.6	2.8	2.2	--	34	0	6.4	2.5	--	.9	a 92	30	9	81.3	7.0	--

a Estimated from specific conductance.

WHITE RIVER BASIN--Continued

WHITE RIVER AT CLARENDON, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
															Calcium, mg-neq/l	Non-carbonate			
Feb. 26, 1956	80,700	--	--	--	--	--	--	33	0	10	70	--	2.4	a190	53	26	296	7.7	--
Mar. 1, 4-5	84,770	--	--	9.0	2.9	3.2	--	42	0	4.0	3.0	--	5	a88.8	34	0	88.8	7.5	--
Mar. 2, 6-7	69,900	--	--	--	--	--	--	38	0	6.0	48	--	1.1	a158	59	28	247	7.9	--
Mar. 3, 8-7	56,670	--	--	12	3.7	12	--	43	0	6.2	20	--	6	a128	45	10	148	7.5	90
Mar. 8-10	41,830	--	--	13	3.8	3.1	--	54	0	5.0	3.0	--	7	a100	46	1	109	7.5	90
Mar. 11-12	33,250	--	--	13	4.4	2.8	--	59	0	4.8	3.5	--	2	a58	51	2	115	7.8	80
Mar. 13, 16, 19	26,000	--	--	18	6.0	2.9	--	80	0	4.8	4.0	--	6	a112	70	4	148	7.9	50
Mar. 14	29,400	--	--	--	--	--	--	70	0	4.0	46	--	1.3	a185	80	23	288	8.2	--
Mar. 15, 18, 20	24,200	--	--	19	7.0	8.3	--	83	0	6.0	12	--	1.6	a133	76	8	188	7.8	80
Mar. 17	24,400	--	--	--	--	--	--	83	2	6.0	46	--	2.9	a203	106	35	317	8.3	--
Mar. 21	21,200	--	--	--	--	--	--	92	2	4.0	3.0	--	2.3	a109	83	4	170	8.5	--
Mar. 22-30	17,910	--	--	28	8.6	5.4	--	117	0	7.0	7.5	--	1.6	a148	105	9	231	8.1	25
Mar. 31	15,100	--	--	--	--	--	--	130	4	8.0	12	--	4.4	a176	46	0	274	8.6	--
Apr. 1	14,900	--	--	--	--	--	--	132	9	3.0	20	--	1.4	a194	140	17	302	8.7	--
Apr. 2-10	14,310	--	--	33	12	4.2	--	145	0	6.8	6.5	--	1.1	a155	132	13	255	7.9	10
Apr. 11-15, 17-20	17,500	--	--	28	11	3.8	--	128	0	5.6	6.5	--	7	a134	115	10	229	7.9	10
Apr. 16	17,200	--	--	--	--	--	--	122	4	5.0	24	--	2.2	a183	123	16	285	8.6	--
Apr. 21-24, 26-30	19,000	3.6	0.05	28	11	3.6	2.0	134	0	6.2	4.5	0.1	1.5	a134	115	5	234	7.6	10
Apr. 25	19,400	--	--	--	--	--	--	136	4	3.0	14	--	3.6	a168	202	92	262	8.6	--
May 1-10	22,880	--	--	26	9.2	3.5	--	118	0	5.4	4.5	--	1.4	a127	103	6	204	7.9	10
May 11-20	17,670	--	--	30	11	3.9	--	140	0	5.0	5.5	--	9	a144	120	5	239	7.6	10
May 21-31	24,150	--	--	27	8.9	2.9	--	120	0	4.0	3.5	--	1.5	a129	104	6	205	7.5	25
June 1-10	16,430	--	--	30	12	3.0	--	144	0	4.4	4.0	--	1.6	a146	124	2	255	7.6	10
June 11, 13-16, 18-20	13,620	--	--	32	12	3.2	--	135	0	5.3	4.0	--	2.3	a132	127	22	327	8.6	--
June 12	14,400	--	--	--	--	--	--	145	4	1.0	26	--	1.1	a140	141	13	300	8.6	--
June 17	13,400	--	--	--	--	--	--	148	0	8.0	16	--	1.6	a191	141	13	300	8.6	--
June 21-29	12,660	--	--	34	13	3.4	--	160	0	6.2	4.5	--	1.1	a155	136	7	261	8.0	10
June 30	17,100	--	--	--	--	--	--	112	2	4.0	3.2	--	1.5	a126	103	8	196	8.5	--
July 1-10	14,110	7.5	.00	35	11	4.6	1.6	151	0	6.6	5.5	--	3.4	a157	133	9	262	7.6	7
July 11-15, 17-20	10,880	--	--	39	12	5.7	--	169	0	5.8	7.2	--	3.6	a168	147	8	273	7.9	5
July 16	9,890	--	--	--	--	--	--	170	3	7.0	40	--	1.7	a259	164	20	404	8.4	--
July 21-31	11,050	--	--	41	13	5.1	--	178	0	6.6	6.2	--	2.7	a175	156	10	304	7.6	7

a Estimated from specific conductance.

Aug. 1-10, 1956	11,000	--	--	38	13	3.9	--	174	0	6.2	5.8	--	2.6	164	148	6	289	8.2	5
Aug. 11-20	8,983	--	--	39	16	4.7	--	188	0	8.0	6.2	--	2.5	181	163	9	311	8.1	5
Aug. 21-31	8,054	--	--	38	16	5.5	--	190	0	6.8	8.5	--	1.2	175	161	5	320	8.0	5
Sept. 1-9	7,797	--	--	39	15	5.1	--	186	0	7.2	7.2	--	1.7	174	159	7	313	7.9	5
Sept. 10	8,210	--	--	--	--	--	--	30	0	4.0	13	--	63	a 307	136	111	479	7.3	--
Sept. 11-20	8,257	--	--	38	15	4.0	--	181	2	6.4	4.8	--	2.1	183	156	5	301	8.3	5
Sept. 21-30	7,606	--	--	39	15	4.2	--	184	0	7.4	5.0	--	2.2	170	159	8	309	7.8	7
Average	17,000	--	--	32	12	5.6	--	132	0	6.0	14	--	2.7	167	130	22	276	--	--

a Estimated from specific conductance.

LOWER MISSISSIPPI RIVER BASIN

WHITE RIVER BASIN--Continued

WHITE RIVER AT CLARENDON, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956												
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	64	46	49	46	55	51	64	71	85	85	79
2	74	60	--	48	43	54	54	64	73	85	84	80
3	75	56	58	49	44	57	61	67	76	86	87	80
4	75	57	52	50	41	59	63	69	77	87	88	81
5	77	56	48	49	43	65	62	72	--	86	88	81
6	76	57	48	50	44	63	65	70	--	86	89	78
7	72	55	48	46	44	55	60	70	77	87	89	75
8	75	54	48	44	43	56	61	71	80	84	86	76
9	72	53	44	45	43	56	--	73	80	83	88	77
10	72	57	45	45	40	59	68	74	80	84	84	76
11	72	56	43	45	43	54	60	76	80	84	84	77
12	71	59	42	43	43	53	53	78	77	83	85	77
13	70	62	44	44	46	57	64	78	75	85	86	78
14	67	64	43	44	50	54	64	78	76	86	86	79
15	68	64	41	45	49	53	60	74	76	86	86	82
16	66	57	40	40	51	51	63	74	78	85	86	80
17	65	55	41	40	51	55	61	78	78	83	87	78
18	64	54	46	40	51	50	60	78	80	84	86	77
19	64	54	40	40	51	49	60	79	87	85	85	76
20	66	54	34	34	50	55	63	78	82	83	80	73
21	67	57	43	40	52	52	65	76	82	86	78	74
22	64	59	42	40	51	53	66	78	82	85	80	79
23	64	55	50	38	52	54	63	77	84	84	80	75
24	63	54	50	38	56	53	63	74	85	83	82	73
25	63	53	48	38	56	55	65	72	86	85	82	73
26	63	56	45	39	54	59	66	78	84	85	81	75
27	64	52	46	39	54	62	69	75	86	85	79	73
28	62	47	48	38	54	58	72	77	83	82	80	73
29	64	47	51	45	55	57	68	78	86	84	82	73
30	60	46	46	44	--	58	63	78	84	82	81	74
31	59	--	48	44	--	59	--	76	--	83	79	--
Average	68	56	46	43	48	56	63	74	80	85	84	77

WHITE RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN WHITE RIVER BASIN IN ARKANSAS

Chemical analyses, in parts per million, water year October 1955 to September 1956

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Bicar- bonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH
							Calcium, mag- nesium	Non- carbon- ate		
WHITE RIVER AT CALICO ROCK										
Nov. 30, 1955.....	3,380	184	5	2.0	2.5	2.0	175	16	294	8.5
Aug. 1, 1956.....	8,860	159	5	12	2.5	1.4	154	15	273	8.5
WHITE RIVER AT BATESVILLE										
Nov. 30, 1955.....	5,630	168	2	6.0	4.0	2.9	158	17	270	8.3
July 9, 1956.....	5,030	150	8	2.0	3.2	1.4	148	12	267	8.6
BLACK RIVER AT POCAHONTAS										
Dec. 1, 1955.....	1,480	171	0	3.0	3.0	1.2	190	50	271	8.2
July 10, 1956.....	--	161	6	4.0	3.0	1.4	153	11	268	8.5
STRAWBERRY RIVER NEAR EVENING SHADE										
Nov. 15, 1955.....	9.8	196	12	4.0	2.8	0.8	201	21	272	8.5
June 27, 1956.....	303	133	0	5.0	1.5	1.6	116	7	208	8.2
PINEY FORK STRAWBERRY RIVER AT EVENING SHADE										
Nov. 15, 1955.....	3.2	181	10	4.0	3.2	1.0	194	29	247	8.5
June 27, 1956.....	275	137	4	5.0	1.8	1.6	118	0	217	8.5
WHITE RIVER AT DE VALLS BLUFF										
Nov. 7, 1955.....	7,800	178	0	2.0	3.5	1.4	163	17	284	8.2
June 20, 1956.....	12,700	150	8	2.0	3.2	1.8	144	8	267	8.7

ARKANSAS RIVER BASIN

ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.

LOCATION.--At gaging station 1 mile upstream from Caddo Creek, 1½ miles downstream from John Martin Dam, Bent County, and 3 miles southeast of Hasty. DRAINAGE AREA.--18,917 square miles, of which 785 square miles is probably noncontributing. RECORDS AVAILABLE.--Chemical analyses: August 1942 to August 1943, October 1945 to July 1949 (intermittent and weekly samples): January 1951 to September 1956 (daily samples).

Water temperatures: January 1951 to September 1956.

EXTREMES, 1955-56--Dissolved solids: Maximum, 3,880 ppm May 4-15; minimum, 609 ppm June 11.

Hardness: Maximum, 1,700 ppm May 4-15; minimum, 374 ppm June 11.

Specific conductance: Maximum daily, 4,540 micromhos Feb. 6; minimum daily, 871 micromhos June 11.

Water temperatures: Maximum, 78°F July 30; minimum, 33°F Dec. 6, 19, Jan. 17, 30, Feb. 1.

EXTREMES, 1951-56.--Dissolved solids: Maximum, 4,280 ppm Aug. 8, 1955; minimum, 609 ppm June 11, 1956.

Hardness: Maximum, 1,910 ppm Aug. 8, 1955; minimum, 374 ppm June 11, 1956.

Specific conductance: Maximum daily, 5,180 micromhos Apr. 21, 1955; minimum daily, 830 micromhos June 19, 1952.

Water temperatures: Maximum, 85°F Aug. 6, 1951; minimum, freezing point on several days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate		
Oct. 1-10, 1955...	375	3.9	0.01	167	55	121	7.5	145	726	25	0.6	1.9	0.16	1,270	1.73	642	524	29	1,560
Oct. 11-20, 1955...	276	--	--	168	58	126	--	145	--	--	--	--	--	1,280	1.74	658	538	29	1,580
Oct. 21-31, 1955...	396	--	--	171	59	132	--	145	--	--	--	--	--	1,310	1.78	668	550	30	1,590
Nov. 1-30, 1955...	6.39	--	--	274	150	393	--	521	--	--	--	--	--	2,630	3.65	1,320	1,460	30	1,940
Dec. 1-10, 1955...	2.47	--	--	302	162	404	--	563	--	--	--	--	--	3,160	4.22	1,420	1,100	39	2,550
Dec. 11-20, 1955...	2.86	--	--	300	170	412	--	421	--	--	--	--	--	3,160	4.30	1,450	1,100	38	2,580
Dec. 21-31, 1955...	2.21	--	--	300	172	426	--	429	--	--	--	--	--	3,240	4.31	1,460	1,100	39	2,650
Jan. 1-10, 1956...	2.87	16	.00	294	185	435	8.3	449	1,810	110	.6	.8	.44	3,300	4.49	1,490	1,130	39	3,640
Jan. 11-20, 1956...	2.97	--	--	295	202	230	--	448	--	--	--	--	--	3,390	4.61	1,550	1,190	24	3,680
Jan. 21-31, 1956...	3.41	--	--	274	178	210	--	376	--	--	--	--	--	3,220	4.38	1,420	1,110	24	3,420
Feb. 1-10, 1956...	3.32	--	--	257	190	256	--	322	--	--	--	--	--	3,780	5.14	1,670	1,410	25	4,040
Feb. 11-20, 1956...	2.97	--	--	286	186	224	--	422	--	--	--	--	--	3,320	4.52	1,380	1,030	26	3,620
Feb. 21-29, 1956...	2.73	--	--	266	205	235	--	366	--	--	--	--	--	3,320	4.52	1,510	1,210	25	3,650
Mar. 1-31, 1956...	2.43	--	--	296	187	447	--	418	--	--	--	--	--	3,390	4.61	1,510	1,160	39	3,700
Apr. 1, 1956...	1.80	21	.00	292	187	472	9.1	360	1,940	121	.8	.9	.85	3,440	4.68	1,500	1,200	40	3,850
Apr. 2-10, 1956...	745	5.4	.01	234	96	218	7.8	183	1,130	53	.7	2.3	.32	1,930	2.62	928	778	34	2,280
Apr. 11-29, 1956...	962	--	--	224	96	227	--	174	--	--	--	--	--	1,980	2.69	954	812	34	2,370
Apr. 30-May 2, 1956...	169	--	--	294	136	348	--	215	--	--	--	--	--	2,890	3.93	1,290	1,120	37	3,240

May 3, 1956	84.0	--	--	349	166	462	212	--	--	--	--	3,590	4.88	814	1,550	1,380	39	5.1	3,950	7.3	
May 4-15	35.6	--	--	359	196	496	220	--	--	--	--	3,660	5.26	973	1,700	1,520	39	5.3	4,210	7.7	
May 16-19	28.0	--	--	341	176	446	205	--	--	--	--	3,540	4.53	816	1,490	1,410	38	4.7	3,710	7.7	
May 20-23	20.5	--	--	316	169	421	218	--	--	--	--	3,350	4.18	736	1,370	1,310	38	4.5	3,490	7.9	
May 24-28	559	--	--	294	121	253	222	--	--	--	--	2,420	3.29	3,650	1,430	1,080	29	2.9	2,700	7.6	
May 29-31	416	--	--	116	36	77	176	--	--	--	--	816	1.11	921	446	302	38	1.6	1,100	7.8	
June 1-9	472	--	--	115	30	64	210	--	--	--	--	684	.93	872	410	238	25	1.4	955	7.7	
June 10	483	--	--	125	38	89	194	--	--	--	--	844	1.15	1,070	468	310	29	1.8	1,150	7.4	
June 11	605	--	--	104	28	56	199	--	--	--	--	609	83	935	374	212	25	1.3	871	7.5	
June 12-27	480	--	--	110	32	67	196	--	--	--	--	688	.94	892	406	246	26	1.4	963	7.7	
June 28-30	540	--	--	141	50	107	231	--	--	--	--	1,000	1.36	1,460	558	368	29	2.0	1,320	7.7	
July 1-2, 5-7	326	13	--	.01	155	46	114	6.8	190	593	33	.8	7.0	1,110	1,510	977	420	30	2.1	1,430	7.7
July 3	579	--	--	247	80	179	216	--	--	--	--	1,860	2.53	2,910	946	768	29	2.5	2,150	7.4	
July 4	679	--	--	177	62	132	236	--	--	--	--	1,360	1.85	2,460	696	503	29	2.2	1,670	7.3	
July 8-10	127	15	--	.01	238	78	215	7.5	229	1,050	61	.8	7.8	914	727	34	3.1	2,260	7.9		
July 11-12	86.0	--	--	300	125	331	273	--	--	--	--	2,670	3.63	620	1,260	1,040	36	4.1	3,050	7.8	
July 13	132	--	--	191	63	244	198	--	--	--	--	1,670	2.27	759	736	572	42	3.9	2,130	7.4	
July 14-18	54.0	--	--	316	140	368	237	--	--	--	--	2,930	3.98	1,427	1,360	1,170	37	4.3	3,290	7.7	
July 19-20	240	--	--	262	120	248	321	--	--	--	--	2,270	3.09	1,470	1,150	884	32	3.2	2,590	7.7	
July 21-30	579	--	--	175	59	110	257	--	--	--	--	1,190	1.62	1,860	679	468	26	1.8	1,510	7.7	
July 31	135	--	--	312	133	323	380	--	--	--	--	2,700	3.67	984	1,330	1,010	35	3.9	3,110	7.2	
Aug. 1-2	179	--	--	278	109	260	283	--	--	--	--	2,260	3.07	1,090	1,140	910	33	3.4	2,630	7.6	
Aug. 3-8	312	--	--	214	80	146	276	--	--	--	--	1,550	2.11	1,310	863	637	27	2.2	1,880	7.5	
Aug. 9	49.0	--	--	278	114	288	237	--	--	--	--	2,350	3.20	311	1,650	968	35	3.7	2,760	7.4	
Aug. 10-14	45.2	--	--	341	146	391	262	--	--	--	--	3,120	4.24	381	1,450	1,240	37	4.5	3,480	7.9	
Aug. 15	64.0	--	--	195	87	239	199	--	--	--	--	1,790	2.43	844	681	38	3.6	2,210	7.3		
Aug. 16-17	34.0	--	--	314	153	420	220	--	--	--	--	3,150	4.28	289	1,410	1,230	39	4.9	3,520	7.7	
Aug. 18-19	490	--	--	135	39	90	205	--	--	--	--	877	1.19	498	330	28	1.8	1,190	7.4		
Aug. 20-21	122	--	--	284	132	356	263	--	--	--	--	2,710	3.69	893	1,250	1,040	38	4.4	3,110	7.8	
Aug. 22-31	869	--	--	130	38	73	139	--	--	--	--	842	1.15	1,980	481	367	25	1.5	1,110	7.7	
Sept. 1	944	--	--	150	47	102	138	--	--	--	--	1,030	1.40	2,630	568	454	28	1.9	1,380	8.2	
Sept. 2	396	--	--	208	72	160	236	--	--	--	--	1,540	2.09	815	622	30	2.4	1,920	7.3		
Sept. 3	66.0	--	--	339	137	352	343	--	--	--	--	2,950	4.01	526	1,410	1,130	35	4.1	3,320	7.2	
Sept. 4-10	53.9	--	--	367	165	443	269	--	--	--	--	3,470	4.72	318	1,590	1,360	38	4.8	3,610	7.7	
Sept. 11-30	20.6	--	--	385	176	476	314	--	--	--	--	3,710	5.05	206	1,650	1,430	38	5.0	4,040	7.6	
Weighted average	222	--	--	186	69	157	190	--	--	--	--	1,470	2.00	881	748	592	31	2.5	1,800	--	

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

/Once-daily measurement, generally at 8 a.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	51	37	41	33	44	57	50	61	71	70	65
2	63	44	41	38	36	48	55	58	66	75	72	65
3	63	45	37	36	36	43	45	63	67	74	71	65
4	63	48	36	38	37	45	49	51	67	70	71	55
5	63	48	34	40	39	47	50	56	56	73	70	50
6	59	50	33	40	38	44	48	58	56	75	75	57
7	59	44	37	38	36	35	48	57	65	69	74	55
8	59	47	36	38	34	37	48	58	71	69	75	62
9	58	41	36	38	34	43	47	60	67	74	75	62
10	61	46	36	35	34	46	47	64	68	74	74	68
11	60	49	36	37	36	40	48	60	68	75	67	58
12	61	49	35	36	36	34	47	a 67	74	74	74	70
13	60	49	40	37	35	35	51	57	75	75	76	70
14	59	48	37	39	39	35	50	55	75	71	73	70
15	59	42	37	40	37	35	51	55	72	73	75	65
16	60	36	37	35	36	37	50	60	73	75	71	65
17	57	40	36	33	35	45	50	64	72	75	73	64
18	57	38	36	35	35	46	49	69	75	60	70	65
19	57	41	33	35	37	47	50	65	75	70	60	65
20	58	45	35	37	40	46	53	64	75	70	61	66
21	57	44	37	39	40	46	54	66	75	74	67	66
22	57	48	40	39	40	48	55	63	67	74	60	62
23	56	45	43	38	43	51	54	66	71	75	64	61
24	48	44	46	40	45	52	52	56	71	75	73	60
25	52	40	44	36	39	52	53	56	75	75	69	60
26	51	42	43	38	41	53	59	61	75	75	71	64
27	54	44	42	37	40	49	62	63	74	75	75	60
28	53	38	41	40	41	43	56	64	70	77	75	62
29	51	36	41	39	47	46	55	62	74	74	75	60
30	50	37	40	33	--	50	51	66	73	78	73	65
31	52	--	39	35	--	52	--	--	--	77	65	--
Average	57	44	38	37	38	44	51	60	70	73	71	63

a Measurement at 9 a.m.

ARKANSAS RIVER BASIN--Continued
ARKANSAS RIVER AT ARKANSAS CITY, KANS.

LOCATION.--At gaging station at bridge on U. S. Highway 166, half a mile west of Arkansas City, Cowley county, and 5.4 miles upstream from Walnut River. DRAINAGE AREA.--43,713 square miles, of which 7,607 square miles are probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1956.

Water temperatures: October 1951 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,530 ppm Sept. 1-10; minimum, 172 ppm Oct. 1-6.

Hardness: Maximum, 600 ppm Sept. 1-10; minimum, 84 ppm Oct. 1-6.

Specific conductance: Maximum daily, 4,780 microhos Sept. 6; minimum daily, 259 microhos Oct. 4.

Water temperatures: Maximum, 80°F July 17; minimum, freezing point on many days during November, December, January, and February.

EXTREMES, 1951-56.--Dissolved solids: Maximum, 2,770 ppm Oct. 5, 1953; minimum, 172 ppm Oct. 1-6, 1955.

Hardness: Maximum, 600 ppm Sept. 1-10, 1956; minimum, 84 ppm Oct. 1-6, 1955.

Specific conductance: Maximum daily, 4,760 microhos Sept. 6, 1956; minimum daily, 259 microhos Oct. 4, 1955.

Water temperatures: Maximum, 82°F July 16, 1954, July 31, 1955; minimum, freezing point on 89 days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent adsorption ratio (25° C)	Specific conductance (micro-mhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-6, 1955 ..	13,360	--	--	26	4.6	29		82	22	38	--	4.3	--	172	0.23	6,200	84	17	43	1.4	298	7.5
Oct. 7-8, 1955 ..	4,120	--	--	43	13	60		120	49	98	--	5.0	--	348	.47	3,870	160	62	45	2.1	812	8.0
Oct. 9-10, 1955 ..	2,270	--	--	56	12	112		146	73	165	--	5.1	--	522	.71	3,130	190	68	56	3.5	912	8.1
Oct. 11-13, 1955 ..	1,370	--	--	72	15	178		180	109	255	--	6.6	--	749	1.02	2,770	240	92	62	5.0	1,310	8.1
Oct. 14-20, 1955 ..	899	--	--	93	23	261		238	157	360	--	6.9	--	1,070	1.46	2,600	325	138	64	6.3	1,880	7.9
Oct. 21-31, 1955 ..	676	18	0.01	102	29	298	6.5	236	188	460	0.1	6.9	0.40	1,280	1.74	2,340	375	162	63	6.7	2,240	7.5
Nov. 1-10, 1956 ..	548	--	--	108	31	364	--	252	195	520	--	7.7	--	1,420	1.93	2,100	395	188	67	8.0	2,360	7.6
Nov. 11-20, 1956 ..	481	--	--	112	32	347	--	262	196	530	--	10	--	1,430	1.94	1,860	410	196	65	7.5	2,490	7.7
Nov. 21-30, 1956 ..	451	--	--	114	32	355	--	272	198	560	--	9.2	--	1,480	2.01	1,800	415	192	65	7.6	2,480	7.8
Dec. 1-10, 1956 ..	424	--	--	110	35	356	--	264	197	540	--	14	--	1,450	1.97	1,660	420	204	65	7.6	2,460	7.8
Dec. 11-20, 1956 ..	361	--	--	126	31	412	--	278	213	620	--	14	--	1,610	2.19	1,570	440	212	67	8.5	2,750	7.8
Dec. 21-22, 1956 ..	450	--	--	128	34	415	--	280	208	640	--	17	--	1,640	2.23	1,990	460	230	66	8.4	2,820	7.9
Dec. 23-31, 1956 ..	573	--	--	110	38	328	--	256	197	510	--	12	--	1,360	1.85	2,100	430	220	62	6.9	2,370	7.8
Jan. 1-10, 1956 ..	517	--	--	124	32	356	--	266	270	500	--	11	--	1,480	2.01	2,070	440	222	64	7.4	2,550	8.1
Jan. 11-18, 1956 ..	461	--	--	144	27	410	--	280	266	600	--	11	--	1,640	2.23	2,040	470	240	75	8.2	2,800	7.9
Jan. 19-20, 1956 ..	390	--	--	160	39	497	--	308	283	785	--	19	--	1,970	2.68	1,800	560	308	66	9.1	3,370	7.9
Jan. 21-31, 1956 ..	444	--	--	116	34	360	--	270	210	540	--	15	--	1,440	1.96	1,730	430	208	65	7.6	2,540	7.9
Feb. 1-4, 1956 ..	320	--	--	132	29	403	--	268	210	620	--	17	--	1,570	2.14	1,400	450	230	66	8.3	2,750	8.2
Feb. 5-10, 1956 ..	377	--	--	114	24	324	--	258	181	480	--	16	--	1,290	1.75	2,010	385	174	65	7.2	2,260	7.9
Feb. 11-16, 1956 ..	643	--	--	104	29	291	--	240	181	440	--	9.4	--	1,190	1.63	2,070	380	163	63	6.5	2,110	8.3
Feb. 17-20, 1956 ..	612	--	--	128	27	413	--	254	180	440	--	9.4	--	1,560	2.15	2,610	430	222	68	8.7	2,820	8.3

a. Includes 2 parts per million of carbonate (CO₃).

b. Includes 4 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT ARKANSAS CITY, KANS.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃	Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Parts per million	Tons per acre-foot					
Feb. 21-29, 1956	570	24	0.01	128	34	406	5.3	a264	284	590	0.3	9.9	0.24	1,660	2.26	460	65	8.2	2,700	8.3
Mar. 1-10,	509	--	--	128	41	420	272	272	339	580	--	9.9	--	1,550	2.24	490	65	8.2	2,780	8.1
Mar. 11-15,	445	--	--	120	41	434	264	264	317	610	--	9.9	--	1,660	2.26	470	67	8.7	2,840	8.1
Mar. 16-20,	480	--	--	116	35	386	258	258	283	540	--	9.4	--	1,500	2.04	435	68	8.1	2,520	7.9
Mar. 21-22, 24-31	489	--	--	102	39	376	236	290	260	540	--	8.3	--	1,440	1.96	415	66	8.0	2,440	7.7
Mar. 23,	573	--	--	88	27	255	196	212	355	--	--	8.4	--	1,060	1.44	330	170	62	1,880	7.9
Apr. 1-4,	446	--	--	116	37	405	240	269	595	--	--	6.5	--	1,620	2.20	440	67	8.4	2,700	7.8
Apr. 5-6,	714	--	--	80	23	179	194	163	250	--	--	4.4	--	856	1.16	295	57	4.5	1,420	7.7
Apr. 7-10,	474	--	--	108	34	367	228	240	540	--	--	11	--	1,500	2.04	410	66	7.9	2,500	7.6
Apr. 11-14,	502	--	--	100	29	299	224	214	430	--	--	7.6	--	1,290	1.75	370	186	64	2,120	7.6
Apr. 15-20,	436	--	--	108	33	362	244	230	530	--	--	6.6	--	1,490	2.03	405	205	66	2,450	7.6
Apr. 21-30,	386	--	--	118	33	399	252	236	595	--	--	7.6	--	1,620	2.20	430	224	67	2,690	7.4
May 1-4,	410	--	--	110	43	360	248	223	560	--	--	9.7	--	1,470	2.00	450	247	63	2,570	8.2
May 5,	533	--	--	96	38	475	b222	220	720	--	--	7.3	--	1,700	2.31	400	218	72	2,930	8.3
May 6-10,	483	--	--	98	34	332	230	196	500	--	--	6.0	--	1,330	1.81	360	192	66	2,320	8.0
May 11-20,	352	--	--	109	36	420	256	219	630	--	--	9.2	--	1,600	2.18	420	210	89	2,790	7.9
May 21-28,	299	--	--	115	40	437	264	221	670	--	--	10	--	1,890	2.30	450	234	68	2,950	8.0
May 29-31,	343	--	--	98	38	360	234	188	560	--	--	6.5	--	1,420	1.83	400	208	66	2,490	7.9
June 1-4,	334	--	--	108	36	422	234	205	625	--	--	8.0	--	1,510	2.05	360	183	71	2,680	8.0
June 5-10,	378	--	--	100	23	375	230	201	545	--	--	5.5	--	1,350	1.84	345	186	70	2,420	7.9
June 11-20,	231	--	--	104	29	469	220	213	700	--	--	12	--	1,860	2.26	400	200	73	2,840	8.0
June 21-30,	152	13	.04	104	34	478	8.2	214	207	750	1.1	12	.22	1,770	2.41	420	224	72	3,060	7.6
July 1-4,	155	--	--	96	27	462	190	183	740	--	--	11	--	1,650	2.24	350	184	75	2,920	8.0
July 5-10,	658	--	--	49	13	163	148	65	240	--	--	3.1	--	1,140	.86	175	94	47	1,150	7.9
July 11-15,	354	--	--	66	19	282	198	132	430	--	--	1.7	--	1,040	1.65	225	117	61	1,860	7.8
July 16-20,	296	--	--	68	22	315	208	144	478	--	--	7.7	--	1,460	1.95	290	176	68	2,370	7.9
July 21-26,	212	--	--	66	22	315	208	144	478	--	--	7.7	--	1,460	1.95	290	176	68	2,370	7.9
July 27-31,	146	--	--	92	31	494	198	188	755	--	--	8.7	--	1,700	2.31	355	192	75	2,450	8.0

a Includes 2 parts per million of carbonate (CO₃).b Includes 4 parts per million of carbonate (CO₃).

Aug. 1-10, 1956	74.7	--	--	120	40	567	252	207	900	--	7.2	--	2,090	2.84	422	465	258	73	11	3,570	8 1
Aug. 11-20	60.6	--	--	138	40	610	288	203	980	--	6.8	--	2,250	3.06	368	510	274	72	12	3,820	8 1
Aug. 21-22	86.0	--	--	128	34	517	276	185	820	--	12	--	1,940	2.64	450	460	234	71	10	3,280	8 1
Aug. 23-31	59.7	--	--	144	43	634	300	207	1,030	--	--	--	2,360	3.21	380	535	289	72	12	3,960	8 1
Sept. 1-10	38.1	.06	--	160	49	655	312	224	1,120	.7	--	0.28	2,530	3.44	280	600	344	70	12	4,300	8 2
Sept. 11-20	31.2	--	--	140	43	714	240	223	1,170	--	--	--	2,440	3.32	206	525	328	75	14	4,360	7 7
Sept. 21-30	28.0	--	--	150	48	733	286	224	1,200	--	--	--	2,520	3.43	191	565	330	74	13	4,470	7 6
Weighted average	626	--	--	77	21	227	182	138	340	--	--	--	936	1.27	1,360	278	130	64	5.9	1,610	--

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT ARKANSAS CITY, KANS.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	50	33	36	35	47	61	57	64	72	75	62
2	67	49	39	38	32	45	61	58	64	74	76	63
3	64	43	47	37	32	47	52	60	65	76	74	66
4	66	43	34	37	33	46	50	61	70	77	77	63
5	68	46	35	38	33	51	56	65	72	72	78	68
6	70	49	34	40	32	53	56	78	--	76	76	58
7	63	45	35	34	34	40	47	68	74	74	75	58
8	62	39	36	35	36	38	48	65	76	76	75	59
9	61	40	32	34	34	49	47	70	73	76	77	59
10	59	42	33	35	37	47	42	69	74	73	73	59
11	63	46	35	33	38	40	44	70	74	73	72	62
12	65	48	32	33	37	33	53	71	74	76	72	64
13	58	49	34	32	40	36	56	71	73	76	73	65
14	57	45	36	36	42	36	63	63	73	77	77	67
15	56	52	32	34	39	41	57	63	73	76	76	70
16	57	34	32	32	40	37	52	62	74	75	75	69
17	55	34	32	32	39	42	49	66	74	80	78	67
18	54	39	32	32	38	47	50	70	--	75	76	63
19	56	37	32	32	40	43	53	67	76	74	69	66
20	58	41	32	32	39	48	54	69	75	73	60	63
21	58	46	32	32	42	43	56	67	74	73	62	61
22	60	52	33	32	42	45	57	68	75	72	64	66
23	61	43	37	32	49	43	53	71	72	73	68	63
24	50	39	41	33	51	50	47	63	77	75	64	57
25	50	38	38	32	43	50	55	60	74	76	71	58
26	53	38	38	33	44	51	61	65	72	75	67	57
27	54	41	42	34	42	59	65	68	75	75	69	59
28	52	32	42	40	40	49	67	70	73	76	72	60
29	48	32	39	35	43	49	52	73	75	75	70	61
30	46	32	32	32	--	46	52	73	75	76	68	56
31	47	--	33	32	--	54	--	74	--	75	68	--
Average	58	42	35	34	38	45	54	67	73	75	72	62

ARKANSAS RIVER BASIN--Continued
CHIKASKIA RIVER NEAR BLACKWELL, OKLA.

LOCATION.--At gaging station on St. Louis-San Francisco Railway Co. bridge at northeast edge of city of Blackwell, Kay County, 0.2 miles downstream from Bitter Creek.

DRAINAGE AREA.--1,859 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1952 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
Oct. 3, 1955	14,000	13	4.3	6.2	58	0	3.0	50	2	21	0.4	114	6.6
Oct. 4	9,440	16	3.9	9.3	56	0	8.0	58	10	26	.5	140	6.9
Oct. 11	227	80	20	88	180	0	180	280	132	41	2.3	876	7.5
Oct. 27	62.7	109	36	264	142	0	480	420	304	58	5.6	1,910	7.5
Nov. 14	54.3	92	34	208	88	0	410	370	298	55	4.7	1,710	7.9
Dec. 1	58.4	112	48	250	156	0	510	470	340	54	5.0	2,120	7.9
Dec. 20	48.6	100	45	215	100	0	480	435	353	52	4.5	1,960	7.9
Jan. 6, 1956	58.2	96	34	153	264	0	285	380	104	47	3.4	1,400	7.9
Jan. 19	28.8	130	43	207	190	0	480	500	344	47	4.0	2,110	7.9
Feb. 6	57.7	56	32	134	126	0	240	270	156	32	3.5	1,150	7.8
Feb. 21	66.6	64	37	132	186	0	205	310	156	46	3.3	1,140	7.9
Mar. 9	48.6	72	28	227	148	0	290	295	174	63	5.7	1,350	7.6
Mar. 23	68.3	52	27	190	144	0	190	240	122	52	3.4	1,010	7.7
Apr. 13	56.8	80	18	110	200	0	182	275	111	46	2.9	1,020	8.0
Apr. 26	35.7	68	27	130	138	0	280	280	187	50	3.4	1,390	7.8
May 9	43.6	48	30	166	110	0	272	245	155	60	4.6	1,210	7.7
May 22	12.5	132	51	--	76	0	820	540	478	--	--	2,870	7.7
June 4	17.9	60	45	196	108	0	422	336	248	56	4.7	1,730	7.6
June 19	13.3	78	34	174	158	0	378	334	334	53	4.1	1,570	7.9
July 3	1.28	398	154	--	86	0	2,300	1,620	1,550	--	--	8,680	7.5
July 16	4.62	88	46	203	164	0	470	418	284	51	4.3	1,920	7.8
July 25	1.52	558	158	--	100	0	3,290	2,040	1,960	--	--	10,200	7.9
Aug. 15	.07	757	244	--	98	0	4,580	2,890	2,510	--	--	13,500	7.7
Aug. 27	.35	1,130	350	--	95	0	7,190	4,260	4,180	--	--	19,900	7.7
Sept. 18	.47	1,170	280	--	91	0	7,690	4,070	4,000	--	--	21,200	7.5

ARKANSAS RIVER BASIN--Continued
RED ROCK CREEK NEAR RED ROCK, OKLA.

LOCATION.--At bridge on State Highway 15, half a mile west of Red Rock, Noble County.

DRAINAGE AREA.--300 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.

REMARKS.--Discharge data obtained at time of sampling.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
								Total	Non- carbonate				
Oct. 27, 1955	1.12	37	20	51	224	0	48	175	0	39	1.7	542	7.6
Nov. 14	.85	32	26	54	262	0	60	196	0	37	1.7	671	8.2
Dec. 20	.98	70	41	94	380	0	94	345	34	37	2.2	1,210	8.1
Jan. 6, 1956	.27	40	46	125	400	0	116	280	0	48	3.2	1,090	8.0
Feb. 21	1.33	35	27	84	232	0	96	200	10	48	4.0	1,782	8.2
Mar. 8	.43	72	29	158	436	0	124	300	0	53	4.0	1,220	7.8
Apr. 13	3.95	44	49	235	274	0	288	310	86	62	5.8	1,640	8.2
May 9	.26	29	49	178	240	0	265	275	78	58	4.7	1,410	8.0
June 5	.69	18	36	126	364	0	115	192	0	59	4.0	958	8.2
Aug. 15	.86	54	15	36	258	0	26	195	0	29	1.1	495	8.0

LOCATION.—At gaging station at bridge on State Highway 18 at Ralston, Pawnee County, 2 miles downstream from Salt Creek, and 2 miles upstream from Grayhorse Creek. 54,465 square miles, of which 7,615 square miles is probably noncontributing.

DRAINAGE AREA.—Chemical analyses: January, 1950 to September, 1956.

RECORDS AVAILABLE.—Chemical analyses: January, 1950 to September, 1956.

EXTREMES, 1955-56.—Dissolved solids: Maximum, 2,930 ppm July 28-31; minimum, 166 ppm Oct. 3-6.

Hardness: Maximum, 570 ppm June 26; minimum, 76 ppm Oct. 3-6.

Specific conductance: Maximum, 521 microhos July 29; minimum daily, 251 microhos Oct. 5.

Water temperatures: Maximum, 98°F July 28; minimum, 33°F on several days during December, January, and February.

EXTREMES, 1950-56.—Dissolved solids: Maximum, 3,390 ppm Sept. 11-16, 1955; minimum, 166 ppm Oct. 3-6, 1955.

Hardness: Maximum, 582 ppm Jan. 5, 1951; minimum, 76 ppm Oct. 3-6, 1955.

Specific conductance: Maximum daily, 7,510 microhos Sept. 14, 1955; minimum daily, 251 microhos Oct. 5, 1955.

Water temperatures: Maximum, 98°F July 28, 1956; minimum, freezing point on 26 days during winter months.

REMARKS.—Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (microhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-2, 8, 1955	8,887	--	--	51	9.2	168		124	63	255	--	5.6	--	633	0.86	15,190	165	64	69	5.7	1,180	7.9
Oct. 3-6	41,900	--	--	22	5.1	31	82	82	15	40	--	5.2	--	166	23	18,780	76	9	47	1.5	297	7.7
Oct. 7	29,600	--	--	27	5.0	74	74	27	110	400	--	5.4	--	308	42	24,620	88	28	65	3.4	562	7.6
Oct. 9-10	9,060	--	--	56	11	260		112	87	400	--	5.2	--	919	1.25	22,480	185	63	75	8.3	1,680	8.0
Oct. 11-20	3,286	13	0.01	80	23	345	6.4	162	143	580	0.1	2.2	0.16	1,350	1.84	11,980	290	157	72	8.8	2,450	7.4
Oct. 21-31	1,405	--	--	80	27	332	--	166	154	505	--	3.0	--	1,270	1.73	4,820	310	174	70	8.2	2,150	7.9
Nov. 1-10	907	--	--	92	34	366	--	204	172	560	--	3.2	--	1,420	1.93	3,480	370	203	68	8.3	2,420	7.7
Nov. 11-20	746	--	--	106	37	398	--	248	173	600	--	3.7	--	1,510	2.05	3,040	415	212	68	8.5	2,310	7.8
Nov. 21-30	634	--	--	116	32	382	--	256	179	605	--	4.6	--	1,530	2.08	2,620	420	210	66	8.1	2,700	7.8
Dec. 1-10	601	--	--	114	38	385	--	260	184	615	--	5.9	--	1,510	2.05	2,450	440	227	66	8.0	2,640	8.2
Dec. 11-20	533	--	--	116	33	382	--	262	187	595	--	8.5	--	1,490	2.03	2,140	425	210	65	8.1	2,530	8.2
Dec. 21-31	576	--	--	118	34	383	--	266	183	605	--	8.0	--	1,500	2.04	2,330	435	217	66	8.0	2,680	8.0
Jan. 1-10, 1956	620	--	--	118	32	357	--	260	207	545	--	5.9	--	1,440	1.96	2,410	425	212	65	7.5	2,510	8.0
Jan. 11-20	516	--	--	120	39	369	--	270	225	570	--	5.2	--	1,520	2.07	2,120	460	238	64	7.5	2,680	8.0
Jan. 21-31	534	--	--	122	38	376	--	268	197	600	--	8.3	--	1,520	2.07	2,190	460	240	64	7.6	2,700	7.9
Feb. 1-10	650	21	.00	115	37	346	4.7	262	178	560	.2	10	.29	1,460	1.99	2,560	440	226	63	7.2	2,510	8.1
Feb. 11-20	812	--	--	110	31	337	--	254	177	520	--	8.5	--	1,340	1.82	2,960	400	192	65	7.3	2,360	7.8
Feb. 21-29	736	--	--	120	35	463	--	252	244	700	--	3.7	--	1,700	2.31	3,380	445	238	69	9.5	2,920	8.2
Mar. 1-10	637	--	--	108	40	483	--	218	285	780	--	2.0	--	1,780	2.42	3,060	435	256	71	10	3,010	8.1
Mar. 11-20	560	--	--	112	41	460	--	248	275	680	--	2.2	--	1,700	2.31	2,570	450	247	69	9.4	2,880	8.2
Mar. 21-31	618	--	--	118	31	403	--	224	236	615	--	.5	--	1,970	2.14	2,620	420	236	68	8.6	2,980	7.9

ARKANSAS RIVER BASIN--Continued
ARKANSAS RIVER AT RALSTON, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per-cent so-soft-ness	So-soft-ness ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-mag-nesium				
Apr. 1-8, 1956	602	--	--	108	38	418		216	235	845	--	3.3	--	1,680	2.28	2,730	425	248	68	8.8	2,840	7.6
Apr. 9-10	825	--	--	86	27	269		200	170	400	--	5.9	--	1,150	1.56	2,560	325	161	84	6.5	1,920	7.6
Apr. 11-20	663	--	--	88	34	391		172	211	600	--	3.9	--	1,550	2.11	2,770	360	219	70	9.0	2,570	7.5
Apr. 21-30	522	--	--	98	38	411		196	231	840	--	1.7	--	1,680	2.26	2,340	400	240	69	8.9	2,760	7.1
May 1-10	517	--	--	94	40	414		204	204	650	--	4.9	--	1,580	2.15	2,210	400	233	69	9.0	2,730	7.9
May 11-20	456	--	--	98	38	406		204	201	640	--	5.0	--	1,580	2.15	1,950	400	233	69	8.8	2,760	7.8
May 21-31	330	12	0.01	98	34	494	6.0	192	210	690	0.4	7.1	0.10	1,670	2.27	1,490	380	222	72	10	2,890	7.8
June 1-5	347	--	--	102	28	457		196	202	700	--	8.0	--	1,620	2.20	1,520	370	210	73	10	2,860	7.9
June 6-12	472	--	--	128	37	559		148	249	920	--	9.7	--	2,060	2.80	2,630	470	348	72	11	3,530	7.6
June 12-15	562	--	--	80	24	334		154	156	520	--	5.9	--	1,230	1.67	1,930	300	174	71	8.4	2,170	7.7
June 16-20	344	--	--	88	23	433		138	186	670	--	6.3	--	1,500	2.04	1,390	315	202	75	11	2,650	7.5
June 21-25	247	--	--	88	32	454		146	195	715	--	7.0	--	1,630	2.22	1,090	350	230	74	11	2,910	7.9
June 26	590	--	--	156	44	549		142	237	985	--	15	--	2,230	3.02	3,540	570	454	68	10	3,710	8.2
June 27-30	616	--	--	74	18	242		152	103	390	--	6.8	--	951	1.29	1,580	260	136	67	6.5	1,710	8.0
July 1-7	336	--	--	88	29	408		160	154	660	--	5.4	--	1,460	1.99	1,330	340	209	72	9.6	2,600	7.4
July 8-9	1,150	--	--	54	21	159		146	68	262	--	7.6	--	680	.92	2,110	220	100	61	4.7	1,250	8.0
July 10	925	--	--	124	34	448		124	176	805	--	6.4	--	1,810	2.46	4,520	430	348	68	9.2	3,070	8.1
July 11-20	522	--	--	74	26	313		154	131	500	--	3.7	--	1,170	1.59	1,650	290	194	70	8.0	2,100	8.1
July 21-25	401	--	--	73	21	316		136	127	440	--	5.0	--	1,160	1.60	1,280	270	140	72	8.4	2,650	7.9
July 26-27	370	--	--	82	31	612		136	194	950	--	6.4	--	2,660	2.83	2,660	530	216	60	15	2,580	7.9
July 28-31	280	--	--	100	34	895		140	237	1,400	--	--	--	2,920	3.97	2,260	360	276	83	20	5,030	7.9
Aug. 1-10	178	12	.06	98	45	847	10	154	236	1,350	.6	--	.12	2,760	3.78	1,340	430	304	81	18	4,870	7.5
Aug. 11-20	101	--	--	108	38	708		196	208	1,130	--	--	--	2,400	3.26	1,540	425	272	78	15	4,190	8.0
Aug. 21-31	71.8	--	--	112	43	612		196	194	1,030	--	--	--	2,080	2.83	403	455	294	75	12	3,810	7.8
Sept. 1-10	53.0	--	--	112	37	600		188	193	980	--	1.9	--	2,150	2.92	308	435	281	75	13	3,690	8.0
Sept. 11-20	34.3	--	--	114	39	573		200	187	040	--	1.3	--	2,090	2.84	194	440	275	74	12	3,570	8.0
Sept. 21-30	22.6	16	.01	110	40	537	6.0	198	185	910	.4	2.0	.18	1,950	2.65	165	440	273	72	11	3,470	7.8
Weighted average	1,235	--	--	61	18	217		143	101	338	--	--	--	853	1.16	2,940	226	109	68	6.3	1,500	--

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT RALSTON, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	57	35	47	35	57	73	63	82	--	90	83
2	68	53	47	50	33	58	70	65	78	88	90	82
3	66	52	47	47	33	59	65	74	--	91	89	--
4	69	54	--	48	33	--	68	76	83	90	89	81
5	76	58	42	48	--	67	88	80	79	91	--	85
6	70	50	42	46	33	68	62	--	84	83	94	75
7	68	46	45	40	35	47	61	81	89	90	89	77
8	68	47	42	--	42	55	58	82	85	85	90	78
9	--	48	36	43	46	56	45	80	86	84	86	--
10	71	53	36	40	45	62	48	79	--	85	90	80
11	75	55	--	41	45	--	63	84	87	86	90	81
12	67	56	38	40	--	43	58	84	88	87	--	85
13	65	--	41	42	53	46	73	78	89	85	93	82
14	65	55	40	45	50	48	80	66	86	90	84	85
15	66	58	35	40	47	39	--	76	85	--	95	85
16	64	44	33	33	46	53	61	79	86	92	91	85
17	61	43	--	33	41	58	60	86	--	82	89	84
18	63	44	--	33	45	53	61	84	92	90	92	63
19	65	42	--	--	45	57	68	83	91	83	--	80
20	68	51	33	33	51	53	73	85	91	91	76	76
21	66	56	35	33	54	45	72	82	90	88	84	78
22	67	58	43	--	55	50	--	84	89	77	85	--
23	--	50	48	33	61	68	54	75	90	86	90	81
24	61	35	52	43	64	65	59	65	83	93	87	77
25	63	47	--	39	56	--	73	67	85	93	83	76
26	63	49	--	33	55	70	79	74	87	90	--	78
27	65	--	47	--	52	68	80	--	92	90	85	78
28	56	35	51	--	55	64	--	84	90	98	87	75
29	--	37	40	--	56	62	--	87	90	91	88	76
30	--	34	40	37	--	65	65	85	89	89	85	--
31	60	--	41	36	--	69	--	73	--	92	75	--
Average	66	49	--	40	47	57	66	78	87	89	88	80

ARKANSAS RIVER BASIN--Continued
BLACK BEAR CREEK AT PAWNEE, OKLA.

LOCATION.--At gaging station on State Highway 18 bridge in north Pawnee, Pawnee County, 50 feet downstream from Skedee Creek.
DRAINAGE AREA.--576 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to August 1952, October 1955 to August 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
								Total	Non- carbonate				
Oct. 3, 1955	1,680	33	15	20	126	0	34	144	41	23	0.7	358	5.9
Nov. 15	3.74	102	44	91	344	0	215	435	153	31	1.9	1,250	7.5
Dec. 2	6.30	132	53	121	420	0	330	570	226	32	2.2	1,750	7.7
Dec. 19	3.69	174	60	157	560	0	395	680	221	33	2.6	2,100	7.2
Dec. 20	4.20	136	62	170	462	0	395	595	216	38	3.0	2,020	7.4
Jan. 5, 1956	3.63	170	66	184	540	0	455	695	252	37	3.0	2,270	7.6
Feb. 2	1.53	468	176	989	270	0	2,580	1,890	1,670	53	9.9	8,270	7.4
Mar. 28	3.00	464	268	1,080	208	0	2,900	2,260	2,090	51	10	8,920	7.7
Apr. 5	2.23	352	144	827	260	0	1,900	1,470	1,260	55	9.4	6,680	7.6
Apr. 18	3.40	256	88	704	342	0	1,450	1,000	720	60	9.7	4,900	7.4
Apr. 25	1.82	230	99	542	316	0	1,280	980	721	55	7.5	4,500	7.8
May 21	.88	132	95	510	98	0	1,200	720	640	61	8.3	3,970	7.9
June 7	6.93	136	73	325	180	0	840	640	492	52	5.6	2,890	8.1
June 18	.54	68	35	127	130	0	300	315	298	47	3.1	1,280	7.1
July 2	.58	85	46	200	152	0	480	400	278	52	4.4	1,740	7.9
July 23	.90	45	12	50	104	0	122	180	75	41	1.7	627	7.4
Aug. 6	.48	45	19	63	128	0	150	190	85	42	2.0	703	7.8
Aug. 21	.05	51	29	69	146	0	172	245	126	38	1.9	786	7.6

ARKANSAS RIVER BASIN--Continued
CIMARRON RIVER NEAR KENTON, OKLA.

LOCATION.--At gaging station on highway bridge, 1.5 miles upstream from Carrizo Creek, 1.7 miles northeast of Kenton, Cimarron County, 2.2 miles downstream from Carrizo Creek.
DRAINAGE AREA.--1,106 square miles, of which 68 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: November 1953 to August 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (microhmhos at 25° C)	pH
								Total	Non- carbonate				
Oct. 3, 1955													
Oct. 18	1.54	80	84	243	312	0	50	545	290	49	4.5	1,820	7.1
Oct. 19	1.09	80	95	277	354	0	55	590	300	51	5.0	2,010	7.2
Dec. 1	3.75	100	107	275	430	0	62	680	338	47	4.6	2,280	7.7
Jan. 24, 1956	1.32	48	51	179	198	0	41	330	168	54	4.3	1,390	7.9
Feb. 13	1.98	84	83	256	364	0	52	550	252	50	4.8	1,830	7.7
Feb. 22	.77	80	66	270	300	0	58	470	224	56	5.4	1,940	7.9
Mar. 6	.66	98	102	334	310	0	78	665	411	52	5.6	2,500	8.2
Mar. 19	1.16	91	96	247	378	0	69	620	310	46	4.3	2,240	7.5
Mar. 24	735	130	58	100	314	0	22	565	308	28	1.8	1,390	7.6
June 1	1.73	88	78	274	286	0	58	540	322	52	5.1	1,960	7.4
June 8	60.7	117	26	57	308	0	10	400	148	24	1.2	.908	7.1
June 13	1.58	78	65	184	308	0	43	460	208	47	3.7	1,610	7.4
June 28	3,730	95	35	31	392	0	7.4	380	59	.15	.7	780	6.9
July 2	66.8	104	23	28	288	0	8.4	355	111	15	.6	783	7.0
July 17	184	93	29	31	348	0	7.6	350	65	16	.7	630	7.0
July 24	30.7	90	21	21	316	0	8.5	310	51	13	.5	660	6.9
Aug. 24	8.90	78	46	106	196	0	28	385	225	37	2.3	1,190	7.6

ARKANSAS RIVER BASIN--Continued

CIMARRON RIVER NEAR MOCAHE, OKLA.

LOCATION.--At gaging station at bridge on county highway, 6½ miles northeast of Mokane, Beaver County, and 14.7 miles (revised) upstream from Crooked Creek.

DRAINAGE AREA.--8,760 square miles, of which 4,365 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1956.

Water temperatures: October 1946 to September 1948.

EXTREMES, 1946-48.--Dissolved solids: Maximum, 2,010 ppm Jan. 1-3, 1948; minimum, 435 ppm Oct. 6, 8-11, 17, 1946.

Hardness: Maximum, 580 ppm Jan. 1-3, 1948; minimum, 162 ppm Nov. 5, 1946.

Water temperatures: Maximum, 78°F Aug. 3, 29, 1948; minimum, freezing point on many days during winter months.

REMARKS.--Station operated on daily basis during water years 1947, 1948. Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Chemical analyses, in parts per million, water year October 1955 to September 1956						Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
		Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Total	Non- carbonate				
Oct. 5, 1955.....	51.8	85	40	269	250	0	460	375	170	61	6.0	2,060	7.0
Oct. 12.....	42.4	83	45	296	248	0	520	390	187	62	6.5	2,380	7.0
Oct. 20.....	60.8	82	39	263	244	0	480	365	165	61	6.0	2,240	7.0
Nov. 1.....	59.4	76	46	323	266	0	470	380	182	65	7.2	2,200	7.5
Nov. 11.....	68.1	108	29	282	274	0	465	390	166	62	6.4	2,190	7.7
Nov. 22.....	70.5	96	39	290	284	0	490	400	168	61	6.3	2,240	7.5
Dec. 15.....	76.6	96	38	286	276	0	490	395	169	61	6.3	2,250	7.8
Jan. 3, 1956.....	72.0	35	14	98	104	0	138	146	61	59	3.5	741	7.6
Feb. 15.....	73.5	98	43	272	250	0	445	420	215	58	5.8	2,140	7.5
Feb. 20.....	70.5	84	44	274	254	0	425	390	182	60	6.0	2,030	7.7
Feb. 29.....	83.0	88	54	278	264	0	470	440	224	58	5.8	2,170	7.3
Mar. 9.....	73.3	84	37	307	264	0	465	360	144	65	7.0	2,170	7.9
Mar. 16.....	81.1	96	32	296	272	0	460	370	147	64	6.7	2,200	7.4
Mar. 21.....	76.1	100	35	330	222	0	480	395	213	65	6.2	2,260	7.2
Mar. 28.....	60.4	92	37	267	268	0	480	390	170	66	6.5	2,200	7.6
Apr. 2.....	63.0	74	31	185	236	0	485	365	135	67	6.5	2,200	7.6
Apr. 9.....	32.7	74	35	341	226	0	575	335	240	69	8.2	2,490	7.8
May 11.....	33.9	86	46	367	134	0	590	415	305	67	8.3	2,640	7.7
May 31.....	59.8	136	54	260	336	0	590	560	284	50	4.8	2,230	7.2
June 4.....	35.9	108	41	477	348	0	520	440	155	70	9.9	2,430	7.6
July 4.....	63.8	103	30	135	338	0	230	380	103	44	6.0	1,420	7.2
July 30.....	51.2	125	34	315	344	0	532	450	188	60	6.5	2,430	7.4
Aug. 7.....	25.2	86	39	341	168	0	542	375	176	66	7.7	2,410	7.5
Aug. 15.....	24.4	91	48	395	168	0	620	400	262	68	8.6	2,680	7.7
Aug. 22.....	329	110	43	103	378	0	145	450	140	33	2.1	1,310	7.5
Aug. 27.....	31.3	130	46	220	344	0	360	515	233	48	4.2	2,060	7.0
Aug. 30.....	27.3	134	45	297	316	0	470	520	261	55	5.7	2,360	6.9

Sept. 7, 1956.....	26.9	88	44	485	274	0	560	400	176	73	11	2,480	7.3
Sept. 11.....	23.4	105	42	354	310	0	630	435	181	64	7.4	2,560	7.0
Sept. 21.....	18.3	84	49	--	252	0	640	410	204	--	--	2,700	7.4
Sept. 24.....	23.8	83	46	386	246	0	622	395	194	68	8.4	2,690	7.4
Sept. 26.....	21.4	90	45	377	246	0	615	410	208	67	8.1	2,650	7.2

ARKANSAS RIVER BASIN--Continued
COTTONWOOD CREEK NEAR GUTHRIE, OKLA.

LOCATION --At county highway bridge, 2 miles southwest of Guthrie, Logan County.

DRAINAGE AREA --366 square miles

RECORDS AVAILABLE --Chemical analyses: October 1953 to July 1956.

REMARKS --Discharge data obtained at time of sampling.

Chemical analyses, in parts per million, October 1955 to July 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (microhms at 25 C)	pH
								Total	Non- carbonate				
Oct. 27, 1955	32.3	50	69	142	148	0	132	410	288	43	3.1	1,280	7.4
Nov. 9	19.7	46	67	123	166	0	126	390	254	41	2.7	1,320	8.0
Dec. 20	16.9	69	63	129	248	0	114	430	227	39	2.7	1,380	8.0
Jan. 9, 1956	14.9	130	223	106	430	0	101	1,240	888	16	1.3	1,480	8.1
Feb. 14	19.9	106	55	130	324	0	107	490	224	37	2.6	1,330	8.2
Mar. 8	11.1	60	61	131	192	0	108	400	242	42	2.8	1,250	7.8
Apr. 3	10.0	56	56	147	178	0	114	370	224	46	3.3	1,270	8.0
May 2	7.08	116	51	117	414	0	118	500	160	44	3.4	1,550	8.1
June 5	38.5	88	29	92	256	0	70	290	80	41	2.3	860	8.2
July 16	.91	48	22	74	234	0	40	210	18	43	2.2	595	8.0

ARKANSAS RIVER BASIN--Continued
CINARRON RIVER AT PERKINS, OKLA.

LOCATION.--At gaging station at bridge on State Highway 40, 1 mile south of Perkins, Payne County, 1½ miles upstream from Dugout Creek, and 4 miles downstream from Wildhorse Creek.
DRAINAGE AREA.--17,852 square miles, of which 4,926 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1956.

Water temperatures: October 1952 to September 1956.

EXTREMES: 1955-56.--Dissolved solids: Maximum, 13,300 ppm Feb. 21-22; minimum, 286 ppm Oct. 5-7.

Hardness: Maximum, 1,110 ppm Aug. 7-10; minimum, 98 ppm Oct. 5-7.

Specific conductance: Maximum daily, 22,200 micromhos Feb. 22; minimum daily, 438 micromhos Oct. 5.

Water temperatures: Maximum, 86°F July 17, 25; minimum, 35°F Feb. 3, 1955; minimum 286 ppm Oct. 5-7, 1955.

Hardness: Maximum, 1,880 ppm Aug. 27-29, 1954; minimum, 20,500 ppm Feb. 18-20, 1955; minimum daily, 438 micromhos Oct. 5, 1955.

Specific conductance: Maximum daily, 31,800 micromhos Feb. 18, 20, 1955; minimum daily, 438 micromhos Oct. 5, 1955.

Water temperatures: Maximum, 88°F Oct. 1954; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag-nesium (Mg)	So-dium (Na)	Potas-sium (K)	Bicar-bonate (HCO ₃)	Car-bonate (CO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO ₃)	Bor-on (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Per-cent so-lidum	So-lidum absorp-tion ratio	Specific conduct-ance (micro-mhos at 25°C)	
															Parts per million	Tons per acre-foot	Tons per day					
Oct. 1-2, 9-10, 1955	1,360	--	--	82	18	329	120	0	168	510	--	--	2.8	--	1,220	1.66	4,480	280	182	72	8.5	2,130
Oct. 3, 8, 1955	7,245	--	--	48	12	158	134	0	65	245	--	--	--	--	629	.86	12,300	170	68	67	5.5	1,130
Oct. 4, 1955	41,900	--	--	34	8.5	72	74	0	29	128	--	--	7.3	--	400	.54	45,250	120	60	57	2.9	682
Oct. 5-7, 1955	26,770	--	--	29	6.2	58	92	0	30	82	--	--	1.8	--	286	.39	20,670	98	22	56	1.5	501
Oct. 11-12, 1955	818	--	--	108	32	552	188	0	208	870	--	--	3.1	--	1,980	2.69	4,370	400	246	75	12	3,450
Oct. 13-15, 1955	593	--	--	132	41	785	220	0	253	1,250	--	--	--	--	2,640	3.59	4,230	500	320	77	15	4,680
Oct. 16-20, 1955	439	--	--	148	54	1,110	220	0	292	1,780	--	--	--	--	3,600	4.90	4,270	590	410	80	20	6,310
Oct. 21-31, 1955	294	24	0.01	152	68	1,320	218	0	330	2,150	0.1	--	--	0.43	4,340	5.90	3,450	660	482	81	22	7,630
Nov. 1-10, 1955	195	--	--	178	72	1,340	244	0	366	2,180	--	--	--	--	4,890	6.65	2,570	740	540	80	21	7,940
Nov. 11-20, 1955	180	--	--	186	78	1,320	296	0	372	2,150	--	--	--	--	4,880	6.64	2,110	785	542	79	21	8,220
Nov. 21-30, 1955	143	--	--	180	78	1,440	312	0	377	2,300	--	--	--	--	4,750	6.46	1,630	770	514	80	22	8,150
Dec. 1-10, 1955	134	--	--	188	68	1,390	332	0	375	2,200	--	--	--	--	4,530	6.16	1,640	750	478	80	22	7,560
Dec. 11-20, 1955	132	--	--	188	68	1,390	328	0	389	2,200	--	--	--	--	4,560	6.20	1,630	750	481	80	22	7,860
Dec. 21-31, 1955	136	--	--	192	78	1,570	320	0	406	2,500	--	--	--	--	5,030	6.84	1,850	800	538	81	24	8,420
Jan. 1, 1956	135	--	--	130	68	1,350	184	0	388	2,400	--	--	--	--	4,650	6.32	1,690	580	429	85	28	7,980
Jan. 2-7, 1956	147	--	--	184	88	1,830	304	0	432	2,900	--	--	--	--	5,660	7.70	2,250	820	571	83	28	9,580
Jan. 8-11, 1956	141	--	--	211	93	2,460	311	0	484	3,890	--	--	--	--	7,460	10.15	2,840	907	652	85	35	12,400
Jan. 12-20, 1956	134	--	--	219	78	2,400	331	8	446	3,790	--	--	--	--	7,190	9.78	2,800	867	582	86	36	12,000
Jan. 21-31, 1956	140	--	--	183	95	2,390	307	0	436	3,780	--	--	--	--	7,100	9.66	2,680	847	596	86	36	12,200

ARKANSAS RIVER BASIN--Continued
CIMARRON RIVER AT PERKINS, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal-cium (Ca)	Mag-ne-sium (Mg)	So-dium (Na)	Po-tas-sium (K)	Bicar-bonate (HCO ₃)	Car-bonate (CO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO ₃)	Bo-ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per-cent so-dium	So-dium ad-sorp-tion ratio	Specific conduct-ance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium, mag-nesium	Non-carbon-ate			
Feb. 1-10, 1956...	170	12	0.00	215	87	2,290	5.4	327	12	430	3,690	0.2	--	0.42	7,110	9.67	3,260	896	608	85	33	11,900
Feb. 11-12.....	434	--	--	191	83	2,200	--	321	6	399	3,490	--	--	--	6,540	8.89	7,660	818	545	85	33	11,300
Feb. 13-14.....	280	--	--	160	61	1,330	--	301	4	317	2,100	--	--	--	4,170	5.67	3,150	650	548	82	23	7,360
Feb. 15-18.....	211	--	--	183	64	1,950	--	281	6	343	3,090	--	--	--	5,940	8.08	6,370	878	478	86	32	10,300
Feb. 19-20.....	270	--	--	215	83	3,020	--	253	10	454	4,780	--	--	--	8,740	11.89	9,380	716	652	88	44	14,800
Feb. 21-22.....	234	--	--	270	92	4,500	--	226	12	587	7,240	--	--	--	13,300	18.09	8,400	1,050	845	90	61	21,200
Feb. 23.....	210	--	--	207	73	3,700	--	255	16	472	5,770	--	--	--	10,500	14.28	5,950	816	580	91	56	17,100
Feb. 24-29.....	174	--	--	175	76	2,470	--	269	12	383	3,880	--	--	--	7,290	9.91	3,420	747	506	88	39	12,400
Mar. 1-10.....	128	--	--	195	85	3,000	--	251	0	468	4,730	--	--	--	8,850	12.04	3,010	837	632	89	45	15,000
Mar. 11-18, 20.....	93.2	--	--	211	94	2,880	--	284	0	478	4,970	--	--	--	8,650	11.76	2,180	915	874	87	41	14,600
Mar. 19.....	90.0	--	--	128	76	1,310	--	284	0	287	2,100	--	--	--	4,080	5.55	981	630	398	82	23	7,220
Mar. 21-29.....	112	--	--	183	102	2,680	--	231	0	463	4,280	--	--	--	8,100	11.02	2,450	876	686	87	39	13,400
Mar. 30-31.....	103	--	--	207	97	3,270	--	257	0	510	5,170	--	--	--	9,500	12.92	2,640	915	704	88	47	15,500
Apr. 1-10.....	94.7	--	--	199	104	3,080	--	263	4	502	4,880	--	--	--	9,380	12.76	2,400	925	703	88	44	15,600
Apr. 11-20.....	85.0	10	0.01	229	91	2,980	--	281	0	464	4,730	3	--	43	9,040	12.29	2,070	945	714	87	42	14,700
Apr. 21-24.....	67.2	--	--	215	97	2,690	--	287	0	494	4,280	--	--	--	8,160	11.10	1,480	936	701	86	38	13,500
Apr. 25-30.....	65.3	--	--	207	95	2,340	--	279	0	469	3,740	--	--	--	7,300	9.93	1,280	907	678	85	34	12,100
May 1-10.....	63.4	--	--	194	86	2,200	--	277	0	455	3,490	--	--	--	6,790	9.23	1,160	838	611	85	33	11,700
May 11-15, 20.....	72.7	--	--	192	92	2,290	--	271	0	460	3,640	--	--	--	6,920	9.41	1,360	888	636	85	34	11,800
May 16, 18.....	104	--	--	132	61	1,430	--	244	0	312	2,250	--	--	--	4,460	6.07	1,250	580	380	84	26	7,880
May 17-18.....	98.0	--	--	100	43	1,010	--	194	0	216	1,980	--	--	--	3,110	4.23	831	425	266	84	21	5,550
May 21-27.....	83.6	--	--	168	67	1,520	--	264	6	403	2,380	--	--	--	4,920	6.69	1,110	695	468	83	25	6,000
May 28, 30.....	311	--	--	130	45	1,120	--	263	0	265	1,780	--	--	--	3,640	4.95	3,060	520	342	82	21	6,140
May 29.....	266	--	--	100	44	840	--	246	8	227	1,200	--	--	--	2,740	3.73	2,260	430	215	81	18	4,670
May 31.....	294	--	--	179	66	2,000	--	187	4	399	3,190	--	--	--	6,160	8.38	4,890	718	598	86	32	10,300
June 1.....	178	--	--	126	41	1,510	--	210	0	355	2,300	--	--	--	4,590	6.15	2,150	510	338	87	29	7,680
June 2-3, 5.....	347	--	--	90	32	803	--	166	0	218	1,290	--	--	--	2,590	3.52	3,290	355	219	94	19	4,660
June 4.....	150	--	--	58	15	307	--	182	0	218	1,470	--	--	--	1,080	1.44	3,290	296	82	76	9.3	1,820
June 6-7.....	184	--	--	249	62	3,070	--	155	0	673	4,770	--	3.9	--	9,120	12.40	8,540	873	748	88	45	15,400
June 8.....	147	--	--	201	47	2,210	--	173	0	558	3,390	--	--	--	6,680	9.08	3,320	693	551	87	36	11,200
June 9-11.....	456	--	--	172	39	1,610	--	178	0	472	2,450	--	--	--	4,910	6.68	6,050	590	446	86	29	8,530
June 12-15.....	195	--	--	152	31	846	--	156	0	396	1,280	--	--	--	2,840	3.86	1,590	505	377	78	16	4,960
June 16-17.....	116	--	--	248	58	1,740	--	188	0	555	2,750	--	--	--	5,580	7.59	1,750	825	671	82	26	9,430
June 18-20.....	80.3	--	--	277	50	2,140	--	195	0	638	3,380	--	--	--	6,850	9.32	1,490	830	770	83	31	11,600
June 21-28.....	102	--	--	251	61	1,950	--	183	0	589	3,090	--	--	--	6,200	8.43	1,710	877	727	83	29	10,500
June 30.....	574	--	--	107	35	767	--	200	8	199	1,200	--	--	--	2,520	3.43	3,910	410	232	80	16	4,480

July 1-3, 1956	393	--	--	73	22	572	150	0	155	870	--	4.6	--	1,790	2.43	1,900	270	147	82	15	3,340	7.9
July 4-7	167	--	--	156	37	1,030	128	0	409	1,600	--	--	--	3,390	4.61	1,530	540	435	81	19	5,810	7.9
July 5-6	158	--	--	152	34	1,786	134	0	410	1,200	--	--	--	2,760	3.75	1,180	520	410	77	15	4,550	7.5
July 8-10	102	--	--	208	45	1,360	126	0	529	2,100	--	--	--	4,370	5.94	1,200	704	600	81	22	7,410	7.8
July 11-12, 20	191	--	--	178	38	1,360	156	0	423	2,150	--	--	--	4,390	5.97	2,260	600	472	83	24	7,490	7.7
July 13-19	282	--	--	302	53	3,570	147	0	673	5,610	--	--	--	10,500	14.28	7,980	973	852	89	50	17,300	8.0
July 21-24	537	--	--	146	33	3,570	150	0	344	2,100	--	--	--	4,190	5.70	6,060	500	377	85	26	7,230	8.0
July 25, 31	368	--	--	244	43	1,910	128	0	454	3,050	--	--	--	5,870	7.98	5,830	735	630	85	31	9,750	7.8
July 26, 29	278	--	--	186	31	1,040	126	0	473	1,600	--	--	--	3,500	4.76	2,630	590	486	79	19	5,920	7.9
July 27-28	228	--	--	168	29	1,040	112	0	509	1,000	--	--	--	2,560	3.48	1,580	590	498	71	12	4,250	7.9
July 30	121	--	--	248	37	1,590	142	0	496	2,550	--	--	--	5,190	7.06	1,700	770	654	82	25	8,770	8.1
Aug. 1-6	67.3	--	--	271	54	2,110	146	0	637	3,340	--	--	--	6,670	9.07	1,210	897	778	84	31	11,000	7.8
Aug. 7-10	33.8	--	--	318	77	3,040	211	0	638	4,860	--	--	--	9,560	13.00	1,872	1,110	937	86	40	15,300	8.2
Aug. 11-20	29.9	--	--	286	82	3,250	215	0	564	5,220	--	--	--	9,930	13.50	560	1,050	874	87	44	16,300	8.0
Aug. 21-23	31.0	--	--	294	87	3,170	205	0	630	5,070	--	--	--	9,810	13.34	821	1,090	922	86	42	15,900	8.2
Aug. 24-31	138	--	--	324	51	1,830	126	0	851	2,850	--	--	--	6,160	8.40	2,300	1,020	916	80	25	9,970	8.0
Sept. 1-3	155	--	--	295	44	2,070	162	0	626	3,280	--	--	--	6,470	8.80	2,710	917	784	83	30	11,000	7.9
Sept. 4-10	37.3	--	--	140	32	995	166	0	308	1,550	--	--	--	3,170	4.31	319	480	344	82	20	5,880	7.9
Sept. 11-14	14.8	--	--	180	46	1,360	176	0	373	2,200	--	--	--	4,330	5.89	173	640	496	82	24	7,720	7.8
Sept. 15-20	8.93	--	--	222	65	1,740	214	0	431	2,870	--	--	--	5,560	7.59	135	820	644	82	26	9,470	7.6
Sept. 21-30	4.15	--	--	235	80	2,020	228	0	465	3,340	--	--	--	6,410	8.72	72	916	729	83	29	11,410	7.8
Weighted average	543	--	--	77	24	559	a.132	--	143	886	--	--	--	1,950	2.52	2,710	290	182	81	14	3,140	--

a Includes equivalent of individual carbonate values shown above.

LOWER MISSISSIPPI RIVER BASIN
ARKANSAS RIVER BASIN--Continued
CIMARRON RIVER AT PERKINS, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	60	38	56	50	53	68	66	73	82	82	70
2	72	58	45	51	36	52	68	66	74	83	82	72
3	70	48	52	51	35	52	65	65	78	82	82	74
4	72	52	45	50	36	55	64	71	72	82	81	77
5	72	53	45	49	36	55	62	66	76	82	82	78
6	75	58	42	48	36	58	67	70	78	80	81	70
7	68	50	42	40	40	51	55	78	77	83	82	67
8	65	46	45	42	48	48	58	72	82	83	84	64
9	65	45	40	42	46	51	57	75	79	82	82	66
10	65	50	42	41	46	55	44	73	80	80	79	64
11	70	53	42	40	40	50	50	75	82	76	82	71
12	70	57	40	41	42	43	59	77	81	80	83	72
13	65	60	42	40	48	47	63	77	81	81	83	75
14	62	55	42	47	50	45	63	73	80	83	83	75
15	62	62	40	45	50	46	65	69	82	82	83	78
16	62	48	38	38	48	47	60	70	82	79	84	75
17	--	42	40	38	50	48	60	72	82	86	82	76
18	58	48	37	38	40	50	61	75	82	79	83	75
19	60	45	38	36	45	50	65	78	83	82	78	75
20	62	50	40	36	48	52	65	75	84	79	70	70
21	62	53	38	38	49	49	65	78	83	79	69	68
22	63	60	45	40	58	48	65	75	83	78	73	72
23	68	52	47	43	56	51	62	78	80	77	74	72
24	58	48	47	40	60	55	57	72	83	78	76	67
25	57	48	50	41	50	56	64	--	80	86	80	67
26	58	48	48	42	51	66	70	72	81	82	75	65
27	62	50	52	44	50	66	72	71	82	82	77	65
28	62	42	51	50	46	58	75	75	79	81	78	68
29	55	38	50	46	47	58	60	79	82	78	77	68
30	52	40	41	38	--	57	62	80	83	80	80	62
31	55	--	40	38	--	66	--	78	--	81	78	--
Average	64	51	43	43	46	53	62	73	80	81	80	71

ARKANSAS RIVER BASIN--Continued
ARKANSAS RIVER AT SAND SPRINGS BRIDGE, NEAR TULSA, OKLA.

LOCATION --At bridge on State Highway 33 in Sand Springs, 7 miles downstream from Cimarron River, and 10 miles above gaging station at Tulsa, Tulsa County. DRAINAGE AREA --74,615 square miles above gaging station, of which 12,341 square miles is probably noncontributing. RECORDS AVAILABLE --Chemical analyses: October 1946 to September 1956.

EXTREMES --Temperatures: October 1946 to September 1956. Maximum, 96° F Aug. 7, 1947; minimum, 312 ppm Oct. 6-7.

Hardness: 1955-56 --Dissolved solids: 29-31, minimum, 10,100 ppm Aug. 29-31; minimum, 312 ppm Oct. 6-7. Specific conductance: Maximum, 1,610 ppm Aug. 29-31; minimum, 120 ppm Oct. 6-7; minimum daily, 560 micromhos Oct. 6. Water temperatures: Maximum, 93° F Aug. 15; minimum, 47° F Aug. 15; maximum during freezing period, several days during December and January.

EXTREMES: 1946-56 --Dissolved solids: Maximum, 10,900 ppm Sept. 4, 1954; minimum, 10,900 ppm July 18-20, 1950. Hardness: Maximum, 2,010 ppm Sept. 4, 1954; minimum, 106 ppm July 2, 1947.

Water temperatures: Maximum daily, 17,100 micromhos Aug. 30, 1956; minimum daily, 379 micromhos July 19, 1950. Specific conductance: Maximum, 96° F Aug. 7, 1947; minimum freezing point on many days during winter months, 1950.

REMARKS --Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for gaging station at Tulsa for water year October 1955 to September 1956 given in WSP 1441. No appreciable inflow between sampling station and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent sodium-sulfate ratio	Specific conductance (micro-mhos at 25°C)			
															Parts per million	Tons per acre-foot	Calcium	Non-carbonate					
Oct. 1, 1955	1,100	--	--	248	73	1,550	185	132	4	209	2,800	--	--	--	5,360	7.29	15,920	920	806	79	22	9,000	8.3
Oct. 2	2,120	--	--	120	39	637	433	154	4	181	1,080	--	--	--	2,300	3.13	13,170	460	328	75	13	4,060	8.3
Oct. 3	6,800	--	--	82	18	373	--	146	0	112	600	--	12	--	1,330	1.81	23,700	280	160	74	9.7	2,420	8.2
Oct. 4-5	70,900	--	--	40	7.3	114	114	120	0	27	175	--	5.7	--	444	.60	84,980	130	32	66	4.4	530	7.9
Oct. 6-7	79,200	--	--	34	8.5	65	153	104	0	23	105	--	4.5	--	312	.42	66,720	120	35	54	2.6	568	7.9
Oct. 8-10	23,000	--	--	44	9.7	153	153	98	0	51	245	--	4.6	--	585	.80	36,330	150	70	69	5.4	1,090	7.7
Oct. 11	10,300	--	--	51	12	185	185	104	0	65	300	--	1.6	--	718	.98	19,970	175	90	70	6.1	1,330	8.0
Oct. 12-20	5,143	--	--	94	18	433	433	176	0	138	690	--	4.8	--	1,520	2.07	21,110	310	179	75	11	2,750	8.1
Oct. 21-31	2,285	--	--	110	33	508	--	176	0	163	890	--	2.3	--	1,900	2.58	11,620	410	268	73	11	3,480	7.8
Nov. 1-10	1,091	12	0.00	130	41	600	9.4	192	0	181	1,150	0.1	0.42	--	2,360	3.21	6,950	495	338	72	12	4,190	8.0
Nov. 11-20	913	--	--	150	46	756	756	212	0	194	1,300	--	--	--	2,680	3.64	6,810	565	392	74	14	4,500	7.7
Nov. 21-30	803	--	--	160	51	760	760	236	0	199	1,320	--	--	--	2,770	3.77	6,010	610	416	73	13	4,800	7.8
Dec. 1-10	746	--	--	172	49	805	805	240	0	202	1,400	--	--	--	2,910	3.96	5,860	630	434	74	14	5,030	8.2
Dec. 11-20	729	--	--	168	53	802	802	248	0	208	1,390	--	--	--	2,890	3.93	5,690	635	432	73	14	4,910	8.2
Dec. 21-31	639	--	--	178	53	831	831	242	0	215	1,450	--	--	--	3,000	4.08	5,160	660	462	73	14	5,260	8.2
Jan. 1-10, 1956	803	--	--	180	54	809	809	226	0	211	1,400	--	--	--	2,870	3.90	6,220	620	435	74	14	4,960	7.9
Jan. 11-18	720	--	--	180	51	851	851	256	0	245	1,450	--	--	--	3,010	4.09	5,850	660	450	74	14	5,060	8.2
Jan. 19-20	450	--	--	224	51	1,100	1,100	282	4	287	1,900	--	--	--	3,710	5.05	4,510	770	556	76	17	6,540	8.3
Jan. 21-31	671	--	--	188	63	1,080	1,080	268	0	238	1,780	--	--	--	3,590	4.88	6,500	730	510	75	17	6,320	8.1

ARKANSAS RIVER BASIN--Continued
ARKANSAS RIVER AT SAND SPRINGS BRIDGE, NEAR TULSA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September, 1956.—Continued																							
Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per-centage so-dium ad-sorp-tion ratio	Specific conductance (micro-mhos at 25°C)	pH	
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Feb. 1-10, 1956...	823	16	0.00	192	63	1,050	8.7	264	0	218	1,800	0.2	--	0.37	3,870	4.99	8,160	740	523	75	17	6,350	8.2
Feb. 11-17.....	1,171	--	--	176	56	1,040	8.7	260	0	231	1,750	--	--	--	3,520	4.79	11,140	670	457	77	17	6,150	8.2
Feb. 18-20.....	1,017	--	--	152	44	780	243	0	212	1,300	--	--	--	--	2,740	3.73	7,520	560	357	75	14	4,850	8.2
Feb. 21-24.....	1,028	--	--	156	49	814	222	4	215	1,360	--	--	--	--	2,890	3.93	8,020	590	402	75	15	5,070	8.2
Feb. 25-29.....	912	--	--	144	54	1,070	188	0	279	1,750	--	--	--	--	3,500	4.76	8,620	580	426	80	19	5,950	8.2
Mar. 1-4.....	860	--	--	156	56	1,240	190	2	300	2,020	--	--	--	--	3,380	5.41	9,240	620	461	81	22	7,090	8.3
Mar. 5-10.....	788	--	--	146	60	1,030	180	8	236	1,700	--	--	--	--	3,410	4.64	7,260	610	449	79	18	5,800	8.4
Mar. 11-20.....	651	--	--	176	51	1,080	220	0	295	1,780	--	--	--	--	3,520	4.79	6,190	650	470	78	18	6,200	8.0
Mar. 21-31.....	887	--	--	168	51	982	208	0	258	1,650	--	--	--	--	3,360	4.57	7,870	630	460	77	17	5,860	7.6
Apr. 1-2, 4-5.....	978	--	--	172	56	1,110	188	0	258	1,880	--	--	--	--	3,770	5.13	9,960	660	508	79	19	6,330	7.7
Apr. 3, 6.....	984	--	--	144	49	833	176	0	216	1,420	--	--	--	--	3,050	4.15	8,100	560	416	76	15	5,230	7.6
Apr. 7-10.....	705	--	--	135	46	713	204	0	238	1,180	--	--	--	--	2,540	3.45	4,830	530	363	75	13	4,370	7.8
Apr. 11-20.....	770	--	--	124	51	843	164	0	235	1,400	--	--	--	--	2,870	3.90	5,970	520	366	78	16	5,080	7.8
Apr. 21-30.....	644	--	--	148	55	958	200	0	247	1,600	--	--	--	--	3,240	4.41	5,630	595	431	78	17	5,640	8.0
May 1-10.....	625	5.0	0.04	162	54	911	8.3	212	0	234	1,620	.3	--	.10	3,270	4.45	5,520	625	452	76	16	5,730	7.9
May 11-15.....	782	--	--	140	56	784	198	0	230	1,350	--	--	--	--	2,830	3.85	5,980	580	418	75	14	4,820	8.0
May 16.....	1,720	--	--	271	115	1,790	1.340	128	0	210	3,340	--	--	--	6,560	8.92	30,460	1,150	1,040	77	23	10,400	8.0
May 17-19.....	847	--	--	101	46	478	164	0	139	850	--	--	2.8	--	1,900	2.58	4,350	440	306	70	9.9	3,280	7.9
May 20-28.....	623	--	--	136	54	785	184	0	203	1,350	--	--	--	--	2,770	3.77	4,660	560	409	75	14	4,890	7.7
May 29.....	904	--	--	240	73	1,480	132	0	189	2,700	--	--	--	--	5,180	7.04	12,640	900	792	78	21	8,520	8.1
May 30.....	690	--	--	188	68	921	144	0	160	1,750	--	--	--	--	3,470	4.72	6,460	750	632	73	15	5,770	8.2
May 31.....	704	--	--	108	37	572	136	0	137	1,000	--	--	--	--	2,040	2.77	3,880	420	308	75	12	3,470	8.0
June 1-4.....	2,472	--	--	88	16	403	150	0	100	660	--	--	4.3	--	1,380	1.88	9,210	285	162	75	10	2,520	7.9
June 5-6, 8-10.....	848	--	--	100	34	629	124	0	182	1,040	--	--	--	--	2,140	2.91	4,900	390	288	78	14	3,810	7.8
June 7.....	1,250	--	--	160	46	1,200	116	0	214	2,050	--	--	--	--	4,030	5.48	13,600	590	495	82	22	6,670	7.9
June 11.....	676	--	--	116	44	720	94	0	215	1,230	--	--	--	--	2,550	3.47	4,650	470	393	77	14	4,310	7.7
June 12.....	594	--	--	144	41	1,030	103	92	0	262	1,720	--	--	--	3,510	4.77	5,630	530	454	81	19	5,840	7.8
June 13-14.....	786	--	--	196	44	1,670	104	0	195	2,850	--	--	--	--	5,600	7.62	11,880	670	585	84	28	9,430	7.7
June 15-20.....	670	--	--	124	40	962	114	0	275	1,550	--	--	--	--	3,170	4.31	5,730	475	392	81	19	5,500	7.6
June 21-30.....	467	6.5	.03	132	44	739	9.2	116	0	224	1,300	.6	--	.25	2,720	3.70	3,430	510	415	75	14	4,720	7.5

July 1-2, 1956.....	682	--	156	40	397	92	0	104	1,650	--	--	--	3,380	4.80	6,220	540	484	78	16	5,640	7.7
July 3-5.....	884	--	184	42	1,240	116	0	298	2,060	--	--	--	3,480	5.86	9,700	630	532	81	21	6,970	7.8
July 6-8.....	770	--	96	31	806	126	0	152	1,010	--	--	--	2,110	2.87	4,590	370	265	78	14	3,740	7.7
July 9-10.....	933	--	76	16	426	140	0	113	670	--	7.1	--	1,470	2.00	3,700	255	140	78	12	2,580	7.8
July 11-12.....	1,520	--	84	18	334	152	0	101	550	--	7.8	--	1,230	1.87	5,050	285	160	72	8.6	2,180	7.8
July 13-15.....	1,013	--	104	29	513	118	0	161	870	--	3.7	--	1,830	2.49	5,010	380	284	75	11	3,210	7.8
July 16-18.....	898	--	120	39	722	132	0	221	1,200	--	--	--	2,500	3.40	5,580	460	352	77	15	4,430	7.9
July 19-21.....	878	--	187	61	1,990	112	0	365	3,240	--	--	--	6,120	8.32	14,510	717	625	86	32	10,300	7.9
July 22-24.....	909	--	136	44	1,180	120	0	137	2,020	--	--	--	3,950	5.37	9,690	520	422	83	23	6,850	7.9
July 25-27.....	975	--	118	33	805	116	0	235	1,480	--	--	--	2,940	4.00	7,740	430	335	82	19	5,150	7.9
Aug. 1-10.....	448	--	148	45	1,050	118	0	299	1,720	--	--	--	3,510	4.77	4,250	555	458	80	19	6,040	7.8
Aug. 11-20.....	208	--	182	53	1,200	134	0	263	2,050	--	--	--	4,120	5.60	2,290	670	560	80	20	6,890	7.9
Aug. 21-28.....	110	--	180	56	1,150	132	0	239	2,000	--	--	--	4,080	5.56	1,120	680	572	79	19	6,760	7.9
Aug. 29-31.....	223	--	438	126	2,980	92	0	421	5,370	--	--	--	10,100	13.74	6,080	1,610	1,530	80	32	16,200	7.7
Sept. 1-10.....	117	9.0	303	113	2,070	16	0	528	3,690	0.5	--	0.38	7,180	9.76	2,270	1,220	1,120	78	26	11,700	7.9
Sept. 11-16.....	83.8	--	280	66	1,550	124	0	442	2,650	--	--	--	5,200	7.07	1,180	920	818	79	22	8,820	7.5
Sept. 17-20.....	85.2	--	200	68	1,120	128	0	283	2,000	--	--	--	3,980	5.41	916	780	675	76	17	6,860	7.5
Sept. 21-30.....	87.1	--	208	66	1,240	142	0	265	2,200	--	--	--	4,190	5.70	759	790	674	77	19	6,880	7.4
Weighted average	1,901	--	85	24	417	a 143	--	109	699	--	--	--	1,480	2.01	7,800	310	194	74	10	2,600	--

a Includes equivalent of individual carbonate values shown above.

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT SAND SPRINGS BRIDGE, NEAR TULSA, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69	59	42	38	35	44	62	54	72	81	74	70
2	71	56	--	39	32	53	65	58	73	82	81	73
3	68	49	--	40	32	50	54	60	76	88	80	70
4	70	52	--	40	32	46	50	62	73	89	79	75
5	71	52	--	40	32	60	49	65	--	82	77	75
6	72	51	45	41	32	62	55	70	77	83	76	69
7	68	46	48	34	34	44	45	70	78	83	79	64
8	67	44	40	39	36	47	56	70	84	79	80	68
9	66	43	35	35	36	55	49	72	84	88	79	62
10	66	46	37	33	34	46	45	73	83	87	78	67
11	68	47	36	32	40	44	43	75	82	88	82	71
12	64	55	35	32	43	38	47	68	82	80	80	72
13	60	58	37	33	45	38	54	71	79	89	82	74
14	59	52	39	35	46	42	66	64	77	86	85	76
15	58	60	34	36	40	39	60	62	80	85	92	69
16	60	43	33	32	40	38	50	61	79	81	80	68
17	59	43	34	32	44	46	51	63	81	83	81	71
18	56	45	33	32	43	45	48	65	82	84	79	72
19	60	44	32	32	41	42	51	62	85	77	74	79
20	67	44	33	32	40	43	52	62	86	--	65	70
21	64	50	34	32	44	40	53	64	85	89	71	71
22	63	58	35	33	42	43	57	77	84	74	74	71
23	65	51	38	32	50	43	52	79	88	72	84	71
24	58	--	45	33	52	43	52	68	83	71	78	70
25	57	46	45	33	50	53	53	65	82	74	79	68
26	57	44	46	35	45	58	61	71	78	75	77	69
27	56	45	44	36	40	62	67	70	81	78	76	70
28	54	36	44	39	43	53	59	78	75	80	79	68
29	52	33	43	36	45	51	54	79	84	74	78	67
30	49	35	36	32	--	58	53	82	83	75	83	64
31	53	--	37	32	--	57	--	74	--	73	76	--
Average	62	48	39	35	40	48	54	68	81	81	79	70

ARKANSAS RIVER BASIN--Continued
VERDIGRIS RIVER NEAR LENAPAH, OKLA.

LOCATION --At gaging station at bridge on county road, 2½ miles east of Lenapah, Nowata County, and 4½ miles upstream from Cedar Creek.

DRAINAGE AREA --3,639 square miles.

RECORDS AVAILABLE --Chemical analyses: October 1951 to September 1956.

Water temperatures: October 1951 to September 1956.

EXTREMES, 1955-56 --Dissolved solids: Maximum, 778 ppm May 6-10; minimum, 121 ppm Oct. 3-4.

Hardness: Maximum, 275 ppm May 11-20; minimum, 48 ppm Oct. 3-4.

Specific conductance: Maximum daily, 1,450 micromhos May 10; minimum daily, 134 micromhos Oct. 3.

Water temperatures: Maximum, 90°F July 15, 27, Aug. 5; minimum, 36°F Feb. 4.

EXTREMES, 1951-56 --Dissolved solids: Maximum, 790 ppm Oct. 6-10, 1954; minimum, 121 ppm Oct. 3-4, 1955.

Hardness: Maximum, 304 ppm Oct. 4-5, 9-10, 1951; minimum, 48 ppm Oct. 3-4, 1955.

Specific conductance: Maximum daily, 1,590 micromhos Oct. 10, 1954; minimum daily, 134 micromhos Oct. 3, 1955.

Water temperatures: Maximum, 92°F July 28, 1952; minimum, freezing point Dec. 21, 22, 1951, Jan. 3, 1952.

REMARKS --Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow Sept. 16-30, 1956.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per million	Calcium, mg./neuston	Non-carbonate				
Oct. 1, 8-10, 1955	810	--	--	38	9.0	40	--	108	26	70	--	5.9	--	266	0.36	582	132	44	40	1.5	464	7.2
Oct. 2,	4,520	--	--	50	19	100	--	138	35	188	--	6.6	--	512	.70	6,248	202	99	52	3.1	898	7.6
Oct. 3-4,	7,905	--	--	16	1.9	17	--	44	20	18	--	4.2	--	121	.16	2,593	48	12	44	1.1	149	7.0
Oct. 5-6,	6,220	--	--	24	4.9	22	--	68	23	32	--	5.4	--	177	.24	2,973	80	24	38	1.1	264	7.2
Oct. 7,	1,560	--	--	34	6.1	26	--	88	27	42	--	8.2	--	206	.28	868	110	38	34	1.1	339	7.7
Oct. 11-20,	104.5	--	--	41	8.1	34	--	104	24	64	--	10	--	259	.35	73	136	51	35	1.3	459	7.2
Oct. 21-31,	13.3	12	0.04	44	7.8	34	3.7	116	27	72	0.0	6.4	0.06	291	.40	10	142	47	34	1.2	490	7.5
Nov. 1-10,	7.53	--	--	44	7.8	41	--	118	24	78	--	5.4	--	294	.40	6.0	142	46	39	1.5	517	7.4
Nov. 11-20,	6.55	--	--	42	11	47	--	128	28	82	--	3.7	--	301	.41	5.3	150	45	41	1.7	510	7.4
Nov. 21-30,	7.06	--	--	45	11	51	--	136	28	88	--	2.9	--	319	.43	6.1	156	44	42	1.8	544	7.8
Dec. 1-10,	7.56	--	--	50	9.5	52	--	140	26	90	--	.8	--	321	.44	6.6	164	50	41	1.8	571	7.7
Dec. 11-20,	7.92	--	--	53	11	53	--	156	28	97	--	.4	--	344	.47	7.4	176	48	40	1.7	611	7.6
Dec. 21-31,	7.48	--	--	51	10	58	--	146	30	102	--	1.0	--	349	.47	7.0	170	50	42	1.9	635	7.8
Jan. 1-10, 1956 ..	8.45	--	--	53	11	61	--	158	29	105	--	1.1	--	368	.50	8.4	176	46	43	2.0	631	7.8
Jan. 11-20,	7.83	--	--	59	12	64	--	182	35	105	--	1.0	--	400	.54	8.5	196	47	51	2.0	702	7.7
Jan. 21-31,	15.9	--	--	59	13	70	--	184	40	110	--	1.1	--	400	.54	17	200	49	43	2.1	739	7.8
Feb. 1-10,	18.3	6.5	.01	65	15	99	6.4	190	56	150	.4	4.8	.16	511	.69	27	220	64	49	2.9	911	7.8
Feb. 11-20,	17.5	--	--	62	16	108	--	184	65	160	--	14	--	538	.73	25	220	69	52	3.2	970	7.6
Feb. 21-29,	8.18	--	--	66	15	112	--	184	73	162	--	16	--	558	.76	12	225	74	52	3.2	986	8.1
Mar. 1-10,	6.05	--	--	48	27	117	--	192	72	172	--	12	--	576	.78	9.4	230	72	53	3.4	1,030	7.9
Mar. 11-20,	4.86	--	--	48	24	121	--	200	71	170	--	7.3	--	563	.77	7.4	220	56	54	3.6	994	7.9
Mar. 21-31,	5.14	--	--	64	17	112	--	196	68	167	--	6.8	--	583	.79	8.1	228	68	52	3.2	1,010	7.4

ARKANSAS RIVER BASIN—Continued
VERDIGRIS RIVER NEAR LENAPAH, OKLA.—Continued

Chemical analyses, in parts per million, water year October 1955 to September 1958.—Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Apr. 1-10, 1956.	5.14	--	--	62	17	119		188	64	184	--	3.2	--	589	0.80	8.2	224	70	54	3.4	1,050	7.3
Apr. 11.....	9.1	--	--	62	16	185		174	67	258	--	3.6	--	694	.94	17	220	78	62	4.8	1,210	7.9
Apr. 12-20.....	1.87	--	--	55	32	168		168	61	170	--	4.6	--	540	.73	2.7	270	132	39	2.1	1,969	7.0
Apr. 21-30.....	6.87	--	--	64	18	108		192	60	175	--	2.2	--	568	.77	11	235	78	50	3.1	1,020	7.7
May 1-5.....	31.0	--	--	69	12	118		200	54	180	--	2.0	--	568	.77	47	220	56	54	3.4	1,010	8.0
May 6-10.....	87.8	--	--	81	12	165		186	80	280	--	8.0	--	778	1.06	184	225	88	82	5.1	1,400	7.8
May 11-20.....	118.5	--	0.01	53	17	134		228	49	230	--	4.4	--	703	.96	227	273	85	51	3.5	1,230	8.0
May 21-31.....	6.04	3.0		80	17	109	8.3	282	46	200	0.4	1.8	0.24	653	.89	11	270	72	46	2.9	1,140	7.9
June 1-2.....	1,585	--	--	82	13	117		212	40	212	--	.7	--	611	.83	2,565	260	86	49	3.2	1,080	8.1
June 3-10.....	851	--	--	45	6.7	51		114	17	98	--	1.1	--	314	.43	721	140	46	44	1.9	550	8.0
June 11-20.....	23.6	--	--	45	6.7	57		124	19	100	--	.7	--	308	.42	20	140	38	47	2.1	558	8.0
June 21-34.....	758	--	--	32	5.8	45		84	21	78	--	1.7	--	251	.34	514	104	35	49	1.9	434	7.7
June 25-30.....	175	--	--	35	6.9	44		98	22	76	--	2.5	--	261	.35	123	116	36	45	1.8	447	7.8
July 1-6.....	188	--	--	38	8.5	37		116	17	68	--	2.0	--	246	.33	125	130	35	38	1.4	436	8.2
July 7-10.....	333	--	--	45	10	50		132	20	94	--	2.6	--	316	.43	284	154	46	42	1.8	554	8.1
July 11-20.....	54.5	2.5	.04	45	9.6	63	4.5	122	20	122	.5	1.9	.00	384	.52	57	152	52	46	2.2	649	7.6
July 21-27.....	204	--	--	44	7.9	74		108	20	135	--	3.0	--	376	.51	207	142	54	53	2.7	671	7.6
July 28-31.....	49.2	--	--	37	7.7	56		98	17	104	--	2.3	--	304	.41	40	134	44	50	2.2	542	7.6
Aug. 1-10.....	6.48	--	--	37	8.6	57		108	18	102	--	1.0	--	314	.43	5.5	138	40	49	2.2	549	7.7
Aug. 11-20.....	.88	--	--	42	9.5	64		120	17	118	--	1.2	--	362	.49	.8	144	46	49	2.3	610	7.8
Aug. 21-31.....	3.51	--	--	39	9.4	63		112	16	116	--	1.1	--	346	.47	3.3	136	44	50	2.3	594	7.8
Sept. 1-10.....	1.15	3.0	0.06	35	9.8	68	4.0	100	15	128	.3	1.7	.05	349	.47	1.1	138	46	53	2.6	604	7.6
Sept. 11-15.....	.3	--	--	40	12	67		102	16	138	--	1.2	--	349	.47	.3	150	66	49	2.4	657	7.2
Weighted average	187	--	--	35	7.1	46		95	25	77	--	4.1	--	272	0.37	123	116	36	46	1.8	452	--

ARKANSAS RIVER BASIN--Continued

VERDIGRIS RIVER NEAR LENAPAH, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	58	39	42	38	55	68	62	78	86	--	78
2	73	58	41	43	--	53	68	67	75	88	86	--
3	67	52	48	42	--	55	65	68	70	85	--	--
4	68	52	43	46	36	60	63	75	72	85	--	80
5	74	55	43	42	37	64	64	--	73	82	90	79
6	74	50	42	42	40	68	64	77	76	86	89	75
7	70	49	43	40	41	60	58	76	80	86	85	74
8	70	49	42	42	42	50	59	78	85	85	87	73
9	68	48	40	41	40	56	54	--	85	87	89	73
10	69	49	39	42	41	54	52	80	84	85	84	74
11	71	52	39	41	45	46	60	78	84	86	85	75
12	71	55	40	40	45	43	63	77	84	87	87	75
13	69	55	42	40	50	44	70	73	84	87	85	79
14	62	55	--	42	47	46	65	72	80	88	87	--
15	67	58	38	39	45	45	60	80	85	90	89	80
16	65	51	40	40	47	48	65	80	80	87	--	--
17	64	47	42	39	--	52	65	81	81	89	86	--
18	63	44	38	38	--	55	--	82	85	85	85	--
19	63	48	37	38	45	64	65	82	64	87	75	--
20	66	50	39	37	--	55	64	82	87	85	72	--
21	65	50	40	37	46	--	65	81	87	80	75	--
22	72	50	42	38	48	51	62	85	82	--	75	--
23	64	54	45	--	60	56	58	78	77	--	78	--
24	63	48	47	--	65	60	65	71	80	82	79	--
25	60	47	--	40	--	66	71	73	79	84	80	--
26	65	45	45	38	53	67	74	76	81	82	82	--
27	64	43	48	40	52	66	75	78	--	90	83	--
28	60	39	--	44	64	63	75	79	85	89	80	--
29	60	40	45	38	55	60	68	79	84	87	--	--
30	58	40	42	37	--	59	--	83	64	87	--	--
31	59	--	42	37	--	65	--	80	--	85	82	--
Average	66	50	42	40	--	56	64	77	81	86	83	--

ARKANSAS RIVER BASIN--Continued
VERDIGRIS RIVER NEAR INOLA, OKLA.

LOCATION --At gaging station at bridge on State Highway 33, 6 miles downstream from Dog Creek, and 6 miles west of Inola, Rogers County.

DRAINAGE AREA --7,911 square miles.

RECORDS AVAILABLE --Chemical analyses: October 1947 to September 1956.

Water temperatures: October 1950 to September 1956.

EXTREMES 1955-56 --Dissolved solids: Maximum, 3,060 ppm Sept. 21-24; minimum, 165 ppm May 15-16.

Hardness: Maximum, 580 ppm Sept. 21-24; minimum, 88 ppm May 15-16.

Specific conductance: Maximum daily, 6,030 microhos Sept. 22; minimum daily, 282 microhos May 15-16.

Water temperatures: Maximum daily, 6,030 microhos Sept. 22; minimum, freezing point on several days during December and January.

EXTREMES 1947-56 --Dissolved solids: Maximum, 3,060 ppm Sept. 21-24, 1956; minimum, 91 ppm June 22-30, July 1-2, 1948.

Hardness: Maximum, 580 ppm Sept. 21-24, 1956; minimum, 48 ppm Oct. 4, 1953.

Specific conductance: Maximum daily, 6,030 microhos Sept. 22, 1956; minimum daily, 143 microhos June 24, 1948.

Water temperatures (1950-56): Maximum, 95°F on several days during July 1954; minimum, freezing point on many days during winter months.

REMARKS --Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium carbonate	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-3, 1955....	771	--	--	56	15	56	--	132	15	145	--	8.0	--	437	0.59	910	202	94	38	1.7	804	7.2
Oct. 4-10.....	7,928	--	--	29	5.7	26	--	72	17	54	--	7.0	--	211	2.39	4,520	96	37	37	1.2	354	7.2
Oct. 11-14.....	1,012	--	--	37	6.7	30	--	104	19	56	--	6.6	--	242	3.3	661	120	35	35	1.2	402	7.6
Oct. 15-20.....	266	--	--	43	8.9	58	--	120	20	98	--	7.6	--	334	4.5	240	144	46	47	2.1	575	7.6
Oct. 21-31.....	73.9	--	--	30	19	81	--	120	21	148	--	8.0	--	410	5.6	82	154	56	53	2.8	758	7.4
Nov. 1.....	53.0	--	--	46	12	86	--	124	26	153	--	9.4	--	433	5.9	62	165	64	53	2.9	741	7.6
Nov. 2-10.....	40.6	--	--	56	15	161	--	128	27	290	--	8.8	--	680	9.2	75	200	95	64	4.9	1,240	7.4
Nov. 11.....	36.0	--	--	66	20	237	--	132	28	435	--	12	--	934	1.27	91	245	137	68	6.6	1,670	7.7
Nov. 12-20.....	34.3	--	--	60	15	179	--	132	29	320	--	12	--	727	9.9	67	210	102	65	5.4	1,330	7.3
Nov. 21, 26-27....	32.9	--	--	69	20	267	--	140	28	480	--	18	--	1,040	1.41	92	255	140	69	7.3	1,830	7.7
Nov. 22-25, 28-30	32.7	--	--	59	18	180	--	140	29	320	--	19	--	750	1.02	67	220	106	64	5.3	1,340	7.5
Dec. 1-10.....	46.7	--	--	61	14	162	--	136	37	278	--	24	--	724	9.8	91	210	98	63	4.9	1,280	7.4
Dec. 12-13.....	35.0	--	--	66	18	224	--	134	29	400	--	30	--	930	1.26	88	240	138	67	6.3	1,600	7.5
Dec. 14.....	40.0	--	--	54	16	137	--	134	29	240	--	25	--	639	8.7	69	200	90	60	4.2	1,070	7.8
Dec. 14-16.....	29.0	--	--	57	14	165	--	132	28	282	--	30	--	730	9.9	212	200	92	64	5.1	1,280	7.5
Dec. 17-20.....	24.8	--	--	67	17	225	--	132	26	400	--	32	--	923	1.26	62	235	127	68	6.4	1,610	7.2
Dec. 21.....	24.0	--	--	86	18	326	--	134	31	595	--	21	--	1,240	1.69	80	290	180	71	8.3	2,260	7.7
Dec. 22-24.....	24.0	--	--	61	15	164	--	136	26	295	--	22	--	715	9.7	46	215	104	62	4.9	1,320	7.5
Dec. 25-27.....	26.0	--	--	66	20	227	--	136	16	420	--	24	--	932	1.27	65	245	134	67	6.3	1,720	7.2
Dec. 28-30.....	28.0	--	--	58	13	152	--	136	31	260	--	24	--	645	8.8	49	200	88	62	4.7	1,210	7.2
Dec. 31.....	25.0	--	--	75	20	287	--	136	29	520	--	21	--	1,120	1.52	76	270	156	70	7.6	1,990	7.8

Jan. 1-6, 1956....	24.0	--	76	20	272	142	29	495	--	20	--	1,070	1.46	69	270	154	69	7.2	1,920	7.6
Jan. 7-10	24.3	--	67	18	208	140	32	372	--	21	--	875	1.19	58	240	122	65	5.8	1,570	7.6
Jan. 11-13	20.5	--	76	18	259	150	37	460	--	21	--	1,040	1.41	57	265	142	68	6.9	1,840	7.3
Jan. 14-16	17.0	--	67	25	194	144	30	372	--	23	--	881	1.20	40	270	152	71	5.1	1,550	7.1
Jan. 17-20	23.5	--	80	12	276	150	30	480	--	24	--	1,090	1.48	69	250	127	71	7.6	1,930	7.1
Jan. 21-22	28.5	--	74	16	227	142	28	408	--	27	--	952	1.29	73	250	134	66	6.2	1,670	7.2
Jan. 23-24	33.5	--	64	17	169	140	38	300	--	24	--	764	1.04	69	230	116	61	4.8	1,350	7.1
Jan. 25-26	21.5	--	82	18	281	150	34	505	--	26	--	1,150	1.56	67	280	157	69	7.3	2,010	7.2
Jan. 27-31	45.2	--	62	17	180	208	35	290	--	1.0	--	732	1.00	89	225	54	64	5.2	1,340	7.6
Feb. 1-10	70.3	9.0	66	13	138	134	34	225	8	36	.34	657	.89	125	220	110	57	4.0	1,140	7.2
Feb. 11-20	58.7	--	62	16	132	144	41	230	--	26	--	644	.88	26	220	102	57	3.9	1,130	7.8
Feb. 21-29	48.7	--	69	17	145	152	41	265	--	18	--	707	.96	93	240	116	57	4.1	1,230	7.9
Mar. 1-3	32.7	--	67	21	165	156	36	310	--	15	--	742	1.01	66	255	127	59	4.5	1,400	7.7
Mar. 4-5	41.0	--	75	23	234	156	37	435	--	12	--	987	1.34	109	280	152	65	6.1	1,740	7.7
Mar. 6-8	32.7	--	42	38	187	158	37	345	--	16	--	792	1.08	70	260	130	61	5.1	1,500	7.5
Mar. 9-10	25.0	--	64	40	319	164	24	600	--	16	--	1,270	1.73	86	325	190	68	7.7	2,260	7.7
Mar. 11-13	18.2	--	75	23	220	158	42	405	--	18	--	946	1.29	46	280	150	63	5.7	1,690	7.3
Mar. 16	17.0	--	78	21	268	160	37	480	--	20	--	1,100	1.50	50	280	149	68	7.0	1,960	7.4
Mar. 17-20	16.0	--	102	23	393	164	36	720	--	20	--	1,530	2.08	66	350	216	71	9.1	2,400	7.5
Mar. 21-22	34.5	--	92	23	179	136	37	335	--	20	--	825	1.12	67	366	158	68	4.8	1,470	7.0
Mar. 23	84.0	--	95	19	287	168	37	510	--	24	--	1,130	1.94	256	290	182	86	7.3	2,000	7.6
Mar. 24-31	69.2	--	61	17	130	160	36	238	--	18	--	681	.93	127	220	89	60	4.4	1,220	6.7
Apr. 1	47.0	--	82	26	313	156	40	565	--	30	--	1,310	1.78	166	310	182	69	7.7	2,190	7.9
Apr. 2-3	61.0	--	68	21	165	156	49	295	--	23	--	770	1.05	127	255	127	58	4.5	1,360	7.7
Apr. 4-10	148	--	59	13	100	124	56	170	--	24	--	545	.74	218	202	100	52	3.1	1,942	6.8
Apr. 11-12	45.5	--	64	22	132	106	63	265	--	13	--	718	.98	88	250	163	53	3.6	1,230	7.5
Apr. 13-15	42.3	--	75	23	200	112	66	390	--	6.2	--	928	1.26	106	280	188	61	5.2	1,640	7.6
Apr. 16-20	423	--	63	13	82	124	54	160	--	6.2	--	508	.69	580	210	108	46	2.5	855	7.6
Apr. 21-23	93.0	--	69	18	121	104	50	260	--	5.5	--	686	.93	172	245	160	52	3.4	1,160	7.5
Apr. 24-25	56.5	--	94	26	211	120	51	455	--	7.6	--	1,100	1.50	168	340	242	57	5.0	1,800	7.6
Apr. 26-30	57.4	--	112	26	323	136	53	650	--	5.5	--	1,430	1.94	222	385	274	65	7.2	2,430	7.6

ARKANSAS RIVER BASIN--Continued
VERDIGRIS RIVER NEAR INOLA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)		Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
						Parts per million	Tons per acre-foot								Tons per day	Calcium, magnesium	Non-carbonate					
May 1-8, 1956...	108	--	--	78	18	190	152	53	350	--	--	12	--	887	1.21	259	270	146	60	1,540	7.6	
May 9-10, 1956...	88.5	--	--	85	24	240	156	57	450	--	--	11	--	1,070	1.46	256	310	182	63	1,820	7.8	
May 11-14, 1956...	163	--	--	90	13	207	152	57	380	--	--	12	--	949	1.29	108	280	136	52	1,620	7.7	
May 15-16, 1956...	2,760	--	--	24	6.8	23	60	39	32	--	--	4.5	--	105	.22	1,240	86	39	36	1.1	282	7.5
May 17-18, 1956...	402	--	--	35	6.9	55	82	42	86	--	--	3.9	--	278	.38	302	116	49	31	486	7.3	
May 19-20, 1956...	308	--	--	66	11	134	116	42	255	--	--	4.4	--	653	.89	540	210	115	58	2.0	1,100	7.7
May 21-23, 1956...	85.3	--	--	70	15	136	128	30	310	--	--	5.3	--	731	.99	186	235	130	59	4.5	1,300	7.9
May 24, 1956...	699	--	--	67	10	144	136	41	300	--	--	4.0	--	518	.89	951	210	88	46	2.5	856	8.0
May 25, 1956...	240	--	--	78	15	181	152	66	320	--	--	4.6	--	819	1.11	138	255	130	61	4.9	1,430	7.9
June 1-3, 1956...	91.7	--	--	66	18	164	138	57	300	--	--	1.3	--	759	1.03	188	240	127	60	4.6	1,350	7.9
June 4-8, 1956...	2,014	--	--	70	12	94	146	33	195	--	--	1.2	--	539	.73	2,930	225	106	48	2.7	950	7.9
June 9-10, 1956...	240	--	--	80	15	181	130	23	370	--	--	1.2	--	852	1.16	552	280	154	60	4.9	1,480	7.9
June 11-20, 1956...	91.3	6.5	0.03	71	17	160	6.3	128	23	340	0.5	3.8	0.18	838	1.14	207	245	140	58	4.4	1,430	7.8
June 21-24, 1956...	28.2	--	--	72	17	203	126	27	395	--	--	3.2	--	872	1.19	66	250	146	64	5.6	1,560	7.9
June 25-30, 1956...	89.8	--	--	44	6.8	62	116	20	110	--	--	1.8	--	321	4.37	78	138	43	49	2.3	552	7.6
July 1-6, 1956...	152	--	--	37	9.6	78	92	17	145	--	--	3.7	--	374	.51	153	132	56	56	2.9	673	8.0
July 2-5, 1956...	121	--	--	47	9.8	101	96	20	195	--	--	3.8	--	484	.66	158	188	80	58	3.5	857	7.8
July 7-10, 1956...	326	--	--	54	16	138	102	29	272	--	--	5.0	--	617	.84	543	200	116	60	4.3	1,120	7.8
July 11-20, 1956...	142	--	--	54	12	121	116	20	230	--	--	5.4	--	550	.75	210	182	87	59	3.9	991	7.4
July 21-22, 1956...	50.0	--	--	58	16	147	128	25	380	--	--	3.6	--	636	.86	86	210	105	60	4.4	1,170	7.8
July 23-26, 1956...	50.0	--	--	65	14	182	130	25	340	--	--	5.5	--	766	1.04	103	220	114	64	5.3	1,390	7.8
July 27-31, 1956...	285	--	--	51	9.0	81	140	24	140	--	--	3.7	--	411	.56	318	164	50	52	2.7	738	7.6
Aug. 1-7, 1956...	51.7	--	--	54	13	129	140	22	232	--	--	5.5	--	574	.78	80	188	74	60	4.1	1,050	7.7
Aug. 8-10, 1956...	14.0	--	--	71	19	249	148	22	460	--	--	4.6	--	964	1.31	36	255	134	68	6.8	1,780	7.8
Aug. 11-16, 1956...	12.6	--	--	88	22	303	152	23	580	--	--	2.2	--	1,220	1.66	42	310	186	68	7.5	2,120	7.9
Aug. 17, 1956...	13.5	--	--	100	34	471	162	21	890	--	--	3.6	--	1,780	2.42	65	390	257	72	10	3,080	7.7
Aug. 18-19, 1956...	10.6	--	--	122	43	623	162	22	1,190	--	--	--	--	2,340	3.18	67	480	347	74	12	3,940	8.0

Aug. 21-22.....	13.0	--	--	--	88	29	356	156	23	680	--	3.7	--	1,440	1.96	51	340	212	69	8.4	2,470	7.9
Aug. 23-26.....	11.0	--	--	--	94	38	464	158	23	880	--	5.2	--	1,800	2.45	53	390	260	72	10	3,060	7.7
Aug. 27, 31.....	11.0	--	--	--	128	44	595	164	23	1,160	--	--	--	2,310	3.14	69	500	366	72	12	3,850	7.7
Aug. 28-30.....	11.0	--	--	--	138	48	727	166	24	1,390	--	--	--	2,790	3.79	83	540	404	75	14	4,550	7.8
Sept. 1-10.....	10.6	3.0	.06	112	50	619	15	168	22	1,230	.4	--	.38	2,360	3.21	70	485	348	73	12	4,120	7.8
Sept. 11-12, 18	11.2	--	--	120	46	648	154	154	24	1,240	--	--	--	2,480	3.37	75	490	364	74	13	4,140	7.7
Sept. 13-15, 19-20	11.0	--	--	142	48	762	168	168	23	1,450	--	--	--	2,880	3.92	86	550	412	75	14	4,710	7.6
Sept. 17.....	11.0	--	--	96	34	500	148	148	23	1,935	--	2.8	--	1,860	2.53	55	380	258	74	11	3,210	7.9
Sept. 21-24.....	9.45	--	--	180	32	879	172	172	23	1,650	--	--	--	3,060	4.16	78	580	439	77	16	5,510	7.7
Sept. 25-30.....	12.7	--	--	128	29	624	182	182	24	1,150	--	--	--	2,170	2.95	74	440	291	75	13	3,910	7.5
Weighted average	297	--	--	42	8.8	63	97	97	25	123	--	--	--	363	0.49	291	141	62	49	2.3	630	--

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

VERDIGRIS RIVER NEAR INOLA, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	59	36	35	35	54	64	61	76	86	89	80
2	80	57	36	35	35	55	--	62	77	86	88	80
3	76	50	38	36	36	54	62	67	76	87	92	80
4	75	50	36	36	35	55	62	71	74	88	92	80
5	75	54	36	36	36	57	64	72	75	--	92	80
6	74	52	36	36	34	57	64	74	77	88	92	78
7	73	50	36	34	38	51	56	74	77	89	93	77
8	70	50	34	33	38	52	56	76	77	--	92	76
9	70	50	32	34	38	53	56	74	78	86	92	76
10	70	48	34	33	38	54	50	76	77	86	91	78
11	70	50	34	33	39	55	56	77	79	81	91	77
12	68	49	34	33	39	56	52	76	71	81	90	78
13	68	49	34	33	41	58	56	79	82	81	90	78
14	67	49	34	33	41	58	58	79	81	81	90	76
15	--	48	32	34	42	58	56	74	81	90	91	--
16	66	44	32	32	43	56	56	68	81	90	90	76
17	64	44	32	32	42	--	56	74	82	81	90	76
18	64	44	32	32	42	--	56	75	84	89	89	75
19	65	45	33	32	44	--	58	82	92	89	85	76
20	65	45	33	32	46	60	61	84	86	87	83	--
21	64	45	33	32	49	53	62	84	85	88	84	77
22	62	50	34	32	48	53	60	84	85	88	78	77
23	61	50	35	32	--	54	60	85	86	87	82	78
24	61	48	35	34	51	53	60	82	84	89	81	74
25	60	44	37	35	52	54	61	78	83	89	81	74
26	61	49	36	35	52	54	62	78	83	90	82	73
27	60	38	38	35	54	54	64	85	82	87	81	72
28	60	39	35	36	54	54	62	86	81	88	80	72
29	60	39	34	36	54	59	62	86	84	86	80	72
30	60	34	35	34	--	64	62	--	84	89	82	72
31	60	--	33	33	--	64	--	78	--	89	81	--
Average	67	47	34	34	42	56	59	77	81	87	87	76

ARKANSAS RIVER BASIN--Continued
NEOSHO (GRAND) RIVER NEAR LANGLEY, OKLA.

LOCATION.--At gaging station at bridge on State Highway 82, 1½ miles southwest of Langley, Mayes County, 4.1 miles downstream from former sampling station at Pensacola Dam, and 5.8 miles upstream from Big Cabin Creek.

DRAINAGE AREA.--10,335 square miles.

RECORDS AVAILABLE.--Chemical analyses: May to September 1956.

Water temperatures: May to September 1956.

EXTREMES, May to September 1956.--Dissolved solids: Maximum, 210 ppm Sept. 1-10; minimum, 176 ppm May 11-20.

Hardness: Maximum, 150 ppm Sept. 11-20; minimum, 130 ppm May 11-31.

Specific conductance: Maximum daily, 359 micromhos Sept. 29; minimum, 265 micromhos May 31.

Water temperatures: Maximum, 88°F Aug. 9; minimum, 61°F May 11.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million. May to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boiron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃	Percent sodium carbonate	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate			
May 11-20, 1956	3,227	--	--	43	5.5	9.3	--	112	47	12	--	3.6	--	176	0.24	1,530	130	13	308	7.6
May 21-31,	2,773	6.3	0.12	42	6.1	8.0	3.0	112	47	12	0.2	3.8	0.12	186	.25	1,390	130	12	3	312
June 1-10,	1,843	--	--	42	6.6	8.3	--	112	44	13	--	3.1	--	180	.24	896	132	40	12	317
June 11-20,	2,342	6.3	.04	46	5.1	8.3	2.7	116	50	12	.2	2.9	.18	195	.27	1,230	136	41	11	324
June 21-30,	2,127	--	--	45	6.7	9.2	--	116	51	12	--	2.5	--	193	.26	1,110	140	45	12	326
July 1-10,	1,897	4.0	.01	46	6.6	8.8	3.1	120	47	12	.3	3.0	.00	208	.28	1,100	142	44	13	326
July 11-20,	1,860	--	--	46	6.1	9.0	--	116	50	10	--	4.4	--	194	.26	1,040	144	46	13	324
July 21-31,	1,562	--	--	46	6.1	9.3	--	120	52	11	--	3.9	--	192	.28	1,036	144	46	12	328
Aug. 1-10,	2,564	5.0	.06	45	7.7	13	3.0	120	48	12	.3	4.9	.05	206	.28	1,260	144	16	5	335
Aug. 11-20,	1,623	--	--	46	7.1	10	--	118	50	12	--	2.8	--	192	.26	1,017	144	49	13	342
Aug. 21-31,	1,926	--	--	48	7.1	11	--	118	50	12	--	2.8	--	192	.26	1,117	144	49	14	332
Sept. 1-10,	184	3.0	.06	48	7.5	14	3.4	120	51	14	.3	3.3	.00	210	.29	104	146	17	5	336
Sept. 11-20,	1,146	--	--	48	7.3	10	--	120	51	14	--	3.7	--	200	.27	619	150	52	13	336
Sept. 21-30,	1,559	--	--	46	8.0	12	--	122	51	14	--	3.1	--	196	.27	286	148	48	15	340

LOWER MISSISSIPPI RIVER BASIN
 ARKANSAS RIVER BASIN--Continued
 NEOSHO (GRAND) RIVER NEAR LANGLEY, OKLA.--Continued
 Temperature (°F) of water, May to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								--	66	74	75	75
2								--	--	73	76	76
3								--	73	73	77	80
4								--	68	80	80	78
5								--	70	78	80	74
6								--	69	75	78	74
7								--	69	84	76	72
8								--	--	85	78	73
9								--	78	75	88	71
10								--	77	72	79	72
11								61	74	76	79	75
12								74	73	73	85	74
13								76	70	72	--	74
14								65	72	75	76	70
15								68	75	80	--	74
16								69	74	76	78	77
17								--	80	--	76	76
18								64	72	79	--	73
19								63	72	77	79	72
20								69	73	77	74	71
21								64	72	82	73	71
22								64	--	--	80	70
23								--	80	78	76	72
24								66	80	77	80	74
25								65	72	77	83	70
26								--	72	75	--	71
27								76	73	75	83	73
28								70	73	80	79	70
29								68	--	84	--	70
30								78	75	78	75	68
31								75	--	76	75	--
Average								--	73	77	78	73

NEOSHO (GRAND) RIVER AT FORT GIBSON RESERVOIR, NEAR FORT GIBSON, OKLA.

LOCATION --Immediately below dam on Neosho (Grand) River, 1.1 miles upstream from gaging station, and 4 miles north of Fort Gibson, Wagoner County.
DRAINAGE AREA --12,492 square miles above sampling station, 12,495 square miles above gaging station.

RECORDS AVAILABLE --Chemical analyses: October 1951 to September 1956.

Water temperatures: October 1951 to September 1956

EXTREMES 1955-56 --Dissolved solids: Maximum, 208 ppm Apr. 1-30; minimum, 174 ppm Nov. 1-30.

Hardness: Maximum, 150 ppm Jan. 1-31; minimum, 128 ppm Oct. 1-31, Nov. 1-30.

Specific conductance: Maximum daily, 421 microhmhos Feb. 7; minimum daily, 291 microhmhos Dec. 6.

Water temperatures: Maximum, 89°F Aug. 15; minimum, 37°F Feb. 4-6.

EXTREMES 1951-56 --Dissolved solids: Maximum, 233 ppm Nov. 1-30, 1952; minimum, 158 ppm Oct. 1-31, 1951.

Hardness: Maximum, 171 ppm Dec. 1-31, 1952; minimum, 101 ppm Oct. 1-31, 1951.

Specific conductance: Maximum daily, 424 microhmhos Feb. 16, 1953; minimum daily, 200 microhmhos Oct. 30, 1951.

Water temperatures: Maximum, 89°F July 31, Aug. 1, 1955, Aug. 15, 1956; minimum, 34°F Dec. 21, 1951.

REMARKS --Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for gaging station near Fort Gibson for water year October 1955 to September 1956 given in WSP 1441. No appreciable inflow between sampling station and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃		Percent sodium-adsorption ratio	Specific conductance (microhmhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium				Non-carbonate
Oct. 1-31, 1955	3,698	8.0	0.04	40	6.8	9.7	2.5	100	45	14	0.0	4.5	0.13	192	0.26	1,920	128	46	14	0.4	7.8
Nov. 1-30,	1,230	10	.01	42	5.6	8.5	3.0	104	43	14	.2	3.9	.00	174	.24	578	128	43	12	.3	7.2
Dec. 1-31,	2,096	10	.01	41	8.1	7.9	2.7	108	46	15	.3	3.3	.01	187	.25	1,060	136	48	11	.3	7.0
Jan. 1-31, 1956	824	4.0	.00	46	8.5	12	2.7	110	45	15	.0	3.0	.00	198	.27	441	150	55	14	.4	8.0
Feb. 1-29,	481	3.0	.01	46	7.3	13	2.5	116	45	16	.1	3.0	.01	200	.27	260	145	50	16	.5	8.0
Mar. 1-31,	786	1.6	.01	46	4.6	13	2.3	116	47	17	.2	2.6	.03	206	.28	437	134	39	17	.5	7.1
Apr. 1-30,	554	1.6	.00	46	6.1	13	2.7	118	47	12	.2	2.8	.04	208	.28	311	140	44	17	.5	7.0
May 1-31,	2,861	4.2	.00	45	5.7	12	2.6	120	48	18	.4	3.7	.00	204	.28	1,580	136	38	16	.4	7.7
June 1-30,	2,403	2.5	.01	43	6.0	12	3.0	112	45	16	.2	4.2	.05	206	.28	1,340	132	40	16	.5	7.6
July 1-31,	1,871	2.5	.01	43	6.4	12	3.0	116	45	16	.4	2.6	.00	202	.27	1,020	134	39	16	.4	7.6
Aug. 1-31,	1,457	5.0	.07	46	6.1	12	3.5	120	46	15	.3	2.0	.02	195	.27	767	140	42	15	.4	7.5
Sept. 1-30,	1,173	5.0	.02	46	6.6	13	2.2	123	48	16	.1	1.4	.00	198	.27	92	142	41	16	.5	7.3
Weighted average	1,547	5.5	0.02	43	6.5	11	2.8	112	46	15	0.2	3.5	0.04	197	0.27	823	134	42	15	0.4	--

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

NEOSHO (GRAND) RIVER AT FORT GIBSON RESERVOIR, NEAR FORT GIBSON, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	60	48	44	40	47	57	--	74	80	80	78
2	--	61	48	44	38	48	58	61	72	80	81	78
3	74	60	48	44	38	49	57	63	72	81	82	78
4	76	58	48	44	37	50	57	66	72	82	83	78
5	76	58	46	44	37	50	58	67	73	82	84	77
6	76	58	47	44	37	53	58	68	73	82	84	76
7	73	58	47	44	38	52	58	68	73	82	84	76
8	71	56	47	43	39	50	57	66	74	82	83	75
9	--	--	45	43	40	50	57	66	75	82	83	74
10	71	54	44	43	40	50	56	68	76	83	83	74
11	72	56	44	43	40	50	54	68	77	82	84	74
12	72	56	44	42	40	50	56	69	77	82	84	74
13	70	56	43	42	40	49	56	69	76	82	84	75
14	70	56	43	42	42	50	57	69	75	82	84	75
15	70	58	42	42	42	48	58	68	77	82	89	76
16	70	54	42	40	43	49	58	70	76	82	84	76
17	67	54	42	41	44	49	58	70	76	82	84	76
18	65	54	42	40	42	49	58	71	76	82	84	76
19	65	53	42	38	42	50	58	72	78	82	82	79
20	66	53	42	38	42	49	58	72	78	82	80	74
21	66	53	42	39	43	50	59	72	78	82	79	74
22	68	54	42	40	44	50	59	72	78	80	79	74
23	66	54	42	40	44	50	59	73	79	80	79	73
24	64	53	42	40	44	52	--	73	79	80	79	73
25	64	52	42	38	47	--	58	72	79	81	79	73
26	64	53	43	40	46	52	60	72	80	81	79	73
27	64	53	44	40	46	54	61	72	80	80	79	73
28	63	48	44	40	46	54	61	72	80	82	79	73
29	60	49	44	40	46	54	61	73	80	82	79	73
30	60	49	44	40	--	54	61	--	80	82	79	72
31	60	--	44	40	--	56	--	--	--	82	79	--
Average	68	55	44	41	41	51	58	69	76	82	82	75

ARKANSAS RIVER BASIN--Continued
ILLINOIS RIVER NEAR WATTS, OKLA.

LOCATION --At gaging station on U. S. Highway 59 bridge, 1.5 miles north of Watts, Adair County, 4.5 miles downstream from Cincinnati Creek.
DRAINAGE AREA, 635 square miles.
RECORDS AVAILABLE --Chemical analyses: October 1955 to August 1956.
REMARKS --Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbon- ate				
Oct. 10, 1955	113	40	4.9	6.4	124	0	10	120	18	10	0.3	245	7.6
Oct. 27	54.8	43	6.7	5.4	118	0	10	135	38	8	.2	248	7.3
Nov. 22	72.2	44	7.3	12	158	0	10	140	105	16	.4	264	7.5
Jan. 23, 1956	82.5	43	2.6	8.0	140	0	9.6	118	4	13	.3	246	7.8
Feb. 20	503	30	2.2	3.3	38	0	5.6	84	53	8	.2	203	6.7
May 2	1,230	22	1.7	6.5	67	0	3.8	62	7	18	.4	141	7.1
May 16	2,920	17	1.3	6.7	14	0	3.3	48	36	23	.4	125	5.9
June 21	134	40	1.9	4.2	114	0	5.9	108	14	8	.2	226	7.4
July 16	55.4	40	2.9	3.4	110	0	7.1	112	22	6	.1	229	7.0
Aug. 2	96.1	42	1.7	2.9	109	0	7.0	112	22	5	.1	237	7.5

ARKANSAS RIVER BASIN--Continued

ILLINOIS RIVER AT TENKILLER RESERVOIR, NEAR GORE, OKLA.

LOCATION ---Immediately below dam on Illinois River, 4.3 miles upstream from gaging station, and 6 miles northeast of Gore, Sequoyah County. DRAINAGE AREA ---1,610 square miles above sampling station; 1,626 square miles above gaging station.

RECORDS AVAILABLE ---Chemical analyses: October 1953 to September 1956.

Water temperatures: October 1953 to September 1956.

EXTREMES, 1955-56 ---Dissolved solids: Maximum, 142 ppm Oct. 1-31; minimum, 110 ppm Jan. 1-31.

Hardness: Maximum, 107 ppm Sept. 1-30; minimum, 88 ppm Mar. 1-31.

Specific conductance: Maximum daily, 324 micromhos Oct. 16; minimum daily, 174 micromhos Feb. 14, 28.

Water temperatures: Maximum, 64°F. Nov. 13; minimum, 42°F. Feb. 3-4, 12, 15.

EXTREMES, 1955-56 ---Dissolved solids: Maximum, 142 ppm Oct. 1-31, 1955; minimum, 100 ppm Dec. 1-31, 1953.

Hardness: Maximum, 107 ppm Sept. 1-30, 1956; minimum, 80 ppm Feb. 1-28, 1954.

Specific conductance: Maximum daily, 354 micromhos Feb. 19, 1956; minimum daily, 150 micromhos July 23, 1955.

Water temperatures: Maximum, 64°F. Aug. 24, 1954, Nov. 13, 1956; minimum, 42°F. Feb. 13, 20, 1955, Feb. 3-4, 12, 15, 1956.

REMARKS ---Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for gaging station near Gore for water year October 1955 to September 1956 given in WSP 1441. No appreciable inflow between sampling station and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
Oct. 1-31, 1955...	145	13	0.02	32	3.4	4.1	1.8	104	3.5	15	0.0	4.0	0.14	142	0.19	56	94	9	9	0.2	226	7.3
Nov. 1-30.....	776	14	.01	32	2.9	5.6	2.2	100	4.3	13	.0	3.2	.04	.17	.264	92	10	11	.3	221	7.3	
Dec. 1-31.....	456	10	.01	30	4.1	4.2	1.9	94	5.8	14	.0	2.0	.01	.118	.135	92	10	9	.2	212	7.3	
Jan. 1-31, 1956...	839	5.5	.00	31	3.0	4.3	1.7	98	7.6	6.5	.0	2.2	.00	.110	.145	90	10	9	.2	191	7.8	
Feb. 1-29.....	600	5.0	.00	31	3.5	4.5	1.9	100	7.2	6.5	.0	2.2	.02	.111	.151	100	10	10	.2	193	7.9	
Mar. 1-31.....	415	4.0	.01	30	3.2	5.4	1.3	96	7.2	12	.0	1.6	.00	.124	.17	139	88	10	11	.2	209	7.3
Apr. 1-30.....	277	2.2	.01	31	3.3	5.4	1.7	99	8.6	8.5	.0	2.0	.01	.117	.16	88	91	10	11	.2	204	7.0
May 1-31.....	238	3.6	.03	32	2.9	9.0	2.3	100	9.5	19	.2	2.5	.00	.131	.18	81	92	10	17	.4	248	7.2
June 1-30.....	194	5.0	.01	33	2.8	6.5	1.6	104	8.6	12	.1	2.2	.00	.136	.18	71	94	9	13	.3	217	7.6
July 1-31.....	156	4.0	.01	34	2.7	6.3	2.0	106	8.0	12	.1	2.2	.00	.138	.19	58	96	9	12	.3	218	7.5
Aug. 1-31.....	278	4.0	.06	34	4.6	8.0	2.3	110	7.0	13	.3	2.3	.02	.130	.18	98	104	14	14	.3	224	7.4
Sept. 1-30.....	164	6.5	.02	37	3.5	7.1	2.2	120	5.6	14	.1	1.9	.00	.140	.19	62	107	8	12	.3	248	6.9
Weighted average	376	7.0	0.01	32	3.3	5.4	1.9	100	6.7	11	0.0	2.4	0.02	122	0.17	124	94	12	11	0.2	211	--

ARKANSAS RIVER BASIN--Continued

ILLINOIS RIVER AT TENKILLER RESERVOIR, NEAR GORE, OKLA.--Continued

Temperature (°F.) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	54	56	54	49	43	45	49	49	51	--	52	52
2	55	55	54	48	43	45	49	49	--	51	52	52
3	54	55	58	48	42	46	49	49	52	51	52	52
4	55	55	53	48	42	45	48	49	51	51	54	52
5	54	55	53	48	43	46	48	49	51	52	--	52
6	54	55	53	48	43	46	48	53	52	51	52	52
7	53	56	53	47	43	46	50	50	52	59	52	52
8	54	55	43	--	43	46	48	50	51	--	52	--
9	--	54	52	47	43	46	48	51	--	52	52	52
10	54	55	51	47	43	46	48	52	52	52	52	52
11	54	60	51	47	43	--	48	51	51	51	--	52
12	54	57	51	47	42	46	48	51	50	52	--	52
13	54	64	50	47	43	47	49	54	51	52	53	52
14	--	56	50	--	43	47	49	50	51	53	53	52
15	54	56	50	46	42	47	--	50	50	--	53	52
16	55	60	50	46	--	47	48	50	52	52	53	52
17	53	56	50	46	43	--	48	50	56	52	53	52
18	53	58	--	46	43	47	48	50	51	52	--	52
19	53	56	49	45	43	47	48	--	51	52	--	52
20	--	56	49	44	44	47	49	--	51	52	53	52
21	55	55	49	43	43	47	50	50	51	52	52	52
22	56	56	49	44	44	47	50	50	52	--	52	52
23	56	56	49	44	44	47	49	50	55	52	52	52
24	54	57	--	44	44	48	49	50	51	52	52	52
25	57	56	45	44	44	48	50	51	51	52	52	52
26	55	57	49	44	44	48	50	51	51	52	--	52
27	55	57	48	44	45	48	50	52	51	52	52	52
28	56	56	48	43	45	48	49	53	51	53	52	52
29	55	56	48	45	45	48	50	51	53	--	52	--
30	55	54	48	44	--	48	49	66	--	52	53	51
31	55	--	46	44	--	48	--	51	--	52	54	--
Average	55	56	50	46	43	47	49	51	52	52	52	52

ARKANSAS RIVER BASIN--Continued
CANADIAN RIVER NEAR AMARILLO, TEX.

LOCATION --At gaging station at bridge on U. S. Highways 87 and 287, 2,000 feet downstream from Pitcher Creek, 2.0 miles downstream from Panhandle and Santa Fe Railway bridge and 19 miles north of Amarillo, Potter County.
DRAINAGE AREA --19,445 square miles of which 1,069 square miles are probably noncontributing.
RECORDS AVAILABLE --Chemical analyses: July 1948. Sediment records: August 1949 to October 1949, February 1950 to September 1956.
Water temperatures: August 1949 to September 1952.

Sediment records: August 1949 to September 1952.

EXTREMES, 1955-56 --Dissolved solids: Maximum 1,970 ppm July 9, 13; minimum, 372 ppm Aug. 19-20, 22.

Hardness: Maximum 631 ppm July 9, 13; minimum, 121 ppm Aug. 19-20, 22.

Specific conductance: Maximum daily, 3,440 micromhos Feb. 13; minimum daily, 562 micromhos July 30.

Water temperatures: Maximum, 72°F July 29, 31; minimum, freezing point on many days during winter months.

EXTREMES, 1948-56 --Dissolved solids: Maximum 2,320 ppm Dec. 25-29, 1952; minimum, 265 ppm Sept. 3, 1952.

Hardness: Maximum, 860 ppm Dec. 25-29, 1952; minimum, 90 ppm Aug. 10-12, 1951.

Specific conductance: Maximum daily, 3,980 micromhos Dec. 26, 1952; minimum daily, 406 micromhos May 18, 1954.

Water temperatures (1949-56): Maximum, 95°F June 29, 1951; minimum, freezing point on many days during winter months.

REMARKS --Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids			Hardness as CaCO ₃		Percent adsorption ratio	Specific conductance (micro-mhos at 25°C)	
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-7, 1955.....	188	24		47	18	150		201	144	140	--	6.2	638	0.87	324	192	28	63	4.7	1,070
Oct. 8-19.....	20.3	53		107	43	264		290	296	315	2.8	25	1,250	1.70	68.5	444	206	56	5.4	1,990
Oct. 20-31.....	10.7	74		82	41	171		350	158	168	4.8	53	1,928	1.26	26.8	372	85	50	3.9	1,450
Nov. 1-9.....	13.7	79		89	38	147		323	133	128	4.8	68	876	1.19	37.1	332	68	49	3.5	1,330
Nov. 10-20.....	9.91	73		78	40	143		330	144	132	4.0	65	876	1.19	23.4	359	88	46	3.3	1,330
Nov. 21-30.....	9.31	74		68	38	134		320	125	110	4.0	75	832	1.13	20.9	326	64	47	3.2	1,270
Dec. 1-16.....	11.2	73		66	38	141		312	132	120	3.6	68	828	1.13	25.0	321	66	49	3.4	1,240
Dec. 17-31.....	13.8	74		86	41	177		291	199	180	3.2	74	877	1.33	36.4	383	144	50	3.9	1,560
Jan. 1-10, 1956.....	15.8	73		86	45	183		276	205	198	3.6	99	1,030	1.40	43.9	400	170	51	4.1	1,670
Jan. 11-19.....	14.1	76		87	39	224		396	184	198	4.0	72	1,080	1.47	41.1	378	153	56	5.0	1,600
Jan. 20-27.....	14.8	66		132	50	329		299	370	390	3.6	75	1,560	2.12	62.3	335	290	57	6.2	2,360
Jan. 28-31, Feb. 1-8.....	12.8	71		77	38	189		374	153	152	3.6	85	853	1.30	32.9	348	42	54	4.4	1,410
Feb. 9-24.....	18.5	52		143	53	356		251	426	458	3.2	57	1,670	2.27	83.4	575	370	57	6.5	2,620
Feb. 25-28.....	14.0	66		76	38	151		363	151	145	4.0	6.8	852	1.16	32.2	346	48	49	3.5	1,390
Mar. 1-10.....	14.9	70		70	43	149		345	137	128	4.0	73	853	1.16	34.3	352	69	48	3.5	1,340
Mar. 11-20.....	14.8	72		72	43	158		377	138	128	4.4	69	874	1.19	34.9	356	48	49	3.6	1,340
Mar. 21-31.....	14.8	78		70	39	138		320	132	118	4.0	74	820	1.12	32.8	335	73	47	3.3	1,270

a Calculated from determined constituents.

Apr. 1-10, 1956..	15.1	77	69	43	134	320	140	116	4.4	67	a 809	1.10	33.0	349	87	45	3.1	1,290	7.2
Apr. 11-20	9.17	76	72	42	136	325	136	128	4.4	60	a 814	1.11	20.2	352	86	46	3.2	1,330	8.1
Apr. 21-30	8.10	80	70	43	144	334	132	132	4.4	70	a 839	1.14	18.3	352	78	47	3.4	1,320	8.0
May 1-10	8.17	76	70	42	154	342	121	145	3.6	75	869	1.18	19.2	347	66	49	3.6	1,370	7.3
May 11-20	10.6	57	72	42	151	351	114	145	3.6	75	869	1.18	24.8	352	64	48	3.5	1,400	7.1
May 21-24, 27-29	1,188	52	63	28	188	301	135	192	2.4	21	841	1.14	2,700	272	26	60	5.0	1,340	7.4
May 25	5,080	22	138	45	405	284	466	500	1.2	.5	1,710	2.33	2,450	530	314	62	7.6	2,550	8.2
May 26, 30-31, June 1-2	721	22	43	13	121	193	99	112	1.2	1.8	a 508	.69	989	161	3	62	4.1	847	7.8
June 3-20	176	24	62	19	209	219	197	210	1.6	2.5	a 833	1.13	396	282	52	66	6.0	1,370	7.9
June 21-25	5.26	32	97	38	275	275	314	308	1.6	6.0	1,210	1.68	17.2	399	173	60	6.0	1,950	8.1
June 26-30	13.2	28	54	22	165	231	169	160	1.6	5.0	a 789	1.08	27.0	223	98	64	5.4	1,270	7.8
July 1-2, 5-8, 10-12	3.40	16	32	13	122	201	122	122	2.2	1.1	1,598	1.40	8.64	164	128	76	5.2	1,890	8.2
July 3-4, 14-19 ..	516	32	132	32	122	207	143	122	1.2	1.5	1,598	1.40	8.64	164	128	76	5.2	1,890	8.2
July 5-13	42.6	30	146	61	453	b 271	555	572	1.6	1.1	1,970	2.68	274	631	420	61	7.8	3,070	8.4
July 20-31	705	20	37	13	127	212	89	108	1.2	1.8	a 501	.68	954	147	0	65	4.6	842	8.1
Aug. 1-10	50.8	30	60	24	218	223	179	245	1.2	6.7	a 874	1.19	120	248	66	66	6.0	1,440	8.0
Aug. 11-18	2.46	66	69	37	170	c 110	157	172	3.6	28	876	1.19	5.82	324	70	53	4.1	1,350	8.4
Aug. 19-20, 22 ..	249	18	32	10	89	197	62	59	1.2	2.5	372	.51	250	121	0	61	3.5	1,619	8.0
Aug. 21, 23-31 ...	63.8	21	54	18	195	232	180	177	1.2	1.4	772	1.05	133	208	18	67	5.8	1,280	7.9
Sept. 1-10	7.20	52	71	36	201	291	195	195	2.8	48	954	1.30	18.5	326	88	57	4.8	1,470	8.0
Sept. 11-20	9.50	59	61	34	134	320	104	112	3.6	56	747	1.02	19.2	291	29	50	3.4	1,170	8.0
Sept. 21-30	5.00	65	68	33	131	318	106	113	2.8	65	749	1.02	10.1	306	46	48	3.3	1,140	7.6
Weighted average	108	32	63	24	193	245	174	198	1.8	11	823	1.12	240	256	54	62	5.3	1,310	--

a Calculated from determined constituents.

b Includes equivalent of 7 parts per million of carbonate (CO₃).c Includes equivalent of 8 parts per million of carbonate (CO₃).

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR AMARILLO, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
 (Once-daily measurement between 6 a. m. and 8 a. m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	42	32	33	32	38	49	56	64	--	70	57
2	64	39	40	33	--	34	45	--	65	--	68	59
3	68	35	--	32	--	36	38	57	69	--	71	59
4	62	38	33	33	--	37	40	55	68	--	--	61
5	62	39	35	33	--	38	42	53	65	66	65	64
6	55	43	--	36	--	--	42	55	65	68	67	55
7	46	40	--	33	32	33	40	56	65	65	65	--
8	50	33	--	33	32	32	43	56	67	67	65	57
9	52	34	--	35	32	--	38	68	--	84	--	59
10	52	--	--	33	33	40	35	60	--	87	68	56
11	53	38	--	32	32	33	40	49	68	84	65	58
12	50	--	--	32	32	32	42	55	66	85	65	57
13	48	38	--	32	33	32	45	60	67	68	66	58
14	50	--	--	35	33	33	46	50	67	68	66	60
15	50	--	--	33	--	35	46	50	66	70	66	60
16	52	32	--	32	--	32	46	50	68	70	65	60
17	48	32	32	32	37	--	43	53	68	68	64	61
18	49	33	32	--	--	41	40	64	64	71	66	60
19	51	32	32	--	37	40	47	55	69	70	66	59
20	55	--	32	32	--	37	44	55	69	--	--	58
21	52	40	32	33	36	42	48	55	65	65	60	57
22	54	43	--	33	37	40	49	58	65	--	66	56
23	--	37	38	37	--	--	45	61	69	67	67	55
24	40	32	45	48	41	46	44	--	67	69	66	54
25	42	--	39	--	45	46	50	56	65	70	66	59
26	45	36	--	--	35	--	54	64	--	68	61	60
27	48	34	34	33	35	--	50	63	68	66	60	57
28	40	32	40	38	34	36	52	65	70	67	64	58
29	45	32	37	40	34	67	45	65	67	72	63	55
30	38	32	33	32	--	40	56	63	68	66	61	54
31	--	--	--	32	--	60	--	70	--	72	55	--
Average	51	36	--	34	--	39	45	58	67	68	65	58

ARKANSAS RIVER BASIN--Continued
CANADIAN RIVER AT BRIDGEPORT, OKLA.

LOCATION.--At gaging station at Chicago, Rock Island and Pacific Railway bridge, 1 mile north of Bridgeport, Caddo County, and 2 3/4 miles upstream from Lumphouth Creek.

DRAINAGE AREA.--25,229 square miles, of which 4,801 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1948 to September 1956.

EXTREMES: Maximum daily flow, 1,350 ppm June 22; minimum, 191 ppm Oct. 1, 3-4.

Hardness: Maximum, 338 ppm May 21; minimum, 140 ppm Oct. 1, 3-4.

Specific conductance: Maximum daily, 2,720 micromhos July 24; minimum daily, 256 micromhos Oct. 4.

Water temperatures: Maximum, 77°F June 19, July 28, Aug. 31; minimum, freezing point on many days during November to February.

EXTREMES: Maximum daily flow, 1,350 ppm June 22; minimum, 191 ppm Oct. 1, 3-4.

Hardness: Maximum, 338 ppm May 21; minimum, 140 ppm Oct. 1, 3-4.

Specific conductance: Maximum daily, 2,720 micromhos July 24; minimum daily, 256 micromhos Oct. 4.

Water temperatures: Maximum, 77°F June 19, July 28, Aug. 31; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow July 2-8, 14-19, Aug. 5-19, 27, Sept. 3-30.

Chemical analyses, in parts per million, water year October 1955 to September 1956 /

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved (residue at 180° C)			Hardness as CaCO ₃		Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./l.	Non-carbonate				
Oct. 1, 3-4, 1955	7,725	--	--	43	7.9	17	128	44	16	--	--	5.1	--	198	0.27	4,090	140	35	21	0.6	335	7.9
Oct. 2	3,740	--	--	114	36	304	338	275	380	16	--	1.3	--	1,300	1.77	13,130	440	163	60	6.3	2,110	7.7
Oct. 5	2,240	--	--	59	20	45	124	124	65	--	--	4.0	--	401	.55	2,430	230	128	30	1.3	682	7.9
Oct. 6-7	641	--	--	67	18	135	178	172	145	--	--	4.8	--	648	.88	1,120	240	94	55	3.8	1,080	8.0
Oct. 8-10	175	--	--	85	21	100	198	195	105	--	--	5.1	--	628	.85	297	300	138	42	2.5	976	8.1
Oct. 11-14	85.2	--	--	112	29	84	244	242	90	--	--	5.0	--	717	.98	165	400	200	31	1.8	1,170	8.1
Oct. 15-16	55.0	--	--	107	30	75	202	276	68	--	--	4.8	--	682	.94	103	390	224	29	1.7	1,030	8.1
Oct. 17-20	42.2	--	--	123	32	57	238	285	48	--	--	4.8	--	691	.94	79	440	245	22	1.2	1,120	8.1
Oct. 21-31	30.7	24	0.00	138	38	40	3.9	290	289	32	0.0	2.2	0.25	754	1.03	62	500	262	15	.8	1,040	7.8
Nov. 1-10	27.9	--	--	148	37	34	--	296	291	22	--	2.8	--	735	1.00	55	520	278	12	.6	1,030	7.4
Nov. 11-20	29.0	--	--	118	38	33	--	200	301	22	--	2.4	--	667	.91	52	450	286	14	.7	1,080	7.4
Nov. 21-30	25.5	--	--	158	38	35	--	288	318	22	--	2.5	--	752	1.02	52	550	314	12	.6	1,060	7.6
Dec. 1-10	24.5	--	--	138	31	42	250	308	24	--	--	3.3	--	724	.98	48	470	265	16	.8	1,030	7.6
Dec. 11-20	19.1	--	--	154	33	43	276	340	22	--	--	3.5	--	783	1.06	40	520	294	15	.8	1,110	7.7
Dec. 21-31	21.8	--	--	138	26	34	198	308	27	--	--	3.8	--	876	.92	40	450	288	14	.7	994	7.8
Jan. 1-10, 1956	20.5	--	--	140	37	43	--	256	325	25	--	3.6	--	728	.99	40	500	290	16	.8	1,020	7.8
Jan. 11-20	21.5	--	--	160	29	41	--	278	328	26	--	3.6	--	760	1.03	44	520	292	15	.8	1,050	7.9
Jan. 21-24	19.8	--	--	122	35	36	216	297	28	--	--	3.8	--	859	.90	35	450	273	15	.7	977	7.8
Jan. 25	26.0	--	--	148	41	40	278	329	38	--	--	3.9	--	775	1.05	54	540	312	14	.7	1,120	7.8
Jan. 27-31	30.0	--	--	102	38	64	144	302	82	--	--	3.8	--	702	.95	57	412	294	25	1.4	1,080	7.8

ARKANSAS RIVER BASIN--Continued
 CANADIAN RIVER AT BRIDGEPORT, OKLA.--Continued
 Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate				
Feb. 1-2, 1956	16.5	--	--	116	41	58		200	330	54	--	2.0	--	760	1.03	34	296	21	1.2	1,100	7.6
Feb. 3-4, 8	26.0	--	--	148	37	292		289	289	24	--	3.3	--	728	.99	55	280	14	1.7	1,080	7.8
Feb. 5-7, 8	28.3	--	--	170	45	21	21	314	245	34	--	5.5	--	816	1.11	58	610	17	4	1,150	7.7
Feb. 9-10, 8	56.5	--	--	110	29	54	236	233	233	52	--	3.5	--	615	.84	94	395	23	1.2	982	7.6
Feb. 11-13, 8	50.3	--	--	124	39	79	a172	389	66	--	--	3.5	--	788	1.07	107	470	27	1.6	1,120	8.3
Feb. 14-16, 8	39.0	--	--	128	44	69	b188	413	45	--	--	2.6	--	794	1.08	84	500	23	1.3	1,080	8.3
Feb. 17-20, 8	175	--	--	106	43	253		c248	265	360	--	3.3	--	1,210	1.65	572	440	56	5.2	2,040	8.4
Feb. 21-27, 8	66.4	--	--	124	51	287		c266	357	360	--	3.5	--	1,290	1.75	231	520	53	5.1	2,110	8.4
Feb. 28-29, 8	35.5	--	--	136	51	169		c296	333	230	--	3.1	--	1,130	1.54	108	550	307	40	1,780	8.4
Mar. 1-2, 8	25.5	--	--	146	45	105		c292	332	135	--	3.1	--	951	1.29	65	550	310	29	1,440	8.3
Mar. 3-4, 8	18.5	--	--	144	41	83		a288	351	76	--	2.9	--	840	1.14	42	530	294	25	1,620	8.3
Mar. 5-7, 8	17.0	--	--	148	44	38		a294	327	35	--	3.2	--	782	1.06	36	550	309	13	1,100	8.3
Mar. 8-10, 8	17.0	--	--	152	39	45		d284	357	22	--	2.6	--	758	1.03	35	540	307	15	1,040	8.3
Mar. 11, 13-20, 8	20.1	--	--	154	31	39		e284	316	22	--	2.9	--	746	1.01	40	510	278	14	1,040	7.9
Mar. 12, 8	17.0	--	--	148	39	51		244	366	40	--	3.2	--	810	1.10	37	530	330	17	1,180	7.9
Mar. 21-23, 8	29.7	--	--	150	32	56		270	319	50	--	2.4	--	781	1.06	63	505	284	19	1,130	8.0
Mar. 24-25, 8	25.5	--	--	152	32	50		286	324	32	--	2.2	--	769	1.05	53	510	276	18	1,100	7.9
Mar. 26-31, 8	19.2	--	--	166	36	38		296	356	20	--	2.5	--	795	1.08	41	560	318	13	1,100	7.9
Apr. 1, 3-8, 10	17.4	--	--	140	37	29		228	335	18	--	2.5	--	781	1.06	37	500	313	11	983	7.7
Apr. 2, 9	20.5	--	--	156	32	37		236	348	29	--	2.9	--	825	1.12	46	520	326	13	1,050	7.7
Apr. 11-14, 16-20	15.9	--	--	148	39	17		248	324	18	--	1.8	--	765	1.04	33	530	327	7	986	7.7
Apr. 15, 8	15.0	--	--	120	44	35		172	355	32	--	1.7	--	786	1.07	32	480	339	14	1,060	7.5
Apr. 21-23, 25-30	12.7	--	--	114	35	42		178	332	20	--	2.0	--	664	.90	23	430	284	17	930	7.8
Apr. 24, 8	14.0	--	--	124	32	72		184	371	41	--	1.9	--	769	1.05	29	440	289	26	1,060	7.7
May 1-10, 8	15.6	14	0.01	142	33	36	3.1	244	341	21	0.4	1.9	0.14	741	1.01	31	490	290	14	1,010	7.9
May 11, 8	13.0	--	--	112	37	63		108	399	43	--	2.0	--	760	1.03	27	450	342	24	1,160	7.8
May 12, 8	10.1	--	--	136	32	49		270	352	26	--	1.1	--	759	1.07	22	520	296	17	1,020	8.1
May 21-26, 8	22.8	--	--	136	33	38		210	308	26	--	1.3	--	717	.96	44	475	254	18	994	7.9
May 27-28, 8	3,131	--	--	116	44	348		280	359	395	--	.6	--	1,450	1.97	12,260	470	240	60	2,240	8.1
May 29-31, 8	1,733	--	--	88	29	242		228	245	300	--	2.3	--	1,100	1.50	5,147	340	153	61	1,780	8.0

a Includes 4 parts per million of carbonate (CO₃).
 b Includes 2 parts per million of carbonate (CO₃).
 c Includes 8 parts per million of carbonate (CO₃).
 d Includes 6 parts per million of carbonate (CO₃).

June 1-7, 1956 ..	602	--	--	84	32	258	224	255	318	--	4.8	--	1,080	1.47	1,760	340	156	62	6.1	1,820	8.2
June 8-10	63.0	--	--	104	28	201	192	226	220	--	7.6	--	986	1.34	168	375	218	54	4.5	1,570	8.0
June 11-12, 19 ..	25.0	--	--	92	29	180	230	254	200	--	7.3	--	882	1.20	60	350	162	53	4.2	1,430	8.2
June 13, 20	14.0	--	--	92	27	130	206	257	132	--	1.0	--	756	1.03	29	340	171	45	3.1	1,190	8.1
June 14	14.0	--	--	84	29	106	188	256	99	--	.8	--	686	.93	26	330	176	41	2.5	1,070	8.0
June 15-16	23.5	--	--	100	35	49	220	253	41	--	.8	--	613	.63	39	395	214	21	1.1	894	8.1
June 17	34.0	--	--	100	41	296	210	330	385	--	6.6	--	1,290	1.75	118	420	248	61	6.3	2,130	8.1
June 18	24.0	--	--	92	24	252	222	272	290	--	3.6	--	1,050	1.43	68	330	148	62	6.0	1,760	8.2
June 21, 25	14.4	--	--	92	24	68	a208	222	53	--	2.2	--	575	.78	22	330	160	31	1.6	881	8.3
June 22	22.0	--	--	104	41	372	b288	415	460	--	5.7	--	1,550	2.11	92	430	276	65	7.8	2,500	8.3
June 23-24	32.5	--	--	82	31	193	172	272	228	--	3.8	--	917	1.25	80	330	189	56	4.6	1,500	8.2
June 26-30	4.88	--	--	116	29	52	180	312	34	--	2.2	--	649	.68	8.6	410	262	22	1.1	938	8.2
July 1 .....	.20	--	--	90	32	67	188	263	50	--	2.2	--	616	.84	.3	355	201	29	1.5	920	8.2
July 9	3.90	--	--	80	44	307	d196	361	360	--	3.8	--	1,300	1.77	3.2	260	219	64	6.8	2,090	8.4
July 10	3.00	--	--	58	28	51	160	166	32	--	2.3	--	455	.62	3.7	260	129	30	1.4	704	8.2
July 11	6.10	--	--	76	24	74	148	228	64	--	3.1	--	569	.77	9.4	290	168	36	1.9	924	8.1
July 12	5.60	--	--	78	32	92	208	213	91	--	.8	--	620	.84	9.4	320	150	39	2.2	997	7.1
July 13	1.60	--	--	72	22	49	200	165	28	--	2.0	--	446	.61	1.9	270	106	28	1.3	693	8.2
July 19-22	4.22	--	--	67	23	50	204	138	41	--	1.3	--	458	.82	5.2	260	93	30	1.4	690	7.9
July 23-31	369	--	--	100	39	357	266	319	450	--	1.6	--	1,460	1.99	1,450	410	192	65	7.7	2,390	7.9
Aug. 1-4	33.9	--	--	90	35	356	262	304	430	--	7.3	--	1,400	1.90	136	370	136	66	6.0	2,310	8.2
Aug. 16-26	86.3	--	--	111	29	168	164	231	205	--	1.6	--	853	1.16	203	285	184	58	6.0	1,870	7.7
Aug. 26-30	20.0	--	--	52	14	100	106	169	37	--	2.6	--	482	.67	40	366	126	34	3.5	1,842	7.5
Aug. 31	27.0	--	--	83	23	31	216	177	34	--	2.2	--	482	.67	37	366	126	27	1.3	744	7.8
Sept. 1-2	4.10	--	--	132	29	33	120	380	18	--	3.1	--	670	.91	7.4	450	352	14	.7	916	7.5
Weighted average	159	--	--	78	24	140	199	185	172	--	--	--	732	1.00	314	283	130	51	3.6	1,180	--

a Includes 4 parts per million of carbonate (CO₃).b Includes 2 parts per million of carbonate (CO₃).c Includes 6 parts per million of carbonate (CO₃).d Includes 6 parts per million of carbonate (CO₃).

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER AT BRIDGEPORT, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	45	33	37	37	48	64	80	88	72	76	75
2	70	43	37	39	32	43	33	63	66	--	75	
3	--	36	44	37	32	45	48	59	70	--	--	
4	68	41	33	35	32	44	49	58	69	--	73	
5	77	46	36	37	34	50	--	63	72	--	--	
6	68	44	43	40	37	--	52	67	72	--	--	
7	55	38	34	32	33	45	--	--	71	--	--	
8	59	34	39	33	33	38	--	66	76	--	--	
9	--	37	33	33	32	40	42	73	72	76	--	
10	56	50	34	33	32	50	41	69	73	--	--	
11	63	43	33	33	34	33	43	70	72	70	--	
12	63	45	32	32	35	35	50	71	72	75	--	
13	53	48	35	32	37	36	53	73	73	--	--	
14	54	48	32	35	41	35	63	56	70	--	--	
15	55	55	32	34	36	35	52	57	64	--	--	
16	56	32	33	--	37	33	51	58	76	--	--	
17	50	33	33	--	--	38	44	63	76	--	--	
18	49	40	33	--	34	44	48	72	73	--	--	
19	56	36	--	32	36	39	51	--	77	--	--	
20	--	48	--	34	--	40	46	66	74	75	--	
21	55	46	33	--	38	45	52	67	74	71	64	
22	53	52	34	--	43	42	--	69	75	75	65	
23	58	38	35	33	54	42	50	74	70	73	69	
24	42	34	43	35	53	50	45	64	74	73	69	
25	46	37	--	34	41	50	59	66	72	74	68	
26	50	38	36	36	43	56	63	65	72	--	71	
27	51	38	36	40	42	63	63	--	74	76	--	
28	48	32	46	43	39	--	68	70	73	77	--	
29	48	32	--	33	40	--	48	73	74	--	--	
30	43	32	32	--	--	--	46	75	76	76	71	
31	46	--	35	33	--	--	--	72	--	75	77	
Average	56	41	36	35	38	43	51	66	72	--	--	

ARKANSAS RIVER BASIN--Continued
LITTLE RIVER BELOW HOG CREEK, NEAR NORMAN, OKLA.

LOCATION.--At gaging station at bridge on county road just downstream from Hog Creek, three quarters of a mile upstream from Prairie Creek, 0.8 miles south of Little Axe, and 13 miles east.

DRAINAGE AREA.--257 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 669 ppm July 3-6; minimum, 112 ppm Oct. 2-6.

Water temperatures: October 1953 to September 1956.

Hardness: Maximum, 390 ppm Nov. 11-20; minimum, 80 ppm Oct. 2-6.

Specific conductance: Maximum daily, 1,240 micromhos July 4; minimum daily, 145 micromhos Oct. 5.

Water temperatures: Maximum, 96°F July 8; minimum, freezing point Feb. 2.

EXTREMES, 1953-56.--Dissolved solids: Maximum, 1,150 ppm Sept. 1-10, 1954; minimum, 111 ppm May 19-20, 1955.

Hardness: Maximum, 390 ppm Nov. 11-20, 1955; minimum, 73 ppm Oct. 26, 1953.

Specific conductance: Maximum daily, 2,180 micromhos Sept. 8, 1954; minimum daily, 145 micromhos Oct. 5, 1955.

Water temperatures: Maximum, 98°F July 11-12, 1954; minimum, freezing point Feb. 2, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow July 13-16, Aug. 1-31, Sept. 1-30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent adsorption ratio	Specific conductance (micro-mhos at 25°C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1, 1955 ...	2.50	--	--	25	13	38	138	20	44	--	--	2.3	--	220	0.30	1.5	116	3	41	1.5	408	7.5
Oct. 2-6	1,438	--	--	17	9.1	6.0	90	6.4	8.2	--	--	1.0	--	112	.15	435	80	6	14	.3	186	7.7
Oct. 7-8	38.0	--	--	36	19	28	184	21	39	--	--	1.1	--	237	.32	24	168	17	27	.9	426	8.0
Oct. 9-10	12.2	--	--	48	28	49	256	13	48	--	--	1.0	--	302	.41	9.9	230	20	21	.8	549	7.8
Oct. 11-20	5.41	--	--	54	35	52	342	22	54	--	--	1.9	--	405	.55	5.9	280	0	26	1.1	698	7.9
Oct. 21-31	2.96	16	0.02	29	36	52	4.1	318	29	64	0.0	0.44	0.6	403	.55	3.2	220	0	33	1.3	709	8.1
Nov. 1-10	2.89	--	--	70	45	61	454	30	62	--	--	.8	--	503	.68	3.9	360	0	27	1.4	880	7.8
Nov. 11-20	2.98	--	--	72	51	63	496	32	60	--	--	1.5	--	525	.71	4.2	390	0	26	1.4	918	8.0
Nov. 21-30	3.97	--	--	64	51	60	478	32	52	--	--	2.3	--	496	.67	5.3	370	0	26	1.4	845	8.0
Dec. 1-10	5.45	--	--	50	43	42	378	21	42	--	--	1.2	--	388	.53	5.7	300	0	23	1.1	881	8.0
Dec. 11-20	4.75	--	--	53	40	39	366	20	42	--	--	1.8	--	378	.51	4.8	295	0	22	1.0	877	7.9
Dec. 21-31	5.08	--	--	56	39	44	380	21	43	--	--	1.2	--	391	.53	5.4	300	0	24	1.1	862	7.9
Jan. 1-10, 1956	3.44	--	--	52	46	38	376	27	51	--	--	.0	--	413	.56	3.8	320	12	20	.9	745	7.2
Jan. 11-20	3.77	--	--	51	50	40	388	27	52	--	--	1.4	--	435	.59	4.4	332	0	25	1.2	784	7.9
Jan. 21-29, 31	5.95	18	.01	61	42	32	370	25	45	.2	1.2	.20	410	.56	6.6	325	22	17	.8	681	8.1	
Feb. 1-10	4.50	--	--	68	46	38	434	25	44	--	--	.7	--	434	.59	5.3	360	4	19	.9	769	7.9
Feb. 11-20	8.98	--	--	54	48	23	368	23	38	--	--	2.2	--	368	.50	8.9	330	28	13	.5	644	8.1
Feb. 21-29	8.57	--	--	46	42	29	332	30	34	--	--	2.2	--	344	.47	8.0	288	16	18	.7	649	8.2
Feb. 21-29	5.41	--	--	48	48	32	372	24	40	--	--	.2	--	375	.51	5.5	316	11	18	.8	729	8.1

ARKANSAS RIVER BASIN--Continued
 LITTLE RIVER BELOW HOG CREEK, NEAR NORMAN, OKLA.--Continued
 Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium carbonate	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Mar. 1-10, 1956	3.51	--	--	50	50	48	412	24	50	--	--	0.7	--	426	0.58	4.0	330	0	24	1.1	762	8.1
Mar. 11-20, 1956	3.83	--	--	54	52	45	432	25	48	--	--	1.0	--	437	.59	4.5	350	0	22	1.1	784	8.0
Mar. 21-31, 1956	4.74	--	--	56	51	49	416	22	49	--	--	1.1	--	430	.58	5.5	350	9	19	.9	776	7.5
Apr. 1-2, 7-10, 1956	9.23	--	--	50	50	39	396	25	45	--	--	1.4	--	424	.58	11	330	6	20	.9	732	7.8
Apr. 3-6, 1956	13.1	--	--	53	34	13	288	23	26	--	--	2.4	--	335	.46	12	270	34	10	.3	537	7.7
Apr. 11-20, 1956	2.62	--	--	50	55	37	408	25	49	--	--	1.7	--	435	.59	3.1	350	16	19	.9	773	7.7
Apr. 21-27, 1956	4.86	--	--	54	49	40	400	27	46	--	--	.8	--	415	.56	5.4	335	7	21	.9	745	7.7
Apr. 28-30, 1956	221	--	--	32	12	18	128	12	34	--	--	3.1	--	216	.29	129	128	23	24	.7	338	7.2
May 1, 1956	12.0	--	--	34	20	22	184	13	34	--	--	4.9	--	250	.34	8.1	168	17	22	.7	409	7.9
May 2-3, 1956	5.95	--	--	49	26	37	278	19	42	--	--	2.3	--	313	.43	5.0	228	0	26	1.1	559	7.9
May 4-10, 1956	2.83	--	--	53	37	47	356	23	51	--	--	.8	--	411	.56	3.1	285	0	27	1.2	680	7.6
May 11-14, 1956	2.05	--	--	42	45	65	358	32	74	--	--	.6	--	445	.61	2.5	290	0	33	1.7	798	7.9
May 15-16, 1956	6.45	--	--	36	27	39	260	18	43	--	--	1.7	--	305	.41	5.3	208	0	20	1.2	546	7.8
May 17-20, 1956	1.05	--	--	45	42	95	360	28	57	--	--	1.2	--	414	.56	1.2	285	0	30	1.4	740	7.9
May 21-23, 1956	5.13	--	--	43	42	78	362	34	82	--	--	1.2	--	458	.62	6.3	280	0	38	2.0	817	8.2
May 24-27, 1956	164	--	--	24	14	12	122	6.8	15	--	--	2.8	--	138	.19	6.1	100	0	35	.6	251	7.7
May 28-31, 1956	33.2	--	--	31	14	33	154	11	49	--	--	2.6	--	227	.31	20	136	10	35	1.2	421	7.8
June 1-2, 1956	9.20	--	--	26	14	19	150	9.7	21	--	--	2.8	--	176	.24	4.4	124	1	25	.7	309	7.8
June 3-5, 1956	7.43	--	--	36	19	30	212	14	32	--	--	1.4	--	246	.33	4.9	168	0	28	1.0	431	8.0
June 6-10, 1956	2.92	--	--	48	34	59	320	26	70	--	--	.6	--	396	.54	3.1	260	0	33	1.6	709	8.0
June 11-13, 1956	2.20	--	--	34	38	71	312	34	73	--	--	.4	--	403	.55	2.4	240	0	39	2.0	725	8.1
June 14-20, 1956	1.40	--	--	36	41	101	330	46	114	--	--	.5	--	500	.68	1.9	260	0	46	2.7	912	8.0
June 21-24, 1956	.50	--	--	38	42	126	336	65	140	--	--	2.5	--	580	.79	.8	268	0	51	3.3	1,040	8.1
June 25, 29-30, 1956	.77	--	--	34	28	79	240	41	93	--	--	2.2	--	402	.55	.8	200	4	46	2.4	735	7.9
June 26-28, 1956	.50	--	--	27	20	58	184	28	66	--	--	1.6	--	296	.40	.4	148	0	46	2.1	541	7.8
July 1-2, 7-10, 1956	.63	--	--	37	38	110	324	57	115	--	--	1.2	--	535	.73	.9	248	0	49	3.0	941	8.1
July 3-6, 1956	2.88	--	--	43	37	158	298	85	190	--	--	1.1	--	669	.91	5.2	258	14	57	4.3	1,200	8.0
July 11-12, 1956	.20	--	--	35	39	134	328	68	140	--	--	1.0	--	578	.79	.3	248	0	54	3.7	1,050	8.0
July 17-20, 1956	7.05	--	--	22	13	23	102	13	23	--	--	2.9	--	154	.21	2.9	83	0	37	1.1	271	7.6
July 21-22, 1956	4.05	--	--	18	23	27	138	12	27	--	--	2.8	--	184	.25	2.0	108	0	35	1.1	331	7.7
July 23-26, 1956	.32	--	--	34	20	48	214	22	50	--	--	1.8	--	286	.39	.2	166	0	39	1.6	508	7.9
July 27-28, 1956	.15	--	--	34	26	85	232	42	99	--	--	1.0	--	402	.55	.2	190	0	49	2.7	733	8.0
July 29-31, 1956	.10	--	--	42	30	129	254	70	160	--	--	1.0	--	568	.77	.2	228	20	55	3.7	1,020	8.0
Weighted average	27.2	--	--	23	13	13	129	9.3	16	--	--	1.3	--	156	0.21	12	111	6	20	0.5	268	--

ARKANSAS RIVER BASIN--Continued

LITTLE RIVER BELOW HOG CREEK, NEAR NORMAN, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	60	35	46	39	56	67	61	65	80		
2	73	50	46	39	32	--	68	64	73	88		
3	65	52	49	46	33	55	67	66	75	84		
4	69	51	45	45	33	56	64	75	67	85		
5	72	47	39	47	--	63	63	69	71	89		
6	74	54	42	44	38	68	64	72	82	78		
7	63	48	46	42	40	50	62	84	84	82		
8	61	59	42	37	42	50	54	74	82	96		
9	62	46	38	47	38	55	50	77	76	87		
10	68	48	39	46	42	62	50	77	77	82		
11	72	54	41	37	37	--	58	80	88	78		
12	69	59	36	37	40	46	67	73	87	85		
13	66	57	36	39	42	41	70	84	82	--		
14	60	57	40	43	44	49	70	70	77	--		
15	59	63	38	38	44	44	--	62	78	--		
16	64	47	38	36	50	52	67	68	84	--		
17	58	43	34	35	45	49	61	81	82	75		
18	64	43	37	34	41	56	62	82	82	74		
19	63	45	38	38	42	58	65	77	87	75		
20	67	47	40	36	45	49	68	85	87	82		
21	70	47	40	36	44	47	59	78	85	88		
22	60	59	45	36	45	46	58	78	85	84		
23	69	53	46	38	58	60	--	73	87	80		
24	57	46	50	36	67	60	61	68	80	90		
25	62	46	48	34	52	65	60	67	76	86		
26	58	43	47	38	52	65	76	76	77	90		
27	56	44	47	42	55	68	68	66	87	92		
28	61	41	50	50	52	62	76	69	87	90		
29	52	39	45	43	54	60	50	73	85	74		
30	52	36	45	--	--	63	54	75	78	81		
31	61	--	36	40	--	68	--	73	--	77		
Average	64	49	42	40	44	56	63	73	80	83		

ARKANSAS RIVER BASIN--Continued
LITTLE RIVER NEAR SASAKWA, OKLA.

LOCATION.--At gaging station on highway bridge, 2½ miles northwest of Sasakwa, Seminole County, and 8.7 miles downstream from Salt Creek. DRAINAGE AREA.--865 square miles.

RECORDS AVAILABLE.--Chemical analyses: September 1951 to September 1955 (monthly), October 1955 to September 1956 (daily).

EXTREMES, 1955-56.--Dissolved solids: Maximum, 95,900 ppm July 12; minimum, 476 ppm Oct. 6-7.

Hardness: Maximum, 18,100 ppm July 12; minimum, 142 ppm Oct. 6-7.

Specific conductance: Maximum daily, 113,000 micromhos July 12; minimum daily, 887 micromhos Oct. 6.

Water temperatures: Maximum, 93°F July 27; minimum, 33°F Dec. 16, Jan. 18, Feb. 3.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow Aug. 12-31, Sept. 1-30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)		Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
						Parts per million	Tons per acre-foot								Tons per day	Calcium, magnesium	Non-carbonate						
Oct. 1-2, 1955 ..	55.0	--	--	236	73	1,140	87	18	2,320	--	--	--	--	--	4,280	5.82	635	890	818	74	17	7,280	7.7
Oct. 3	33.0	--	--	328	107	1,960	102	22	3,250	--	--	--	--	--	5,970	8.12	532	1,260	1,180	73	19	10,000	8.0
Oct. 4	1,000	--	--	42	26	133	--	--	280	--	--	5.7	--	--	614	.84	1,660	210	123	58	4.0	1,140	7.7
Oct. 5	1,860	--	--	172	59	844	116	12	1,700	--	--	--	--	--	3,120	4.24	15,840	670	575	73	14	5,470	7.9
Oct. 6-7	2,195	--	--	35	13	99	90	6.6	195	--	--	2.6	--	--	476	.65	2,850	142	68	60	3.6	881	7.5
Oct. 8	589	--	--	70	28	276	108	9.1	560	--	--	4.0	--	--	1,130	1.54	1,800	290	202	67	7.1	2,040	7.7
Oct. 9	412	--	--	108	39	451	112	11	925	--	--	3.8	--	--	1,780	2.39	1,960	430	338	70	9.5	3,170	7.5
Oct. 10	126	--	--	160	59	729	118	13	1,500	--	--	--	--	--	2,660	3.62	905	640	544	71	13	4,860	7.8
Oct. 11-12	83.0	--	--	208	83	1,010	134	17	2,060	--	--	--	--	--	3,780	5.14	847	860	750	72	15	6,770	8.2
Oct. 13-14	55.0	--	--	351	137	1,790	140	23	3,690	--	--	--	--	--	6,570	8.94	976	1,440	1,330	73	21	11,200	8.2
Oct. 15-18	31.5	--	--	549	212	2,820	159	35	5,820	--	--	--	--	--	10,200	13.87	868	2,240	2,110	73	26	17,100	8.1
Oct. 19-20	22.5	--	--	750	299	4,110	133	44	8,430	--	--	--	--	--	14,600	19.86	887	3,100	2,980	74	32	22,000	8.2
Oct. 21-23	17.7	--	--	1,060	347	5,400	125	48	11,000	--	--	--	--	--	19,000	25.84	908	4,070	3,970	74	37	29,700	7.9
Oct. 24-26	13.0	--	--	1,420	449	7,510	112	58	15,300	--	--	--	--	--	24,800	33.73	870	5,390	5,300	75	44	38,300	7.8
Oct. 27-31	12.2	--	--	1,750	563	9,190	102	68	16,800	--	--	--	--	--	31,600	42.98	1,070	6,680	6,600	75	49	47,400	7.8
Nov. 1-5	10.6	--	--	2,330	738	12,100	82	88	24,800	--	--	--	--	--	42,100	57.26	1,200	8,850	8,780	75	56	60,300	7.8
Nov. 6-10	9.08	--	--	3,050	849	15,600	64	107	31,800	--	--	--	--	--	54,900	74.53	1,340	11,100	11,000	75	64	75,200	6.9
Nov. 11-14	11.2	--	--	3,600	977	18,700	69	121	37,900	--	--	--	--	--	63,600	86.50	1,920	13,000	12,900	76	71	84,200	6.8
Nov. 15-20	10.6	--	--	4,030	1,300	22,300	53	142	45,000	--	--	--	--	--	76,400	103.90	2,190	15,400	15,400	76	78	96,400	6.7
Nov. 21-30	9.82	16	0.27	4,390	1,400	23,700	64	166	46,200	0.1	--	--	--	2.6	83,600	113.70	2,220	16,700	16,700	76	80	97,000	7.1
Dec. 1-10	15.4	--	--	4,580	1,230	23,800	44	171	46,200	--	--	--	--	--	85,000	115.60	3,540	16,500	16,500	76	84	98,900	6.3
Dec. 11-20	12.4	8.6	.25	3,600	1,170	18,900	155	142	38,800	1.1	--	--	--	1.8	66,900	90.98	2,260	13,200	13,100	75	72	92,400	7.6
Dec. 21-31	15.5	--	--	3,840	1,100	21,200	99	166	42,500	--	--	--	--	--	69,600	94.93	2,920	14,100	14,000	77	78	84,100	7.7

Jan. 1-10, 1956.	13.3	11	.26	3,670	1,370	18,500	115	139	38,800	.0	2.3	67,200	91.39	2,410	14,900	14,700	73	66	86,600	7.9
Jan. 11-20	13.0	--	--	4,110	1,150	22,500	131	154	45,200	--	--	74,900	101.59	2,620	15,000	14,900	77	80	87,500	7.7
Jan. 21-26	23.8	--	--	4,170	1,200	22,500	111	165	46,300	--	--	76,900	104.58	6,210	15,700	15,600	76	84	90,700	7.3
Jan. 27	24.0	--	--	836	14,900	87	131	30,200	20,400	--	--	50,900	69.22	3,300	10,300	10,200	76	64	86,900	7.4
Jan. 28-29, 31 ..	21.3	--	--	2,340	572	12,100	92	104	24,400	--	--	40,400	54.94	2,320	8,100	8,110	76	58	55,200	6.7
Jan. 30	20.0	--	--	2,180	572	11,800	214	159	23,400	--	--	39,400	53.58	2,130	7,780	7,610	77	58	56,100	7.7
Feb. 1-3	29.0	--	--	2,030	996	11,000	60	106	23,400	--	--	40,100	54.54	3,250	9,160	9,110	72	50	54,300	6.6
Feb. 4-9	27.0	--	--	2,850	921	15,700	104	123	31,800	--	--	53,800	73.17	3,920	10,900	10,600	76	65	69,100	7.6
Feb. 10-11	45.5	--	--	2,410	804	12,800	153	114	26,200	--	--	44,200	80.11	5,430	9,320	9,190	76	58	59,700	7.4
Feb. 12-16	32.2	--	--	2,070	663	11,000	198	99	22,400	--	--	38,700	52.63	3,360	7,990	7,730	75	54	52,700	7.6
Feb. 17-18	28.5	--	--	1,260	410	6,620	142	73	13,800	--	--	23,400	31.82	1,830	4,530	4,710	75	43	34,500	7.5
Feb. 19-20	23.5	--	--	1,650	524	8,950	139	84	18,100	--	--	31,400	42.70	2,000	6,270	6,160	76	49	44,000	7.4
Feb. 21-29	16.8	10	.17	2,490	897	12,500	118	104	26,200	.2	1.8	46,100	62.70	2,090	9,900	9,800	73	55	59,800	8.0
Mar. 1-8	12.0	--	--	2,780	988	15,400	81	121	31,400	--	--	56,000	76.16	1,810	11,000	10,900	75	64	69,000	6.6
Mar. 9-17	12.0	--	--	3,510	1,230	19,200	126	147	39,200	--	--	70,900	96.42	2,300	13,800	13,700	75	71	82,600	7.3
Mar. 18-20	14.7	--	--	3,950	22,000	22,000	137	162	44,700	--	--	78,600	106.90	3,120	15,400	15,300	76	77	90,000	7.5
Mar. 21-28	20.9	--	--	3,700	1,210	20,500	31	155	41,500	--	--	72,300	98.33	4,080	14,200	14,200	76	75	65,100	6.2
Mar. 29-31	9.67	--	--	2,820	891	15,900	46	135	31,800	--	--	58,000	78.86	1,580	10,700	10,700	76	66	70,400	7.0
Apr. 1-6, 8-10 ..	16.5	--	--	2,560	777	13,900	50	122	28,100	--	--	48,600	66.10	2,180	9,580	9,540	76	62	62,800	6.8
Apr. 7	26.0	--	--	4,330	1,190	22,200	133	176	45,100	--	--	84,300	114.65	5,920	15,700	15,600	75	77	93,400	7.6
Apr. 11-17	11.3	--	--	2,410	828	13,400	52	118	27,200	--	--	46,700	66.23	1,480	9,420	9,360	76	80	60,800	7.1
Apr. 18-25	23.2	--	--	3,380	1,180	16,800	66	144	37,800	--	--	66,900	90.86	4,820	13,100	13,100	76	71	73,100	6.7
Apr. 26-27	32.0	--	--	1,650	523	6,500	67	89	17,400	--	--	32,000	53.39	3,600	9,120	9,070	76	49	44,900	7.4
Apr. 28	30.0	--	--	832	327	4,500	131	80	17,400	--	--	32,000	53.39	3,600	9,120	9,070	76	49	44,900	7.4
Apr. 29	38.0	--	--	3,056	223	3,400	131	50	6,960	--	--	12,800	17.41	3,390	2,470	2,470	74	34	19,100	7.8
Apr. 30	288	--	--	379	135	1,880	150	41	3,840	--	--	7,510	10.21	5,480	2,890	1,380	73	21	11,600	7.8
May 1-2	138	--	--	288	78	1,950	152	30	2,750	--	--	5,140	6.99	1,990	1,040	916	74	13	8,550	8.1
May 3-4	64.0	--	--	989	314	5,070	70	52	18,400	--	--	15,000	35.64	3,260	3,760	3,700	75	36	28,400	7.7
May 5-13	19.8	--	--	1,321	321	6,270	103	41	9,420	--	--	15,300	30.81	618	3,570	3,480	70	38	23,400	7.7
May 14-17	14.0	--	--	2,490	756	13,100	91	56	13,000	--	--	24,000	32.64	997	4,530	4,460	74	39	34,800	7.6
May 18, 20	21.0	--	--	3,410	1,070	16,400	39	103	26,700	--	--	48,500	63.96	2,750	9,320	9,280	75	59	64,100	7.1
May 19	17.0	--	--	3,410	1,070	16,400	10	136	37,400	--	--	67,600	31.94	5,110	12,900	12,900	76	70	76,700	6.4

ARKANSAS RIVER BASIN--Continued
LITTLE RIVER NEAR SASAKWA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium ion ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonates			
May 21-23, 1956	16.3	--	--	2,560	667	12,400		45	125	25,400	--	--	--	48,100	65.42	2,120	9,130	7,510	75	59,200	7.1
May 24,	352	--	--	1,059	194	3,600		99	22	7,200	--	--	--	13,900	18.90	13,210	2,440	2,360	75	19,800	7.8
May 25-27,	753	--	--	618	37	472		112	18	980	--	3.0	--	2,150	2.92	4,370	420	328	71	3,430	7.9
May 28-31,	135	--	--	208	49	906		114	21	1,850	--	--	--	4,000	5.44	1,460	720	628	73	6,080	7.9
June 1-2, 5,	80.0	--	--	875	181	3,240		81	33	6,650	--	--	--	12,200	16.59	2,640	2,430	2,360	74	19,100	7.4
June 3-4,	54.5	--	--	355	101	1,650		100	20	3,390	--	--	--	6,380	8.68	939	1,300	1,220	73	10,500	7.6
June 6,	35.0	--	--	2,110	546	10,200		60	79	20,900	--	--	--	36,700	49.91	3,470	7,510	7,460	75	51,100	7.1
June 7-10,	34.2	--	--	1,100	364	5,640		111	51	11,600	--	--	--	21,900	29.78	2,020	4,240	4,150	74	32,800	7.7
June 11-12, 14-17	14.8	--	--	772	230	3,880		117	38	7,920	--	--	--	14,700	19.99	587	2,770	2,770	75	22,700	7.7
June 13,	15.0	--	--	517	151	2,670		133	32	5,370	--	--	--	9,680	13.14	391	1,910	1,800	75	15,200	7.8
June 18-20,	4.07	--	--	1,110	406	5,600		101	42	11,700	--	--	--	21,500	29.24	236	4,440	4,360	73	32,200	7.6
June 21-23,	3.33	--	--	1,460	43	7,110		94	53	14,700	--	--	--	29,200	39.71	263	5,410	5,330	74	39,900	7.8
June 24,	21.0	--	--	92	29	432		52	12	875	--	.7	--	1,690	2.30	96	350	308	73	3,020	7.3
June 25-26,	292	--	--	744	212	3,770		65	31	7,690	--	--	--	14,100	19.18	11,120	2,730	2,680	75	23,000	7.6
June 27-28,	57.0	--	--	414	131	2,120		72	19	4,330	--	--	--	8,750	11.90	1,350	1,570	1,510	75	13,200	7.8
June 29-30,	77.0	--	--	232	73	1,130		92	26	2,300	--	--	--	4,370	5.94	909	880	804	74	7,380	7.8
July 1,	23.0	--	--	336	110	1,660		76	19	3,400	--	--	--	6,160	8.38	383	1,280	1,250	74	9,970	7.7
July 2-7,	7.33	--	--	382	277	2,690		80	23	5,570	--	--	--	10,100	13.74	200	2,080	2,020	74	16,100	7.6
July 8-11,	3.95	--	--	636	195	3,500		87	26	6,710	--	--	--	12,100	16.46	116	2,390	2,320	75	18,800	7.6
July 12,	73.0	--	--	5,110	1,300	26,200		4	87	33,100	--	--	--	85,900	130.42	18,900	18,100	18,100	76	113,000	8.6
July 13-15,	7.43	--	--	3,530	871	18,800		10	117	37,900	--	--	--	69,800	94.85	1,340	12,800	12,800	78	77,200	8.6
July 16-20,	7.44	--	--	2,060	527	13,100		18	30	30,100	--	--	--	57,300	79.73	2,950	17,600	17,600	78	71,700	8.9
July 21-22,	22.3	--	--	1,950	406	7,470		31	72	15,200	--	--	--	27,600	40.73	2,760	7,000	7,000	78	51,700	8.8
July 23, 27-31,	5.92	--	--	2,400	406	13,600		57	54	15,200	--	--	--	50,300	68.41	1,330	5,310	5,260	75	66,400	8.3
July 24-25,	9.80	--	--	2,400	1,000	13,600		10	54	28,100	--	--	--	50,300	68.41	1,330	10,100	10,100	75	66,400	8.3
Aug. 1, 3-10,	1.04	--	--	1,280	362	6,230		75	52	12,800	--	--	--	22,900	31.14	64	4,630	4,570	75	34,500	7.4
Aug. 2,	2.40	--	--	1,760	739	9,350		58	78	19,600	--	--	--	36,000	48.96	233	7,330	7,380	73	50,800	7.2
Aug. 11, .....	.10	--	--	1,420	551	7,510		85	61	15,600	--	--	--	27,600	37.54	7.5	5,810	5,740	74	40,400	7.4
Weighted average	50.2	--	--	771	224	4,040		101	38	8,210	--	--	--	14,500	19.72	1,970	2,970	2,890	75	19,200	--

ARKANSAS RIVER BASIN--Continued

LITTLE RIVER NEAR SASAKWA, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	60	42	43	41	55	67	62	76	87	90	
2	76	55	42	46	35	50	68	64	75	87	85	
3	73	56	48	47	33	53	69	65	76	90	83	
4	72	61	47	43	34	--	70	68	75	86	90	
5	75	56	44	46	42	58	65	81	76	91	85	
6	74	54	41	44	34	68	63	80	77	91	87	
7	70	55	47	43	43	56	62	80	84	85	85	
8	70	53	44	39	45	49	65	81	85	92	92	
9	60	50	42	40	41	56	60	81	84	92	92	
10	68	54	--	39	42	56	50	80	88	83	89	
11	68	55	39	38	46	52	51	80	86	84	85	
12	72	59	39	39	43	47	65	80	87	86	--	
13	67	63	42	38	45	44	68	78	87	88	--	
14	68	57	39	42	47	46	70	75	84	92	--	
15	67	64	37	38	47	44	66	76	87	92	--	
16	66	55	33	37	48	49	64	74	88	87	--	
17	60	45	38	35	49	54	50	74	86	83	--	
18	61	57	37	33	47	57	50	80	90	85	--	
19	64	44	37	37	46	55	58	83	91	83	--	
20	65	53	43	35	48	53	70	83	92	77	--	
21	67	48	44	35	45	48	66	82	89	88	--	
22	70	54	41	37	52	48	63	83	92	83	--	
23	68	52	42	37	56	50	72	81	88	86	--	
24	63	45	48	39	63	61	69	74	86	88	--	
25	63	49	48	36	58	64	69	68	82	89	--	
26	74	43	49	39	54	67	69	70	87	88	--	
27	66	43	49	40	57	70	70	70	88	93	--	
28	64	43	49	45	56	64	74	78	86	89	--	
29	55	43	46	42	56	63	64	80	87	83	--	
30	60	35	43	--	--	65	66	79	85	86	--	
31	64	--	37	42	--	69	--	77	--	92	--	
Average	68	52	42	40	47	56	64	76	85	87	--	

ARKANSAS RIVER BASIN--Continued
NORTH CANADIAN RIVER NEAR SEILING, OKLA.

LOCATION.--At gaging station at bridge on U. S. Highway 60, 2 miles upstream from Seiling Creek, 2½ miles north of Seiling, Dewey County, 2½ miles downstream from Deep Creek.
DRAINAGE AREA.--12,261 square miles of which 4,847 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: November 1953 to July 1954, February 1951 to August 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
								Total	Non- carbonate				
Oct. 5, 1955	24.8	42	11	36	136	0	44	150	38	54	1.3	449	7.2
Jan. 4, 1956	.93	172	87	154	210	0	145	708	533	28	2.0	1,710	7.6
Jan. 1	1.26	226	151	191	32	0	230	920	42	28	2.2	2,180	7.6
Feb. 1	1.85	126	56	84	84	0	138	550	49	22	1.2	1,460	7.8
Feb. 13	3.66	156	61	95	212	0	91	640	466	24	1.6	1,440	7.9
Feb. 21	9.97	132	55	148	236	0	200	555	362	37	2.7	1,680	8.2
Feb. 23	17.1	92	35	108	234	0	130	375	183	39	2.4	1,140	8.1
Feb. 29	13.0	112	37	118	262	0	154	430	216	37	2.5	1,300	8.2
Mar. 20	2.23	136	58	126	102	0	130	580	496	32	2.3	1,500	7.5
Apr. 25	1.52	168	74	158	112	0	128	725	633	32	2.6	1,810	7.5
May 8	.78	156	71	127	86	0	184	680	610	29	2.1	1,740	7.6
May 28	1,000	70	21	70	246	0	85	260	58	37	1.9	826	7.7
May 29	428	70	23	198	216	0	123	270	93	61	5.2	937	7.8
June 4	52.7	59	20	105	184	0	140	230	79	50	3.0	963	8.1
June 6	95.0	72	20	110	218	0	138	260	82	48	3.0	1,010	8.1
July 9	17.0	74	18	52	268	0	54	280	40	30	1.4	669	8.0
July 24	104	66	18	54	258	0	59	240	28	33	1.5	653	8.0
Aug. 21	.72	46	11	2.7	101	0	10	160	77	4	1.1	318	7.5

ARKANSAS RIVER BASIN--Continued

NORTH CANADIAN RIVER AT CANTON RESERVOIR, near Canton, Okla.

LOCATION.--Below dam on North Canadian River, 2 miles northwest of Canton, Blaine County, and 4½ miles upstream from Minnehaha Creek.

DRAINAGE AREA.--12,483 square miles above dam of which 4,883 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1951 to August 1956.

Water temperatures: October 1951 to September 1954.

EXTREMES, 1951-54.--Dissolved solids: Maximum, 1,150 ppm July 17-19, 1953; minimum, 370 ppm May 25-31, 1954.

Hardness: Maximum, 417 ppm Mar. 1-31, 1953; minimum 205 ppm May 25-31, 1954.

Specific conductance: Maximum daily, 1,790 micromhos July 17, 1953; minimum daily, 395 micromhos May 26, 1954.

Water temperatures: Maximum daily, 85°F July 31, Aug. 5, 7, 9, 1952; minimum daily, freezing point Dec. 20-21, 1951.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of contents for Canton Reservoir near Canton, Okla. given in WSP 1441.

Chemical analyses, in parts per million, December 1955 to August 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
Dec. 9, 1955		62	21	64	218	0	94	242	64	36	1.8	807	7.6
Jan. 6, 1956		61	22	66	220	0	96	242	62	36	1.9	816	7.5
Feb. 14		61	18	65	198	0	86	225	82	38	1.9	721	7.4
Mar. 2		66	20	73	220	0	94	245	64	38	2.0	844	7.4
Apr. 4		67	21	74	226	0	96	255	70	38	2.0	844	7.5
May 4		70	21	72	244	0	101	280	60	37	1.9	875	7.7
May 23	4.95	86	40	95	354	0	128	380	90	35	2.1	949	7.5
June 8		63	23	87	224	0	102	250	66	42	2.4	862	7.8
July 1		64	22	87	228	0	107	250	63	42	2.4	885	7.7
Aug. 3		61	26	81	220	0	112	280	80	39	2.2	1,240	7.6

ARKANSAS RIVER BASIN--Continued

NORTH CANADIAN RIVER NEAR EL RENO, OKLA.

LOCATION.--At gaging station at bridge on U. S. Highway 81, 2 miles north of courthouse in El Reno, Canadian County, and $2\frac{1}{4}$ miles downstream from Target Creek.

DRAINAGE AREA.--13,042 square miles of which 4,899 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1956.

EXTREMES, 1953-56.--Dissolved solids: Maximum, 1,160 ppm May 1-10; minimum, 137 ppm Oct. 3-7.

Hardness: Maximum, 520 ppm May 1-10; minimum, 80 ppm Oct. 3-7.

Water temperatures: Maximum, 94°F June 12, 1956; minimum, 49°F June 12, 1956.

Specific conductance: Maximum, 944 micromhos May 8; minimum, 160 micromhos Oct. 20.

Water quality: Maximum, 94°F June 12, 1956; minimum, 49°F June 12, 1956.

Hardness: Maximum, 520 ppm May 1-10; minimum, 80 ppm Oct. 3-7.

Water temperatures: Maximum, 94°F June 12, 1956; minimum, 49°F June 12, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow May 19-24, June 15-30, July 1-6, Aug. 6-31, and Sept. 1-30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-2, 8, 1955	67.7	--	--	42	18	56	--	138	83	70	--	4.4	--	387	0.50	67	180	67	40	1.8	488	7.3
Oct. 3-7, 1955	2,088	--	--	22	6.1	7.4	--	80	15	9.3	--	3.3	--	137	.19	772	80	14	17	1.4	202	7.4
Oct. 9-10, 1955	126	--	--	58	18	50	--	186	71	64	--	2.8	--	391	.53	133	220	68	33	1.5	687	8.0
Oct. 11-13, 1955	83	--	--	93	21	86	--	252	127	105	--	1.3	--	593	.81	133	300	94	38	2.2	942	7.7
Oct. 14-20, 1955	54	--	--	93	38	115	--	316	173	142	--	.6	--	777	1.06	113	390	131	39	2.5	1,240	7.5
Oct. 21-31, 1955	32.7	28	0.02	82	43	129	5.4	276	198	170	0.1	.6	0.30	830	1.13	73	380	154	42	2.9	1,330	8.0
Nov. 1-10, 1955	22.3	--	--	102	45	134	--	336	214	175	--	2.6	--	894	1.22	54	440	164	40	2.8	1,440	7.7
Nov. 11-20, 1955	20.3	--	--	107	49	158	--	368	233	190	--	1.7	--	957	1.30	52	470	168	42	3.2	1,480	7.6
Nov. 21-30, 1955	15.9	--	--	106	50	159	--	358	240	192	--	1.7	--	956	1.30	51	470	176	42	3.2	1,460	8.0
Dec. 1-10, 1955	16.0	--	--	94	49	144	--	292	234	190	--	.0	--	910	1.24	39	435	196	42	3.0	1,470	7.2
Dec. 11-20, 1955	11.2	--	--	104	55	151	--	356	233	192	--	.0	--	966	1.31	29	485	194	40	3.0	1,550	7.3
Dec. 21-31, 1955	10.3	--	--	96	54	150	--	320	238	185	--	.1	--	926	1.26	26	460	198	41	3.0	1,500	7.4
Jan. 1-10, 1956	9.68	--	--	106	50	152	--	340	242	192	--	.8	--	957	1.30	25	470	192	41	3.1	1,520	8.0
Jan. 11-20, 1956	10.9	--	--	108	49	169	--	362	251	198	--	.6	--	988	1.34	29	470	174	44	3.4	1,570	8.0
Jan. 21-31, 1956	9.01	--	--	102	54	140	--	338	238	180	--	.7	--	918	1.25	22	475	198	39	2.8	1,530	7.8
Feb. 1-8, 1956	16.8	--	--	107	51	85	--	346	233	95	--	.6	--	897	1.22	41	475	192	28	2.7	1,480	8.0
Feb. 9-10, 1956	32.0	--	--	61	26	80	--	196	128	98	--	1.6	--	641	.67	42	260	100	40	2.1	898	7.8
Feb. 11-12, 1956	23.0	--	--	74	28	80	--	216	154	98	--	1.8	--	694	.86	40	300	123	37	2.0	920	8.2
Feb. 13-20, 1956	17.2	--	--	94	50	128	--	316	225	160	--	.5	--	839	1.14	39	440	181	39	2.7	1,370	8.2
Feb. 21-29, 1956	17.1	14	.01	94	45	147	4.4	310	220	176	.6	1.0	.23	880	1.20	41	420	166	43	3.1	1,380	8.2

Mar. 1-10, 1956	8.98	--	--	116	61	145	356	270	200	--	0.0	--	985	1.34	24	540	248	37	2.7	1,600	8.2
Mar. 11-20	8.22	--	--	109	60	173	366	288	210	--	1.0	--	1,030	1.40	23	520	220	42	3.3	1,710	7.8
Mar. 21-31	9.51	--	--	104	61	173	354	288	210	--	.5	--	1,040	1.41	27	510	220	42	3.3	1,640	7.9
Apr. 1-10	6.26	--	--	101	63	164	350	288	210	--	1.4	--	1,040	1.41	18	510	240	41	3.2	1,670	7.7
Apr. 11-20	5.07	--	--	104	63	175	332	302	222	--	.8	--	1,080	1.47	15	520	248	42	3.3	1,740	7.7
Apr. 21-30	3.66	3.0	3.0	120	58	159 | 5.9	316	321	235	.8	.8	.17	1,120	1.52	11	540	281	39	3.0	1,780	7.6
May 1-10	2.91	--	--	110	60	190	284	336	248	--	1.9	--	1,160	1.58	9.1	520	288	44	3.6	1,840	8.2
May 11-18	1.49	--	--	100	58	205	292	353	232	--	1.3	--	1,140	1.55	4.6	480	250	48	4.0	1,780	8.1
May 19-26	2.90	--	--	80	54	179	129	337	212	--	2.3	--	1,040	1.41	8.1	420	262	48	3.8	1,040	8.2
May 27-28	97.0	--	--	32	6.8	21 |	102	40	19	--	2.6	--	189	.26	49	108	24	30	.9	291	7.6
May 29-31	18.3	--	--	48	19	69	156	109	76 ^a	--	2.0	--	413	.56	20	200	72	43	2.1	711	8.1
June 1-2, 4, 8-10	6.63	--	--	76	37	131	268	197	142	--	.7	--	737	1.00	13	340	130	46	3.1	1,210	8.0
June 3	24.0	--	--	78	52	177	a260	268	215	--	.8	--	947	1.29	61	410	197	48	3.8	1,530	8.4
June 5-7	7.40	--	--	64	32	109	b258	153	111	--	.6	--	597	.81	11.9	290	78	45	2.8	994	8.3
June 11-14	1.02	--	--	80	41	147	276	235	155	--	.7	--	817	1.11	2.3	370	144	46	3.3	1,310	8.1
July 7-10	748	--	--	61	29	92	230	115	113	--	1.8	--	542	.74	1,090	270	82	42	2.4	922	8.2
July 11-20	716	--	--	65	30	80	228	107	114	--	1.4	--	523	.71	1,010	285	98	38	2.1	523	8.0
July 21-31	24.2	12	12	60	31	102 | 8.7	228	131	130	.8	1.3	.18	596	.81	39	275	88	43	2.6	1,000	7.8
Aug. 1-5	1.60	--	--	72	32	114	216	172	142	--	1.9	--	644	.88	2.8	310	133	44	2.8	1,070	8.1
Weighted average	66.0	--	--	50	22	57	176	84	76	--	--	--	406	0.55	74.5	216	72	36	1.7	671	--

a Includes 4 parts per million of carbonate (CO₃).b Includes 2 parts per million of carbonate (CO₃).

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

NORTH CANADIAN RIVER NEAR EL RENO, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	52	32	39	36	59	67	64	--	--	78	
2	71	50	38	42	--	61	73	65	--	--	77	
3	67	43	--	46	--	53	55	62	--	--	79	
4	67	44	--	46	--	50	68	67	--	--	74	
5	70	50	40	47	--	65	67	74	--	--	--	
6	71	50	--	45	36	--	64	80	--	--	--	
7	65	44	35	32	36	49	56	82	73	--	--	
8	64	41	32	32	34	52	56	82	79	82	--	
9	63	39	37	39	39	56	48	83	77	79	--	
10	61	43	35	40	44	52	51	77	82	78	--	
11	65	47	34	39	40	42	64	74	91	75	--	
12	67	51	38	38	39	44	69	84	94	--	--	
13	58	53	41	40	54	41	59	77	89	80	--	
14	59	47	40	38	50	48	70	68	82	83	--	
15	59	54	37	35	43	41	60	63	91	80	--	
16	61	38	36	--	48	53	64	79	--	78	--	
17	55	32	--	32	41	53	59	86	--	81	--	
18	54	40	32	32	36	53	65	83	--	76	--	
19	57	44	35	35	39	56	66	--	--	78	--	
20	58	45	35	36	51	50	--	--	--	79	--	
21	--	47	39	32	52	41	65	--	--	80	--	
22	62	53	42	32	48	49	69	--	--	81	--	
23	62	45	47	32	64	62	69	--	--	76	--	
24	50	42	50	36	63	57	51	--	--	79	--	
25	50	40	45	37	48	57	77	--	--	78	--	
26	53	42	42	39	46	71	78	74	--	79	--	
27	54	40	46	49	54	70	78	64	--	78	--	
28	60	32	53	49	54	65	74	89	--	85	--	
29	52	32	40	39	56	63	65	87	--	75	--	
30	49	32	38	39	--	69	57	78	--	79	--	
31	--	--	37	37	--	62	--	75	--	79	--	
Average	60	44	39	38	46	55	64	--	--	--	--	

ARKANSAS RIVER BASIN--Continued
NORTH CANADIAN RIVER NEAR WETUMKA, OKLA.

LOCATION.--At gaging station at bridge on U. S. Highway 75, 2.3 miles upstream from Wewoka Creek, and 2 1/2 miles northeast of Wetumka, Hughes County.
DRAINAGE AREA.--14,290 square miles, of which 4,899 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.

EXTREMES.--Temperatures: October 1953 to September 1956.
Maximum: 95.56°;--Dissolved solids: Maximum, 13,500 ppm Jan. 27-28; minimum, 498 ppm Oct. 8-10.

Hardness: Maximum, 3,080 ppm Jan. 27-28; minimum, 165 ppm Oct. 7.
Specific conductance: Maximum daily, 21,500 microhmhos Jan. 27; minimum daily, 786 microhmhos Oct. 9.

Water temperatures: Maximum daily, 71.5°; minimum, freezing point on several days during winter months.
EXTREMES 1953-56.--Dissolved solids: Maximum, 23,800 ppm Feb. 8, 1953; minimum, 381 ppm May 2, 1954.

Hardness: Maximum, 4,640 ppm Dec. 31, 1954; minimum, 425 ppm May 2, 1954.
Specific conductance: Maximum daily, 37,100 microhmhos Dec. 31, 1954; minimum daily, 621 microhmhos May 2, 1954.

Water temperatures: Maximum 92°; minimum, freezing point on many days during winter months.
REMARKS.--Records of specific conductance of daily samples taken in district office at Okfuskee City, Okla. Records of discharge for water year October

1955 to September 1956 given in WSP 1441. No flow Aug. 25-31, Sept. 1-30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (microhmhos at 25° C)	pH
														Parts per million	Tons per acre-foot	Calcium, mg./l.	Non-carbonate, mg./l.			
Oct. 1-5, 1955	768	--	--	188	39	791	98	40	1,560	--	--	--	--	2,960	4.03	630	550	73	5,120	7.7
Oct. 6	4,580	--	--	72	18	255	138	18	478	--	--	4.8	--	1,940	1.41	12,860	255	142	88	8.9
Oct. 7	3,670	--	--	50	9.7	130	116	16	235	--	--	6.6	--	567	.77	5,620	165	70	63	4.4
Oct. 8-10	3,620	--	--	52	9.8	108	136	25	188	--	--	3.2	--	498	.68	4,870	170	58	58	3.6
Oct. 11-12	1,255	--	--	63	14	148	136	37	272	--	--	3.8	--	671	.91	2,270	215	104	60	4.4
Oct. 13-14	743	--	--	92	24	281	148	44	545	--	--	4.8	--	1,180	1.90	3,370	208	85	6.7	2,080
Oct. 15-16	512	--	--	148	39	490	172	51	990	--	--	7.5	--	2,010	2.73	2,780	530	389	67	9.3
Oct. 17-18	374	--	--	192	42	712	198	59	1,400	--	--	--	--	2,730	3.71	2,760	850	488	70	12
Oct. 19-20	284	--	--	232	61	822	220	65	1,680	--	--	--	--	3,310	4.50	2,540	850	68	12	5,810
Oct. 21	246	--	--	236	68	1,010	234	62	2,000	--	--	--	--	3,490	4.75	2,320	678	72	15	5,600
Oct. 22-25	207	--	--	276	90	1,230	134	69	2,520	--	--	--	--	4,640	6.31	2,590	1,060	950	72	7,930
Oct. 26-31	162	--	--	308	105	1,490	64	74	3,050	--	--	--	--	5,390	7.31	2,310	1,150	73	10,900	7.5
Nov. 1-10	133	16	0.05	497	111	1,710	27	82	3,540	0.4	--	--	0.68	7,460	8.91	2,330	1,420	72	20	10,900
Nov. 11-20	112	--	--	497	106	1,840	267	79	3,780	--	--	--	--	7,360	10.31	2,320	1,460	71	20	11,700
Nov. 21-30	94	--	--	526	146	2,050	265	94	4,180	--	--	--	--	8,210	12.31	2,320	1,890	71	23	13,600
Dec. 1-10	98	--	--	550	136	2,300	285	94	4,690	--	--	--	--	9,140	11.85	2,310	1,700	72	23	14,500
Dec. 11-20	85.2	--	--	590	141	2,440	279	90	4,990	--	--	--	--	9,240	12.76	2,150	2,050	72	23	15,200
Dec. 21-31	81.1	--	--	566	145	2,450	b779	89	4,980	--	--	--	--	9,350	12.58	2,030	2,010	73	24	14,900

a Includes 4 parts per million of carbonate (CO₃).
b Includes 12 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN--Continued
NORTH CANADIAN RIVER NEAR WETUMKA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Jan. 1-10, 1956..	70.6	18	0.05	598	158	2,460	38	275	86	5,180	0.4	--	0.25	9,600	13.06	1,830	2,140	1,910	71	23	15,500	8.2
Jan. 11-20,	68.1	--	--	618	145	2,580	263	90	5,280	5,280	--	--	--	9,040	12.29	1,660	2,140	1,920	72	24	15,100	8.1
Jan. 21-26,	99.3	--	--	550	145	2,320	243	79	4,780	4,780	--	--	--	8,510	11.57	2,280	1,970	1,770	72	24	14,200	8.2
Jan. 27-28,	93.0	--	--	814	255	3,870	246	89	7,940	7,940	--	--	--	13,500	18.36	3,390	3,080	2,880	73	30	21,100	8.2
Jan. 29-31,	76.7	--	--	622	175	2,800	247	79	5,750	5,750	--	--	--	9,800	13.33	2,030	2,270	2,070	73	26	16,000	8.2
Feb. 1-10,	89.2	--	--	590	145	2,600	245	73	73	5,280	--	--	--	9,110	12.39	2,190	2,070	1,870	73	25	15,400	7.8
Feb. 11-16, 18....	106	--	--	516	166	2,350	159	89	4,870	4,870	--	--	--	8,860	12.05	2,540	1,970	1,840	72	23	14,600	7.9
Feb. 17-19-20....	94.0	--	--	408	139	2,000	127	85	4,080	4,080	--	--	--	7,400	10.06	1,880	1,580	1,480	73	22	12,300	7.2
Feb. 21-25,	79.8	--	--	394	143	1,910	118	86	3,930	3,930	--	--	--	7,230	9.83	1,560	1,570	1,470	73	23	12,000	7.3
Feb. 26-29,	68.5	--	--	513	161	2,360	137	79	4,870	4,870	--	--	--	8,830	12.01	1,630	1,940	1,830	73	23	13,800	7.9
Mar. 1-10,	57.1	--	--	533	156	2,410	195	105	105	4,920	--	--	--	9,000	12.24	1,390	1,870	1,810	73	24	14,500	7.9
Mar. 11-20,	56.2	--	--	513	143	2,200	279	98	4,480	4,480	--	--	--	9,080	12.35	1,380	1,880	1,640	72	22	14,100	8.0
Mar. 21, 26-31....	70.7	--	--	581	180	2,810	183	79	5,720	5,720	--	--	--	11,000	14.96	2,100	2,190	2,040	74	26	17,300	7.7
Mar. 22-25,	75.2	--	--	406	131	1,920	197	98	3,880	3,880	--	--	--	7,600	10.34	1,540	1,550	1,390	73	21	12,000	7.7
Apr. 1-10,	72.2	10	0.01	557	146	2,340	--	258	79	4,820	.4	--	.36	9,240	12.57	1,800	1,990	1,780	72	23	14,300	7.9
Apr. 11-13,	66.0	--	--	647	164	2,730	243	90	5,620	5,620	--	--	--	11,600	15.78	2,410	2,290	2,090	72	25	16,500	7.9
Apr. 12-13,	58.1	--	--	518	133	2,190	183	57	4,530	4,530	--	--	--	8,910	12.12	1,590	1,840	1,690	72	22	13,700	8.0
Apr. 14-20,	58.1	--	--	359	106	1,670	218	69	3,340	3,340	--	--	--	6,970	9.48	1,080	1,330	1,150	73	20	10,400	7.7
Apr. 21-29,	73.6	--	--	406	121	1,840	201	90	3,730	3,730	--	--	--	7,720	10.50	1,530	1,510	1,350	73	21	11,400	7.9
Apr. 30,	190	--	--	228	29	1,190	148	44	2,400	2,400	--	--	--	4,550	6.19	2,330	690	568	79	20	7,100	7.7
May 1, 3, 6-10....	94.3	--	--	264	68	1,180	132	21	2,400	2,400	--	--	--	4,720	6.42	1,200	940	832	73	17	7,740	7.8
May 2,	172	--	--	339	110	1,770	146	41	3,340	3,340	--	--	--	6,980	9.10	2,110	1,300	1,180	75	21	10,700	7.9
May 4,	104	--	--	172	12	546	144	24	1,060	1,060	--	--	--	2,190	2.98	615	480	362	71	11	3,600	8.0
May 5,	82.0	--	--	208	73	864	146	39	2,400	2,400	--	--	--	3,540	4.81	784	820	700	70	13	5,780	8.0
May 11-14, 17-20..	62.2	--	--	328	93	1,600	112	69	3,200	3,200	--	--	--	6,240	8.49	1,050	1,200	1,110	74	20	9,970	7.6
May 15-16,	57.0	--	--	256	78	1,260	118	69	2,500	2,500	--	--	--	4,910	6.68	756	960	864	74	18	7,940	7.9
May 21,	72.0	--	--	256	76	1,320	140	41	2,600	2,600	--	--	--	5,030	6.84	978	950	836	75	19	7,910	8.1
May 22-24, 30....	92.2	--	--	335	115	1,730	150	103	3,440	3,440	--	--	--	6,330	9.28	1,700	1,310	1,190	74	21	10,800	7.7
May 25, 27-29, 31	231	--	--	204	51	908	126	50	1,800	1,800	--	--	--	3,670	4.99	2,290	720	616	73	15	5,860	7.7
May 26,	102	--	--	104	34	438	92	30	3,800	3,800	--	6.2	--	1,670	2.27	460	400	324	70	9.5	2,880	7.9
June 1, 4,	824	--	--	60	13	197	122	17	365	365	--	1.0	--	832	1.12	1,830	205	105	68	6.0	1,410	8.0
June 2, 7-8,	329	--	--	212	56	897	128	64	1,800	1,800	--	--	--	3,800	5.17	3,380	760	655	72	14	5,870	7.9

June 3, 5, 9, 1956	294	--	--	92	16	338	110	33	640	--	2.2	--	1,270	1.73	1,010	295	205	71	8.5	2,240	7.9
June 6, 10	186	--	--	140	35	549	132	56	1,080	--	--	--	2,150	2.82	964	495	367	71	11	3,750	8.0
June 11	128	--	--	132	34	547	140	49	1,060	--	--	--	2,120	2.88	110	470	386	72	11	3,320	7.1
June 12	128	--	--	133	103	1,347	140	49	1,060	--	--	--	2,120	2.88	110	470	386	72	11	3,320	7.1
June 13-17	175	--	--	172	103	1,347	140	49	1,060	--	--	--	2,120	2.88	110	470	386	72	11	3,320	7.1
June 18-20	44.3	--	--	212	61	1,060	80	77	2,080	--	--	--	4,100	5.58	945	630	571	75	16	6,580	7.7
June 21-23	42.3	--	--	248	78	1,180	140	79	2,350	--	--	--	4,560	6.20	521	940	826	73	17	7,630	7.9
June 24-25	108	--	--	63	18	257	66	20	1,450	--	1.1	--	1,070	1.46	312	230	176	71	7.4	1,840	7.8
June 26	102	--	--	150	50	732	96	46	1,450	--	--	--	2,760	3.78	766	580	502	73	13	4,730	7.9
June 27	102	--	--	214	70	1,100	126	69	2,150	--	--	--	4,940	5.49	1,110	820	716	74	17	6,820	8.1
June 28	148	--	--	335	101	1,670	92	32	3,390	--	--	--	6,890	8.69	2,550	1,250	1,170	74	21	10,100	8.0
June 29	150	--	--	98	29	1,479	72	19	3,940	--	1.7	--	1,910	2.60	774	365	306	74	11	3,110	7.8
June 30	100	--	--	182	55	922	114	51	1,800	--	--	--	3,320	4.79	950	680	586	75	15	5,810	8.2
July 1	97.0	--	--	256	64	1,290	96	95	2,500	--	--	--	4,680	6.36	1,230	900	822	76	19	7,920	7.9
July 2	97.0	--	--	331	101	1,820	56	86	3,590	--	--	--	6,610	8.99	1,730	1,240	1,190	76	22	11,000	7.5
July 3	74.0	--	--	188	46	949	64	59	1,850	--	--	--	3,410	4.64	681	660	608	76	16	5,910	7.4
July 4-7	51.2	--	--	154	28	689	106	47	1,320	--	--	--	2,490	3.39	344	500	413	75	13	4,370	7.6
July 8	33.0	--	--	204	54	1,928	130	99	1,800	--	--	--	3,410	4.64	304	730	624	73	15	5,800	7.9
July 9-10	30.0	--	--	236	61	1,100	112	103	2,150	--	--	--	4,060	5.52	329	840	748	74	16	6,970	7.8
July 11-12	66.0	--	--	264	78	1,410	100	79	2,750	--	--	--	5,070	6.90	903	980	898	76	20	8,510	7.6
July 13-20	38.6	--	--	188	50	1,030	84	52	1,980	--	--	--	3,650	4.96	380	875	606	77	17	6,280	6.9
July 21	51.0	--	--	196	44	1,020	62	51	1,980	--	--	--	3,680	5.00	507	870	619	77	17	6,310	7.4
July 22	48.0	--	--	94	24	461	92	18	880	--	--	--	1,670	2.27	216	335	260	75	11	2,920	7.6
July 23, 26-31	38.4	--	--	160	39	854	78	66	1,620	--	--	--	3,030	4.12	314	560	496	77	16	5,290	7.2
July 24-25	53.5	--	--	240	73	1,270	88	55	2,500	--	--	--	4,650	6.32	672	900	828	75	18	7,790	7.6
Aug. 1	21.0	--	--	160	37	740	64	73	1,440	--	--	--	2,770	3.77	157	550	498	75	14	4,720	7.6
Aug. 2-6	16.6	--	--	200	63	1,020	54	167	1,950	--	--	--	3,770	5.13	169	760	716	74	16	6,230	7.2
Aug. 7-10	82.2	--	--	264	83	1,300	70	97	2,600	--	--	--	4,950	6.73	1,100	1,000	942	74	18	8,110	6.9
Aug. 11-20	12.7	12	--	296	107	1,500	25	96	3,100	.4	--	--	5,800	7.89	199	1,180	1,100	73	19	9,370	7.8
Aug. 21-24	1.50	--	--	304	100	1,500	78	58	3,050	--	--	--	5,780	7.86	23	1,170	1,110	74	19	9,390	7.5
Weighted average	156	--	--	226	59	943	154	49	1,900	--	--	--	3,640	4.95	1,533	806	680	72	14	5,980	--

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

NORTH CANADIAN RIVER NEAR WETUMKA, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	58	36	42	37	52	64	60	67	83	82	
2	74	53	42	43	32	48	66	61	68	77	81	
3	69	46	52	43	32	51	59	65	70	88	80	
4	70	46	54	40	33	52	60	62	66	83	82	
5	71	46	40	43	33	60	58	72	74	82	83	
6	72	51	38	42	35	62	61	74	74	80	83	
7	65	39	40	32	38	46	50	73	76	88	82	
8	65	41	39	36	46	44	53	75	84	82	80	
9	62	46	32	34	42	48	54	77	76	83	84	
10	62	42	36	34	36	55	45	71	80	78	79	
11	67	50	36	32	42	44	46	76	79	75	82	
12	69	58	34	32	42	39	47	76	76	78	76	
13	60	62	36	32	39	41	60	77	78	80	77	
14	68	50	40	34	40	40	64	61	79	82	80	
15	56	55	32	37	42	42	60	61	77	82	79	
16	59	42	32	32	42	41	50	65	78	77	78	
17	66	40	34	32	46	47	52	70	80	78	77	
18	53	44	36	32	39	46	50	71	82	76	78	
19	65	44	32	32	44	47	55	75	78	75	74	
20	59	46	36	32	40	46	56	75	85	76	68	
21	60	49	41	33	42	50	60	76	80	78	64	
22	61	--	41	35	43	47	62	72	82	85	65	
23	63	--	42	37	54	49	50	73	79	77	67	
24	54	46	49	37	53	56	47	70	82	80	68	
25	54	45	--	38	51	62	61	65	77	81	--	
26	55	45	44	39	50	61	61	67	82	81	--	
27	58	46	46	40	47	63	67	73	83	82	--	
28	55	34	47	52	45	55	71	74	78	82	--	
29	54	32	45	47	46	54	58	77	77	78	--	
30	50	32	35	32	--	55	54	78	78	82	--	
31	--	--	32	34	--	60	--	72	--	80	--	
Average	62	46	39	37	43	50	57	71	78	80	--	

ARKANSAS RIVER BASIN--Continued

DEEP FORK NEAR BEGGS, OKLA.

LOCATION.--At gaging station at highway bridge, 3 miles upstream from Adams Creek, 4 miles south of Beggs, Okmulgee County, and 8 miles downstream from Flat Rock (Checkerboard) Creek.

DRAINAGE AREA.--2,018 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1956.

Water temperatures: Maximum, 96.0 ppm Feb. 17-18; minimum, 146 ppm Oct. 7-10.

Hardness: Maximum, 960 ppm Feb. 17-18; minimum, 62 ppm Oct. 3-6.

Specific conductance: Maximum daily, 6,210 microhms Feb. 17; minimum daily, 240 microhms Oct. 10.

Water temperatures: Maximum, 97°F July 28, Aug. 6, 16, 18; minimum, freezing point Feb. 4.

EXTREMES, 1951-56.--Dissolved Solids: Maximum, 5,340 ppm Mar. 26, 1954, Jan. 11-17, 1955; minimum, 87 ppm Sept. 27, 1955.

Hardness: Maximum, 1,310 ppm July 21, 1955; minimum, 16 ppm Sept. 27, 1955.

Specific conductance: Maximum daily, 10,500 microhms Jan. 12, 1955; minimum daily, 166 microhms May 23, 1955.

Specific temperatures: Maximum, 97°F July 28, Aug. 6, 16, 18, 1956; minimum, freezing point on many days during winter months.

REMARKS.--Records specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow Aug. 29 to Sept. 30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent adsorption ratio	Specific conductance (microhms at 25°C)	pH		
														Parts per million	Tons per acre-foot	Tons per foot	Calcium, mg./l.	Non-carbonate					
Oct. 1-2, 1955	505	--	--	26	13	72		98	42	106	--	2.0	--	309	0.42	421	118	38	57	2.9	573	7.4	
Oct. 3-6	1,182	--	--	14	6.6	49		42	16	82	--	1.9	--	208	28	664	62	28	63	2.7	380	6.8	
Oct. 7-10	1,680	--	--	16	7.8	24		72	16	34	--	1.2	--	146	20	662	72	13	42	1.2	260	6.8	
Oct. 11-16	971	--	--	23	10	27		102	19	36	--	1.4	--	178	24	487	96	12	38	1.2	326	7.3	
Oct. 17-20	194	--	--	27	17	29		132	21	48	--	1.4	--	221	30	116	136	28	31	1.1	399	7.5	
Oct. 21-28	103	--	--	47	11	30		146	27	57	--	2.0	--	258	35	72	164	44	29	1.0	478	7.4	
Oct. 28-31	55.7	--	--	42	16	46		170	31	69	--	1.7	--	304	41	46	172	32	37	1.5	555	7.5	
Nov. 1-10	25.6	17	0.06	44	20	56	5.0	216	36	92	0.5	2	0.15	377	51	26	196	19	38	1.7	691	7.7	
Nov. 11-20	18.8	--	--	53	27	80	--	260	45	130	--	1.6	--	488	68	25	256	43	40	2.2	856	7.7	
Nov. 21-30	17.2	--	--	61	34	117	--	296	59	170	--	1.7	--	604	82	23	290	48	47	3.0	1,080	8.1	
Dec. 1-10	12.0	--	--	66	39	126	--	324	71	210	--	0	--	706	96	23	325	60	46	3.0	1,270	8.0	
Dec. 11-20	15.5	--	--	71	40	130	--	352	2.7	220	--	0	--	637	87	27	340	52	45	3.1	1,330	7.1	
Dec. 21-31	16.7	12	.04	69	43	151	7.3	368	88	215	.5	1.7	.70	769	105	35	348	46	48	3.5	1,350	8.0	
Jan. 1-10, 1956	18.2	--	--	70	43	152	--	362	86	205	--	7.6	--	790	107	39	350	54	49	3.5	1,380	8.0	
Jan. 11-20	16.6	--	--	45	41	145	--	282	90	185	--	6.6	--	741	101	33	280	49	53	3.7	1,280	7.7	
Jan. 21-31	21.2	--	--	37	41	154	--	248	86	210	--	7.1	--	681	93	39	260	57	56	4.1	1,250	7.5	
Feb. 1-10	26.3	--	--	44	36	153	--	258	83	205	--	6.4	--	671	91	48	260	48	56	4.1	1,270	7.4	
Feb. 11	33.0	--	--	59	45	145	--	320	73	205	--	17	--	1,470	2.00	135	64	330	68	49	3.4	1,290	8.4
Feb. 12-16	34.0	--	--	130	51	337	--	320	77	630	--	16	--	1,470	2.00	135	510	248	59	6.5	2,660	7.9	
Feb. 17-18	49.5	--	--	284	73	892	--	234	54	1,880	--	--	--	3,680	5.00	492	960	768	67	13	6,210	7.9	

a. Includes 8 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN--Continued
DEEP FORK NEAR BEGGS, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per- cent soli- dion- adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./l. nesium	Non-carbonate				
Feb. 19, 1956.....	36.0	--	--	152	56	423		306	30	875	--	16	--	1,900	2.58	185	610	359	60	7.4	3,370	8.2
Feb. 20.....	33.0	--	--	86	43	206		336	67	940	--	16	--	952	1.29	85	390	114	53	4.5	1,720	8.2
Feb. 21-29.....	24.6	--	--	77	36	163		328	75	240	--	12	--	778	1.06	52	340	71	51	3.9	1,400	8.2
Mar. 1-10.....	18.8	6.5	0.00	62	38	146	6.9	326	77	198	0.6	9.0	0.31	714	.97	36	310	43	50	3.6	1,270	7.6
Mar. 11-20.....	13.8	--	--	66	39			344	74	222	--	2.6	--	729	.99	27	325	52	52	3.9	1,350	7.9
Mar. 21-26.....	19.3	--	--	76	41	178		368	75	266	--	2.2	--	818	1.11	43	360	58	52	4.1	1,500	7.9
Mar. 27.....	22.0	--	--	90	41	254		360	62	415	--	3.5	--	1,080	1.47	64	395	100	58	5.6	1,930	8.0
Mar. 28-31.....	21.5	--	--	80	39	216		384	75	310	--	1.2	--	903	1.24	53	360	46	57	5.0	1,670	7.8
Apr. 1-10.....	26.3	--	--	78	43	192		368	71	290	--	2.4	--	892	1.21	63	370	68	53	4.3	1,600	7.8
Apr. 11-20.....	39.1	--	--	72	44	183		380	62	270	--	2.4	--	848	1.15	90	360	48	53	4.2	1,530	7.6
Apr. 21-28.....	26.5	--	--	61	36	177		312	45	270	--	2.6	--	745	1.01	53	300	44	56	4.4	1,290	7.9
Apr. 29.....	334	--	--	33	21	83		174	33	128	--	3.6	--	469	.64	423	180	38	50	2.7	844	7.6
Apr. 30.....	397	--	--	58	23	212		88	25	425	--	5.2	--	968	1.32	1,040	240	168	66	6.0	1,630	7.3
May 1-6.....	79.3	--	--	61	29	168		208	38	300	--	3.1	--	833	1.13	178	270	100	58	4.4	1,420	7.8
May 7.....	77.0	--	--	49	25	110		228	34	170	--	3.8	--	579	.79	120	225	38	52	3.2	962	8.0
May 8-15.....	52.6	--	--	50	29	117		260	43	170	--	3.1	--	580	.79	82	245	32	51	3.3	1,070	7.8
May 16.....	505	--	--	90	23	350		92	14	700	--	4.5	--	1,460	1.99	1,990	320	244	70	8.5	2,410	7.0
May 17-20.....	153	--	--	34	12	89		118	19	150	--	2.8	--	426	.58	176	136	40	59	3.3	749	7.4
May 21-22, 27-28, 30.....	211	--	--	46	23	109		182	27	190	--	2.9	--	512	.70	292	210	61	53	3.3	982	7.8
May 23.....	135	--	--	172	34	598		64	13	1,280	--	--	--	2,340	3.18	853	570	518	70	11.7	4,950	7.7
May 24-26, 29.....	382	--	--	--	20	6.3		60	9.9	93	--	3.3	--	238	.32	245	76	27	61	2.8	447	6.8
May 31.....	698	--	--	35	16	63		158	24	95	--	5.5	--	333	.45	628	155	26	47	2.2	621	8.0
June 1-10.....	860	5.5	0.07	21	8.6	24	4.5	90	12	54	0.3	3.3	.08	198	.27	480	88	14	36	1.1	347	7.6
June 11-20.....	43.3	--	--	28	12	53		148	17	78	--	3.5	--	290	.39	73	136	14	46	2.0	517	7.7
June 21-29.....	38	--	--	28	12	71		180	23	110	--	2.4	--	379	.52	43	174	26	47	2.3	686	8.0
June 30.....	87.0	--	--	112	32	406		88	19	850	--	1.6	--	1,690	2.30	397	410	338	68	8.7	2,890	7.8
July 1.....	55.0	--	--	65	19	220		114	28	420	--	4.5	--	812	1.10	121	240	148	67	6.2	1,520	7.9
July 2.....	42.0	--	--	128	38	446		118	18	940	--	4.2	--	1,880	2.56	213	475	378	67	8.9	3,140	8.0

July 3-4, 1956.....	28.5	--	--	56	20	155	152	20	290	--	2.5	--	705	.96	54	220	96	60	4.5	1,210	8.0
July 5-10.....	36.7	--	--	45	19	98	186	22	162	--	2.2	--	452	.61	45	192	40	53	3.1	832	7.9
July 11-20.....	44.9	--	--	48	23	108	240	40	150	--	2.3	--	490	.67	59	216	20	52	3.2	906	8.1
July 21-31.....	38.6	--	--	45	22	100	228	31	142	--	2.0	--	456	.62	48	204	17	52	3.0	844	8.1
Aug. 1-10.....	20.3	--	--	42	19	78	208	31	105	--	1.7	--	390	.53	21	182	12	49	2.5	726	7.8
Aug. 11-20.....	3.04	--	--	48	20	80	226	31	112	--	1.1	--	408	.55	3	202	17	46	2.5	765	7.2
Aug. 21-26.....	.43	--	--	46	24	84	236	28	120	--	1.2	--	428	.58	3	212	17	46	2.5	801	7.7
Weighted average.	114	--	--	30	14	67	120	23	109	--	2.6	--	330	0.45	102	132	34	52	2.5	951	--

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

DEEP FORK NEAR BEGGS, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	67	39	51	39	67	73	63	73	87	90	
2	71	56	42	53	34	66	71	65	71	89	87	
3	76	58	50	51	35	67	66	73	72	92	93	
4	78	61	49	57	32	69	67	75	75	84	93	
5	77	60	43	52	39	70	69	81	74	87	93	
6	70	56	47	51	42	76	65	79	75	86	97	
7	74	51	47	43	44	45	68	72	82	88	92	
8	74	49	45	43	44	56	68	74	79	89	93	
9	73	54	39	43	46	64	--	81	82	87	94	
10	69	59	39	41	48	68	53	83	85	83	90	
11	76	61	40	45	49	51	62	80	82	86	95	
12	69	63	40	42	50	49	69	84	83	90	95	
13	67	60	39	44	51	45	73	81	81	87	94	
14	72	60	38	47	54	48	71	62	79	92	93	
15	68	69	37	44	51	48	67	72	81	90	96	
16	65	48	41	33	54	54	68	73	82	89	97	
17	62	49	40	--	51	64	70	76	84	93	94	
18	65	46	40	34	45	61	64	80	84	87	97	
19	64	48	39	33	52	54	65	77	86	88	72	
20	67	62	40	--	51	55	68	78	86	84	--	
21	65	60	44	34	54	55	69	79	89	87	79	
22	65	71	47	36	52	57	61	83	87	79	84	
23	63	59	51	39	61	61	64	80	91	84	89	
24	64	51	57	39	67	66	64	75	82	86	87	
25	63	51	54	41	64	69	--	77	84	90	87	
26	65	52	57	43	57	71	74	81	87	93	84	
27	69	47	57	44	55	75	76	76	93	93	90	
28	63	40	55	46	57	66	71	72	84	97	92	
29	58	40	43	41	64	70	61	82	89	91	--	
30	67	39	41	41	--	69	65	85	92	89	--	
31	62	--	51	40	--	72	--	76	--	89	--	
Average	68	55	45	43	50	62	67	77	82	88	90	

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR WHITEFIELD, OKLA.

LOCATION.--At gaging station at bridge on State Highway 2, three-quarters of a mile north of Whitefield, Haskell County, and 5½ miles upstream from Snake Creek.

DRAINAGE AREA.--47,576 square miles, of which 9,700 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: September 1944 to February 1945, September 1946 to September 1956.

Water temperatures: September 1944 to February 1945, September 1946 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 11,500 ppm Feb. 1; minimum, 459 ppm Oct. 3, 6.

Hardness: Maximum, 2,540 ppm Feb. 1; minimum, 459 ppm Oct. 3, 6.

Specific conductance: Maximum daily, 19,000 microhos Feb. 1; minimum daily, 786 microhos Oct. 3.

Water temperatures: Maximum, 89°F July 8; minimum, freezing point Dec. 16, Jan. 16, 19, 20.

EXTREMES, 1945-46.--Dissolved solids: Maximum, 12,600 ppm Feb. 10, 1955; minimum, 89 ppm Jan. 2, 5-7, 1948.

Hardness: Maximum, 2,540 ppm Feb. 1; minimum, 459 ppm Oct. 3, 6.

Specific conductance: Maximum daily, 19,000 microhos Feb. 10, 1955; minimum daily, 71.7 microhos Jan. 2, 1948.

Water temperatures: Maximum, 89°F July 8; minimum, freezing point Dec. 16, Jan. 16, 19, 20.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag-nesium (Mg)	So-dium (Na)	Po-tas-sium (K)	Bicar-bonate (HCO ₃)	Car-bonate (CO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO ₃)	Bo-ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per-cent ad-sorp-tion ratio	Specific conduct-ance (micro-mhos at 25°C)		
															Parts per mil-lion	Tons per acre-foot	Tons per day	Calcium, mag-nesium	Non-carbon-ate				
Oct. 1-2, 4, 7, 1955	8,975	--	--	58	13	182	104	104	26	340	--	--	4.8	--	707	0.96	17,130	200	115	66	5.6	1,350	7.7
Oct. 3, 6	18,590	--	--	45	12	100	118	118	36	170	--	--	4.2	--	459	.62	23,040	160	64	58	3.4	846	7.8
Oct. 5	18,300	--	--	62	21	130	156	156	45	242	--	--	7.3	--	621	.84	30,680	240	112	54	3.6	1,120	7.3
Oct. 8-9	9,620	--	--	55	14	147	124	124	34	265	--	--	5.1	--	622	.85	16,160	195	94	62	4.6	1,140	7.9
Oct. 10-15	4,525	--	--	46	14	105	118	118	35	188	--	--	2.3	--	500	.68	6,110	172	76	57	3.5	919	7.6
Oct. 16-17	1,845	--	--	56	20	148	126	126	41	280	--	--	1.9	--	666	.91	3,320	220	116	59	4.3	1,240	7.7
Oct. 18-20	1,153	--	--	90	29	274	146	146	55	540	--	--	2.9	--	1,170	1.59	3,640	345	226	63	6.4	2,170	7.6
Oct. 21-23	792	--	--	119	37	393	168	168	67	775	--	--	4.3	--	1,610	2.19	3,440	450	312	65	8.0	2,930	7.8
Oct. 24-26	563	--	--	134	43	469	146	146	87	950	--	--	--	--	1,940	2.64	2,950	510	380	67	9.0	3,430	7.8
Oct. 27-31	423	--	--	172	59	711	120	120	70	1,450	--	--	--	--	2,730	3.71	3,120	670	572	70	12	4,950	7.4
Nov. 1-5	333	--	--	212	66	885	126	126	79	1,800	--	--	--	--	3,460	4.71	3,110	800	696	71	14	6,010	7.6
Nov. 6-10	269	--	--	256	68	1,120	122	122	77	2,250	--	--	--	--	4,280	5.82	3,110	920	820	73	16	7,420	7.5
Nov. 11-20	231	16	0.03	272	83	1,170	18	18	72	2,500	0.4	--	--	0.31	4,780	6.50	2,980	1,020	922	71	16	7,520	7.6
Nov. 21-30	206	--	--	280	101	1,280	130	130	70	2,650	--	--	--	--	4,990	6.79	2,780	1,140	1,030	71	16	8,320	7.7
Dec. 1-3	208	--	--	344	95	1,440	176	176	65	2,950	--	--	--	--	5,550	7.55	3,120	1,250	1,110	71	18	9,130	7.8
Dec. 4-10	202	--	--	499	38	1,710	160	160	73	3,480	--	--	--	--	6,380	8.68	3,480	1,400	1,270	73	20	10,700	8.0
Dec. 11-20	175	--	--	498	128	2,120	223	223	80	4,330	--	--	--	--	7,830	10.65	3,700	1,770	1,580	72	22	12,700	8.1
Dec. 21-31	169	--	--	498	133	2,190	193	193	75	4,480	--	--	--	--	8,160	11.10	3,720	1,790	1,630	73	23	13,300	7.9
Jan. 1-10, 1956	161	8.0	.01	494	160	2,250	31	135	79	4,980	.1	--	--	-.50	8,680	11.80	3,770	1,890	1,780	72	23	13,400	8.1
Jan. 11-20	139	--	--	479	145	2,170	201	201	76	4,440	--	--	--	--	7,720	10.50	2,900	1,790	1,630	72	22	13,100	8.0
Jan. 21-25	227	--	--	462	143	2,030	207	207	77	4,180	--	--	--	--	7,620	10.36	4,670	1,740	1,570	72	21	12,600	7.9

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR WHITEFIELD, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonylate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium carbonate	Sodium carbonate ratio	Specific conductance (micro-mhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate				
Jan. 26-30, 1956	347	--	--	521	173	2,390	207	207		81	4,930	--	--	--	8,990	12.21	8,410	2,010	1,840	72	23	14,600	7.9
Jan. 31	295	--	--	636	195	2,930	203	203		48	6,060	--	--	--	11,000	14.96	8,760	2,390	2,220	73	26	17,700	8.1
Feb. 1	388	--	--	652	222	2,990	189	189		47	6,260	--	--	--	11,500	15.64	12,050	2,540	2,380	72	28	18,000	8.4
Feb. 2-4	479	--	--	491	157	2,280	b174	b174		72	4,690	--	--	--	8,460	11.51	10,940	1,870	1,730	73	23	13,800	8.3
Feb. 5-9	612	--	--	367	118	1,640	162	162		60	3,390	--	--	--	6,170	8.39	10,200	1,400	1,270	72	19	10,500	8.2
Feb. 10	1,630	--	--	228	73	1,000	150	150		39	2,050	--	--	--	3,770	5.13	15,590	870	747	72	15	6,410	8.2
Feb. 11-12	1,415	--	--	136	39	1,548	98	98		57	1,100	--	--	--	2,120	2.88	8,100	500	420	70	11	3,770	8.0
Feb. 13-14	838	--	--	216	66	929	104	104		63	1,900	--	--	--	3,530	4.80	7,990	810	725	71	14	6,180	8.0
Feb. 15-17	730	--	--	336	112	1,560	140	140		72	3,200	--	--	--	5,810	7.90	11,450	1,300	1,190	72	19	9,750	8.2
Feb. 18-20	4,567	--	--	85	24	312	88	88		37	620	--	--	--	1,230	1.87	15,170	310	238	69	7.7	2,100	7.7
Feb. 21	2,410	--	--	69	16	248	70	70		25	460	--	--	--	1,000	1.36	6,510	238	180	69	7.0	1,740	7.7
Feb. 22	1,500	--	--	96	32	383	78	78		35	780	--	--	--	1,520	2.07	6,160	370	306	69	8.7	2,700	7.9
Feb. 23-24	926	--	--	148	48	641	90	90		50	1,300	--	--	--	2,410	3.28	6,030	565	491	71	12	4,300	7.8
Feb. 25-26	705	--	--	246	80	1,070	116	116		76	2,200	--	--	--	4,170	5.87	7,940	945	850	71	15	7,150	7.9
Feb. 27-29	504	--	--	186	65	811	128	128		128	1,600	--	--	--	3,040	4.13	4,140	730	625	71	13	5,170	7.9
Mar. 1-4	344	--	--	216	68	911	136	136		117	1,820	--	--	--	3,520	4.79	3,270	820	708	71	14	6,020	7.9
Mar. 5-10	237	--	--	272	93	1,280	114	105		105	2,580	--	--	--	4,920	6.69	3,150	1,060	966	72	17	8,210	8.0
Mar. 11-20	182	--	--	320	105	1,510	132	132		99	3,050	--	--	--	5,780	7.86	2,840	1,230	1,120	73	19	9,480	7.9
Mar. 21, 24-29	280	--	--	363	106	1,700	88	88		39	3,480	--	--	--	6,930	9.42	5,430	1,340	1,270	73	20	10,500	7.3
Mar. 22-23	272	--	--	320	98	1,410	122	122		70	2,900	--	--	--	5,660	7.70	4,160	1,200	1,100	72	18	8,880	7.5
Mar. 30-31	210	--	--	430	155	2,200	72	72		46	4,530	--	--	--	8,810	11.98	5,000	1,710	1,650	74	23	13,200	7.3
Apr. 1-8	173	--	--	434	143	2,070	120	120		36	4,280	--	--	--	8,530	11.60	3,980	1,670	1,570	73	22	12,800	7.4
Apr. 9-11	180	--	--	371	125	1,740	138	138		41	3,590	--	--	--	7,420	10.09	5,610	1,440	1,440	72	20	11,000	7.6
Apr. 12-15	212	--	--	518	160	2,100	149	149		95	5,030	--	--	--	9,490	12.91	5,430	1,950	1,830	73	24	14,800	7.9
Apr. 16-18	184	--	--	423	149	2,400	126	126		60	4,280	--	--	--	7,920	10.77	4,130	1,870	1,570	73	22	12,500	7.6
Apr. 19	238	--	--	351	123	1,580	120	120		73	3,280	--	--	--	6,420	8.73	4,130	1,380	1,280	71	18	10,100	7.8
Apr. 20-26	146	--	--	300	98	1,370	150	150		65	2,800	--	--	--	5,440	7.40	4,130	1,560	1,030	72	18	8,650	7.8
Apr. 29	897	--	--	81	29	393	84	84		24	780	--	--	--	1,560	2.12	3,780	345	276	71	9.2	2,870	7.5
Apr. 30	986	--	--	186	56	867	84	84		34	1,800	--	--	--	3,580	4.88	9,980	715	646	73	14	5,150	7.5
May 1	1,460	--	--	617	138	2,760	84	84		60	5,720	--	--	--	10,300	14.01	4,160	2,190	2,120	73	26	16,000	7.9

a Includes 8 parts per million of carbonate (CO₃).
 b Includes 4 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN

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May 2-3, 5-10, 1956	1,097	--	200	73	887	92	43	1,850	--	3,500	4.76	10,370	800	724	71	14	5,930	7.8
May 4.....	2,370	--	296	88	1,440	114	38	2,900	--	5,380	7.32	34,430	1,100	1,010	74	19	8,730	7.8
May 11-14.....	261	--	192	78	863	120	30	1,800	--	3,370	4.58	2,370	800	702	70	13	5,760	7.9
May 15-18.....	938	--	82	23	343	80	19	680	--	1,390	1.89	3,520	300	234	71	8.6	2,380	7.6
May 19-20.....	574	--	130	33	534	92	22	1,080	--	2,090	2.84	3,240	460	384	72	11	3,600	7.6
May 21, 25.....	7,472	--	130	28	462	136	32	950	--	2,020	2.75	40,750	440	328	70	10	3,300	7.9
May 22-24, 27.....	4,054	--	184	54	601	150	40	1,600	--	3,320	4.52	36,340	680	557	72	13	5,320	8.1
May 26, 28-31.....	6,524	--	80	18	289	102	27	560	--	1,230	1.67	21,670	275	192	70	7.6	2,060	7.8
June 1, 4-5, 7-10.....	3,260	--	78	18	222	140	79	390	--	937	1.27	8,250	270	156	64	5.9	1,630	7.8
June 2-3, 6.....	5,407	--	92	24	316	146	75	575	--	1,300	1.77	18,960	330	208	66	7.6	2,210	7.9
June 11-13.....	1,052	--	102	31	332	124	60	680	--	1,460	2.01	4,240	360	278	67	7.9	2,460	8.0
June 16-20.....	400	--	146	48	635	122	79	1,230	--	2,620	3.56	2,830	565	465	71	12	3,240	7.9
June 21-26.....	219	--	268	30	600	122	37	1,100	--	2,420	3.11	1,350	320	355	71	11	2,460	7.8
June 28.....	718	--	268	71	1,130	104	52	2,300	--	4,430	6.02	5,000	940	855	72	16	7,110	7.6
June 29-30.....	556	--	478	133	2,230	184	61	4,360	--	6,610	11.71	12,970	1,740	1,670	74	23	13,700	7.6
July 1-5.....	343	--	268	81	1,370	80	39	2,750	--	5,130	6.98	4,750	1,000	934	75	19	8,530	7.5
July 6-10.....	147	--	224	63	1,450	134	40	2,100	--	3,970	5.40	1,580	820	710	74	16	6,670	7.8
July 11-12.....	96.5	--	240	68	1,540	116	24	2,300	--	4,460	6.07	1,160	880	785	74	17	7,170	7.8
July 13-20.....	78.5	--	184	62	1,647	136	45	1,700	--	3,310	4.50	797	715	604	72	14	5,530	8.1
July 21-24.....	104	--	182	50	734	148	45	1,480	--	2,840	3.86	797	660	538	71	12	4,840	7.9
July 25-29.....	130	--	244	68	1,110	92	43	2,250	--	4,250	5.78	1,460	890	814	73	16	7,250	7.4
July 30.....	234	--	144	41	621	100	34	1,250	--	2,380	3.24	1,500	530	448	72	12	4,150	7.9
July 31.....	138	--	102	29	433	100	33	850	--	1,630	2.22	607	375	293	72	9.7	2,930	7.9
Aug. 1.....	134	--	116	39	434	124	22	900	--	1,770	2.41	640	450	348	68	8.9	3,140	7.6
Aug. 2, 8-9.....	97.7	--	176	68	795	128	152	1,550	--	3,020	4.11	780	720	615	71	13	5,210	7.6
Aug. 3-6, 10.....	96.4	--	136	49	583	138	70	1,150	--	2,250	3.06	586	540	427	70	11	3,990	7.7
Aug. 7.....	101	--	284	98	1,200	116	52	2,500	--	4,610	6.27	1,260	1,060	965	71	16	7,650	7.6
Aug. 11-20.....	28.9	14	146	60	557	11	115	1,120	0.7	2,400	3.26	187	610	479	66	9.8	3,960	8.0
Aug. 21-31.....	10.5	--	158	57	566	158	38	1,200	--	2,270	3.09	64	630	500	66	9.8	3,920	7.7
Sept. 1-10.....	4.75	--	176	66	567	184	29	1,250	--	2,430	3.30	31	710	559	63	9.3	4,170	8.0
Sept. 11-20.....	1.77	--	184	68	610	164	27	1,350	--	2,580	3.51	12	740	606	64	9.7	4,440	7.9
Sept. 21-30.....	1.48	18	208	63	568	169	21	1,320	.1	2,590	3.52	10	760	642	61	8.8	4,590	7.6
Weighted average.....	980	--	126	36	490	123	46	976	--	1,960	2.67	5,190	462	362	70	9.9	3,280	--

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR WHITEFIELD, OKLA.--Continued

Temperature (°F.) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	62	--	42	40	52	70	62	70	80	80	71
2	70	60	38	42	35	48	67	62	68	80	80	70
3	69	48	52	40	33	51	60	63	70	82	82	69
4	71	47	44	38	34	50	57	68	68	83	80	72
5	72	50	42	42	35	59	57	70	73	81	80	73
6	74	55	38	43	35	65	59	73	71	79	81	71
7	61	46	40	40	37	52	54	73	74	81	81	69
8	63	44	34	37	40	41	51	73	78	89	81	66
9	62	41	34	36	42	48	55	75	76	81	80	65
10	62	43	34	37	40	53	46	73	77	76	81	65
11	65	49	37	34	38	48	45	72	77	74	80	70
12	70	52	33	33	40	43	53	74	79	77	77	72
13	61	63	35	33	40	42	59	74	78	76	80	72
14	59	57	40	36	52	40	65	72	75	78	78	74
15	57	66	33	39	50	41	60	65	75	78	81	75
16	58	40	32	32	50	39	56	62	77	77	80	75
17	56	40	33	33	51	45	50	68	77	78	79	75
18	54	42	34	33	43	50	54	72	79	77	80	70
19	55	43	34	32	45	47	56	73	80	78	80	72
20	58	44	37	32	42	40	56	74	81	75	71	67
21	69	47	42	34	45	47	58	75	81	76	67	68
22	62	58	41	36	46	45	62	75	82	78	67	70
23	62	53	40	39	52	50	57	77	79	77	69	73
24	56	46	48	38	60	54	55	70	82	75	72	68
25	58	44	49	36	51	55	58	64	78	80	75	65
26	54	41	48	40	50	60	65	67	79	80	75	65
27	59	45	47	38	51	62	68	70	80	80	74	66
28	61	37	45	50	45	59	70	73	78	80	75	65
29	53	33	49	47	46	55	60	75	78	77	77	66
30	50	34	39	37	--	52	60	76	81	78	87	66
31	52	--	35	37	--	58	--	75	--	80	75	--
Average	61	48	40	38	44	50	58	71	77	79	78	70

ARKANSAS RIVER BASIN--Continued
SALLISAW CREEK NEAR SALLISAW, OKLA.

LOCATION.--At gaging station on highway bridge, 400 feet downstream from water-supply dam of city of Sallisaw, 3½ miles west of Sallisaw, Sequoyah County, 5 miles upstream from Little Sallisaw Creek.
DRAINAGE AREA.--182 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1953, October 1955 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
Oct. 12, 1955	0.96	32	1.0	3.7	84	0	6.0	84	15	9	0.2	172	7.3
Nov. 8	63	29	2.8	8.2	70	0	5.2	84	26	18	.4	188	7.5
Dec. 7	1.52	28	3.4	9.1	82	0	6.0	84	17	19	.4	178	7.5
Jan. 3, 1956	1.90	27	3.0	3.8	80	0	4.8	80	14	10	.2	164	7.7
Mar. 27	25.6	24	3.4	3.5	66	0	6.4	74	20	9	.2	162	7.2
Apr. 23	18.3	30	1.2	5.2	88	0	6.0	80	8	13	.3	173	7.3
Apr. 29	1,800	30	1.2	2.2	76	0	2.4	80	18	6	.1	170	7.3
Apr. 30	495	19	1.1	3.3	54	0	3.9	52	8	12	.2	116	7.1
June 11	97.8	30	1.7	1.5	68	0	5.5	82	26	4	.1	173	7.2
July 10	6.66	32	3.9	5.7	56	0	5.2	96	50	12	.3	196	7.0
Aug. 6	1.26	32	2.4	2.9	100	0	5.0	90	8	4	.1	187	7.2
Sept. 5	.56	42	1.7	2.4	110	0	6.0	112	22	4	.1	218	6.9

ARKANSAS RIVER BASIN--Continued
FOURCHE MALINE RIVER NEAR RED OAK, OKLA.

LOCATION.--At gaging station on highway bridge, 0.1 mile downstream from Little Fourche Maline, 5 miles southwest of Red Oak, Latimer County.
DRAINAGE AREA.--122 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Chemical analyses, in parts per million, water year October 1955 to September 1956						Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
		Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Total	Non- carbonate				
Oct. 25, 1955	21.1	10	5.6	7.0	15	0	7.5	48	36	24	0.4	138	6.7
Dec. 12	1.34	14	8.0	15	84	0	5.6	68	0	32	.8	179	6.9
Jan. 23, 1956	1.17	8.0	1.9	3.1	30	0	3.4	28	4	19	.2	81.3	6.9
Feb. 7	49.1	10	8.5	15	4	0	8.8	60	56	35	.8	184	5.9
Feb. 18	979.1	3.2	2.9	7.5	2	0	2.6	20	18	45	.7	179.9	4.6
Mar. 6	9.96	7.6	3.6	10	22	0	7.0	34	16	39	.8	119	6.7
Mar. 20	4.29	8.0	4.9	12	28	0	8.0	52	29	39	.8	136	6.7
Apr. 13	4.01	5.6	3.9	14	26	0	6.7	30	8	54	1.3	102	6.7
Apr. 29	279	6.0	8.9	17	27	0	8.3	41	2	30	1.3	145	7.6
June 12	2.05	8.0	8.3	8.6	56	0	7.3	68	19	29	.6	162	7.1
June 27	11	9.6	11	8.2	59	0	7.2	44	34	23	1.3	232	7.0
Aug. 8	1.03	12	3.4	18	12	0	11	44	34	49	1.3	232	6.2
Sept. 6	--	13	10	20	110	0	13	74	0	37	1.0	237	7.0

ARKANSAS RIVER BASIN--Continued

POTEAU RIVER AT CAUTHRON, ARK.

LOCATION.--At gaging station at bridge on county road at Cauthron, Scott County, 8 miles downstream from Jones Creek.
DRAINAGE AREA.--200 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to July 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to July 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 180°C)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH	Color
														Calcium, mag- nesium	Non- carbon- ate			
Oct. 18, 1955	0			5.1	3.0	5.1	--	35	3.0	4.0		0.2	45	25	0	77.7	7.5	7
Feb. 13, 1956	78			4.8	7.7	3.6	--	8	6.1	3.4		3.5	39	15	8	54.0	5.7	--
Mar. 28	243			2.4	2.2	4.3	1.1	12	11	3.5		1.3	34	15	5	53.7	6.6	15
Apr. 15	25			3.8	2.2	5.4	--	21	6.4	4.5		1.1	60	19	1	70.6	7.1	20
May 7	37			2.5	2.8	4.3	1.1	16	10	3.0		.2	29	16	5	56.8	6.8	35
June 18	.8			3.7	3.1	4.8	1.6	30	6.0	3.5		.6	38	22	0	68.8	7.3	5
July 30	.1			6.2	2.6	5.0	2.1	42	3.6	4.0		.7	44	27	0	81.4	7.3	10

ARKANSAS RIVER BASIN

ARKANSAS RIVER BASIN--Continued
LEE CREEK NEAR VAN BUREN, ARK.

LOCATION.--At gaging station, 300 feet west of Arkansas-Oklahoma State line, 3.2 miles downstream from Webbers Creek, 6½ miles northwest of Van Buren, Crawford County, and 7.9 miles upstream from mouth.

DRAINAGE AREA.--427 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to July 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to July 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evap- oration at 180°C)	Hardness as CaCO ₃		Specific conduct- ance (micro- mhos at 25°C)	pH	Color
														Calcium, mag- nesium	Non- carbon- ate			
Oct. 26, 1955	0.6			10	1.2	2.2	--	36	2.2	3.5		0.4	50	30	0	77.6	7.1	22
Nov. 15	3.3			11	1.2	2.6	--	36	3.4	3.5		.5	52	32	0	89.3	6.7	5
Dec. 29	3.1			12	2.1	3.4	--	45	4.6	4.5		.4	44	39	2	98.1	7.1	5
Jan. 21, 1956	2.9			13	1.9	2.5	--	38	5.3	5.4		.4	56	40	9	102.1	6.7	--
Feb. 20	314			11	1.3	3.1	--	29	7.2	8.6		.8	61	33	9	93.7	6.7	--
Mar. 7	54			11	.8	4.0	--	32	6.6	6.5		.4	57	31	5	87.9	7.4	10
Apr. 3	155			11	1.4	4.0	--	36	5.6	6.0		.2	58	33	4	92.0	7.4	5
May 15	5,300			10	2.4	3.4	1.1	36	9.6	4.5		.4	38	35	5	86.0	8.0	10
June 26	44			13	2.3	3.3	1.3	48	4.0	4.5		.2	55	43	3	96.0	7.7	5
July 11	15			14	2.2	3.9	1.4	56	4.0	4.5		.0	56	44	0	108	7.6	5
July 26	8.6			14	3.1	4.1	1.1	52	6.4	5.0		.2	48	48	5	109	7.8	10

ARKANSAS RIVER BASIN--Continued
ARKANSAS RIVER AT VAN BUREN, ARK.

LOCATION.--At gaging station at bridge on U. S. Highways 64 and 71 at Van Buren, Crawford County, 1.3 miles downstream from Lee Creek, 8.6 miles downstream from PotEAU River, and at mile 353.4.

DRAINAGE AREA.--150,483 square miles, of which 22,241 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1956.

Water temperatures: October 1945 to September 1956.

EXTREMES, 1953-56.--Dissolved solids: Maximum, 2,370 ppm Sept. 26-27; minimum, 223 ppm Feb. 24.

Hardness: Maximum, 510 ppm Feb. 1-2; minimum, 56 ppm Feb. 24.

Specific conductance: Maximum daily, 4,400 micromhos Sept. 27; minimum daily, 382 micromhos Feb. 24.

Water temperatures: Maximum, 92° Aug. 6; minimum, 34° Dec. 19; Jan. 16, 19-20.

EXTREMES, 1945-56.--Dissolved solids: Maximum, 5,830 ppm Apr. 20, 1955.

Hardness: Maximum, 1,100 ppm Apr. 1, 1954; minimum, 144 ppm Mar. 20, 1955.

Specific conductance: Maximum daily, 8,980 micromhos Apr. 1, 1954; minimum daily, 132 micromhos May 11, 1948.

Water temperatures: Maximum, 92° Aug. 6, 1956; minimum, freezing point on many days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium absorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nestum	Non-carbonate					
Oct. 1, 3, 1955	11,550	--	--	61	15	176	--	107	42	325	--	2.8	--	771	1.05	24,040	214	126	64	5.2	1,360	7.7	27
Oct. 2, 6	30,820	--	--	77	19	275	--	111	58	490	--	4.1	--	1,110	1.51	92,370	270	179	69	7.3	1,950	7.9	15
Oct. 4, 5, 7	44,200	--	--	50	11	141	--	97	38	245	--	2.8	0.05	586	81	71,130	170	90	64	4.7	1,070	7.9	15
Oct. 8-14	54,010	--	--	47	7.5	75	--	109	36	124	--	3.5	--	373	51	54,390	138	49	54	2.8	673	7.0	15
Oct. 15-16	16,650	--	--	43	9.3	104	--	111	55	162	--	3.1	--	480	65	21,560	156	64	59	3.6	848	7.8	15
Oct. 17-19	11,070	--	--	55	11	146	--	116	64	235	--	3.5	--	624	85	18,650	182	87	64	4.7	1,110	7.9	17
Oct. 20, 27	9,370	--	--	80	16	266	--	140	96	432	--	1.7	--	1,040	1.41	26,310	268	151	69	7.1	1,850	8.1	15
Oct. 21-26, 28-31	7,916	4.3	0.04	68	13	184	7.5	128	83	302	0.2	2.2	.15	760	1.03	16,240	223	118	63	5.3	1,320	7.7	15
Nov. 1-2, 5, 7-9	4,837	--	--	73	13	164	--	130	70	310	--	2.3	.10	768	1.07	10,290	236	129	63	5.2	1,370	8.0	13
Nov. 3-4, 10	5,547	--	--	95	19	306	--	144	98	530	--	1.8	.10	1,240	1.69	18,570	315	197	68	7.5	2,170	7.5	10
Nov. 6a	7,260	--	--	--	--	--	--	138	82	410	--	1.9	--	1,050	1.39	19,990	340	227	--	--	1,750	8.1	--
Nov. 11-14, 16	4,510	2.4	.04	87	17	259	9.6	137	86	465	.3	.9	.10	1,070	1.46	13,030	287	175	65	6.7	1,880	8.0	15
Nov. 15, 20	3,415	--	--	98	12	194	--	133	64	340	--	2.4	--	824	1.12	7,600	239	130	64	5.4	1,480	8.0	10
Nov. 17-19, 23-26	3,526	--	--	76	22	332	--	144	92	600	--	2.1	.10	1,340	1.82	12,760	335	217	68	7.9	2,320	7.7	10
Nov. 21-22	3,080	--	--	92	18	274	--	147	77	480	--	2.5	--	1,100	1.50	9,180	304	183	66	6.8	1,940	8.1	10
Nov. 27-30	2,470	--	--	112	26	395	--	161	98	705	--	3.1	.00	1,590	2.16	10,600	396	254	69	8.8	2,470	8.1	10

a Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

ARKANSAS RIVER BASIN--Continued
 ARKANSAS RIVER AT VAN BUREN, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color		
													Parts per million	Tons per acre-foot	Calcium, per mag-nesium	Non-carbonate							
Dec. 1-3, 9, 1955	4,375	--	--	99	27	370	--	162	98	650	--	2.5	0.15	1,500	2,04	358	225	69	8.5	2,600	8.2	7	
Dec. 4-8, 10, 1955	3,738	6.4	0.03	81	21	260	--	147	78	445	--	2.4	.05	1,040	1.41	10,720	288	168	66	6.6	1,870	7.5	7
Dec. 11-15, 17-20	3,968	--	--	82	21	252	4.9	147	68	425	0.2	2.4	.20	999	1.36	10,680	280	170	65	6.4	1,780	7.2	3
Dec. 18-20	3,960	--	--	82	21	252	--	147	68	425	--	2.2	--	1,530	2.22	21,830	438	302	64	--	2,190	8.4	--
Dec. 21-28	3,585	--	--	75	20	220	--	139	71	585	--	2.9	.10	1,824	1.24	8,940	269	195	64	5.8	1,640	7.7	7
Dec. 22-23, 29-30	4,120	--	--	98	23	309	--	133	79	550	--	3.0	.05	1,280	1.74	44,240	339	214	66	7.3	2,230	7.6	5
Dec. 31a	5,140	--	--	--	--	--	--	130	104	770	--	1.9	--	1,730	2.35	24,010	416	309	--	2,960	8.2	--	
Jan. 1-4, 8, 10, 1956	3,507	--	--	74	14	219	--	116	74	375	--	2.5	.15	886	1.20	8,300	242	147	66	6.2	1,570	8.0	5
Jan. 5, 9	3,130	--	--	76	21	264	--	120	78	470	--	2.7	--	1,070	1.46	8,040	276	178	68	6.9	1,800	7.4	7
Jan. 6-7	4,420	--	--	96	27	380	--	124	93	685	--	1.9	--	1,600	2.13	18,980	325	219	68	8.8	2,640	7.5	5
Jan. 11-14, 16-18	2,647	5.6	.01	88	26	314	5.4	138	68	570	2	2.4	.18	1,240	1.69	7,010	272	185	67	7.6	2,190	7.5	3
Jan. 15a	2,810	--	--	--	--	--	--	106	55	380	--	2.3	--	924	1.26	7,010	272	185	--	--	1,580	8.2	--
Jan. 19-22	2,990	--	--	99	23	356	--	150	82	640	--	2.9	.15	1,450	1.97	11,710	342	218	69	8.4	2,520	7.7	7
Jan. 23-25, 27	2,632	--	--	99	21	297	--	149	84	525	--	2.7	--	1,220	1.66	8,670	311	189	68	6.9	2,120	8.0	5
Jan. 26, 28-31	2,878	--	--	110	32	375	--	164	80	720	--	3.5	.28	1,520	2.07	11,810	405	270	67	8.1	2,760	7.3	--
Feb. 1-2	3,485	--	--	139	40	488	--	160	81	1,000	--	4.9	--	2,080	2.83	19,570	510	379	68	9.4	3,660	8.1	--
Feb. 3-5, 8-9	4,626	3.8	.00	114	28	417	19	124	70	800	1	3.6	.15	1,330	2.49	22,860	400	298	68	9.1	2,980	7.6	15
Feb. 6-7	3,410	--	--	90	27	328	--	124	58	635	--	2.6	--	1,320	1.80	12,150	335	234	68	7.8	2,400	7.9	--
Feb. 10, 12, 14-15	5,200	--	--	74	26	285	--	100	51	560	--	3.5	.17	1,170	1.59	16,430	290	208	68	7.3	2,120	7.7	--
Feb. 11a	6,160	--	--	--	--	--	--	84	49	365	--	1.9	--	848	1.15	14,100	207	138	--	--	1,450	8.2	--
Feb. 13, 16-17	4,733	--	--	94	35	368	--	120	62	775	--	2.6	.21	1,560	2.15	20,190	380	282	69	8.7	2,860	7.9	--
Feb. 18-19	11,300	--	--	38	12	105	--	60	30	215	--	3.6	--	502	65	15,320	144	95	61	3.8	912	7.4	--
Feb. 20-21, 27	10,560	--	--	53	21	207	--	72	45	390	--	1.9	.18	842	1.15	24,010	220	161	67	6.1	1,540	7.5	--
Feb. 22-23, 25	10,930	--	--	16	12	83	--	40	21	160	--	1.6	--	391	.53	11,540	92	59	66	3.8	679	7.1	--
Feb. 24a	10,200	--	--	--	--	--	--	32	21	81	--	1.8	--	223	.30	6,140	56	30	--	--	382	7.4	--
Feb. 26a	7,640	--	--	--	--	--	--	60	34	288	--	2.2	--	614	.84	12,670	142	93	--	--	1,050	8.1	--
Feb. 28-29	4,685	--	--	70	26	327	--	96	71	580	--	1.4	--	1,120	1.52	14,170	280	202	73	8.5	2,210	7.7	--
Mar. 1-2	4,250	--	--	97	24	431	--	113	75	760	--	2.2	--	1,690	2.30	19,390	340	248	73	10	2,680	7.8	15
Mar. 3-7	3,230	--	--	81	22	317	--	120	75	570	--	2.4	.10	1,350	1.84	11,770	292	194	70	8.0	2,130	7.7	10
Mar. 8-10	3,347	--	--	102	28	515	--	123	98	895	--	1.0	--	2,030	2.76	18,340	370	268	75	12	3,040	7.9	7
Mar. 11-13, 17-18	2,872	--	--	83	26	457	--	124	92	785	--	2.2	.15	1,230	2.49	14,190	339	238	75	11	2,860	7.4	10
Mar. 14-16, 19	2,720	--	--	89	23	394	--	128	60	680	--	3.1	.05	1,620	2.20	11,900	312	212	73	9.7	2,520	7.9	7
Mar. 20-22	2,333	--	--	76	21	286	--	115	68	530	--	2.4	--	1,280	1.74	8,060	276	182	69	7.5	1,950	7.9	10
Mar. 23-27, 29-31	3,646	9	.05	85	22	373	15	110	83	655	1	2.1	.00	1,440	1.96	14,180	302	212	72	9.4	2,440	7.6	5
Mar. 28a	3,820	--	--	--	--	--	--	c 87	40	430	--	1.0	--	1,020	1.39	10,520	230	159	--	--	1,750	8.3	--

b Includes equivalent of 4 parts per million of carbonate (CO₃).

a Not included in weighted average. Dissolved solids and loads estimated from Specific conductance.

c Includes equivalent of 2 parts per million of carbonate (CO₃).

Apr. 1-4, 1956	3,260	--	.9	--	108	70	825	--	1	2.3	.05	1,370	1.86	12,060	294	206	72	8.9	2,320	7.7	10
Apr. 5-7, 9-11	3,987	--	--	17	118	132	900	--	2.0	2.4	.05	1,670	2.27	13,470	343	246	72	10	2,850	7.7	10
Apr. 8 ^a	3,160	--	--	--	c122	132	900	--	2.0	2.4	.05	1,970	2.68	16,810	416	316	72	--	3,360	8.4	--
Apr. 12-15	2,904	--	--	--	117	76	715	--	3.2	3.2	.00	1,550	2.11	11,300	322	226	73	9.6	2,620	7.8	7
Apr. 16-20	2,700	--	--	--	116	76	775	--	3.2	3.2	.00	1,680	2.28	13,170	354	259	72	9.7	2,820	7.7	13
Apr. 21-23	2,973	--	--	--	130	96	845	--	2.8	2.8	.05	1,850	2.52	14,850	378	272	73	10	3,110	8.0	5
Apr. 24-28	2,060	--	--	--	116	75	605	--	2.8	2.8	.05	1,340	1.82	7,450	300	206	71	8.5	2,280	7.6	7
Apr. 29 ^a	7,910	--	--	--	c92	18	127	--	3.8	3.8	--	369	5.08	7,880	125	50	--	--	631	8.3	--
Apr. 30 ^a	8,970	--	--	--	b124	50	695	--	3.6	3.6	--	1,530	2.08	37,060	370	272	--	--	2,620	8.4	--
May 1-2	7,430	--	--	--	--	84	285	--	2.3	2.3	--	702	.95	14,080	164	96	69	5.6	1,160	7.9	25
May 3	7,325	--	--	--	79	47	498	--	2.4	2.4	--	1,120	1.52	22,150	241	176	71	7.6	1,680	7.8	15
May 4, 6, 8-10	4,986	--	--	--	87	44	715	--	1.2	1.2	.10	1,580	2.15	21,270	319	248	72	9.0	2,570	7.6	15
May 7 ^a	5,770	--	--	--	84	46	590	--	2.4	2.4	--	1,360	1.85	21,190	498	429	--	--	2,320	8.2	--
May 11-14, 17	3,556	6.1	--	15	130	87	745	--	2.2	2.2	.25	1,580	2.15	15,170	343	237	71	9.4	2,700	7.7	5
May 15-16	4,100	--	--	--	122	61	590	--	1.6	1.6	--	1,350	1.84	14,940	284	184	72	8.7	2,230	8.2	20
May 18, 23, 30-31	10,540	--	--	--	104	47	340	--	2.2	2.2	.10	872	1.19	24,820	214	130	66	5.7	1,410	8.2	20
May 19, 22, 24, 27-28	16,340	--	--	--	102	43	270	--	1.9	1.9	.00	724	.98	31,940	187	104	64	4.9	1,150	7.8	10
May 20-21, 25-26	12,480	--	--	--	110	50	170	--	3.4	3.4	.05	509	.69	17,150	168	78	57	3.5	849	8.1	15
May 29 ^a	16,400	--	--	--	90	30	520	--	3.6	3.6	--	1,110	1.51	49,150	280	206	--	--	1,900	8.2	--
June 1-2, 5, 8-10	10,460	6.7	.00	7.6	113	51	272	--	5.2	2.9	.05	634	.85	17,620	199	106	61	4.7	1,170	7.5	10
June 3-4, 6-7	13,120	--	--	--	126	65	400	--	3.9	3.9	.05	1,010	1.37	35,760	256	132	66	6.1	1,660	8.1	20
June 11-13	6,120	--	--	--	111	53	195	--	4.0	4.0	.10	560	1.76	9,280	186	94	57	3.6	839	6.7	10
June 14-15	6,800	--	--	--	108	78	420	--	4.0	4.0	--	1,060	1.36	13,360	280	162	62	6.3	1,389	7.7	10
June 16-20	4,918	5.6	.00	7.0	176	64	235	--	5.6	2.6	--	625	1.85	7,890	188	147	62	4.6	1,110	7.7	7
June 21-23-25	4,270	--	--	--	175	85	415	--	3.0	3.0	--	2,050	2.73	23,250	338	218	71	7.1	1,650	7.2	10
June 23 ^a	4,200	--	--	--	85	62	310	--	2.4	2.4	--	804	1.09	8,090	193	124	69	6.1	1,410	8.0	--
June 26-27, 29	3,723	--	--	--	84	76	330	--	2.4	2.4	.10	585	.77	8,270	164	88	62	4.3	974	7.9	10
June 28, 30	5,420	--	--	--	92	64	215	--	2.2	2.2	--	585	.77	8,270	164	88	62	4.3	974	7.9	10
July 1, 7-8	4,123	--	--	--	89	60	390	--	2.7	2.7	.10	911	1.24	10,140	234	161	66	6.0	1,520	7.7	10
July 2-3	4,203	--	--	--	70	58	740	--	2.1	2.1	--	1,530	2.16	18,050	260	203	69	8.3	2,610	7.7	10
July 4-6	4,133	--	--	--	78	63	620	--	3.5	3.5	.15	1,350	1.84	15,060	316	252	69	7.9	2,280	7.8	7
July 9, 11, 14	3,197	--	--	--	80	51	465	--	2.4	2.4	.05	1,060	1.44	9,150	230	164	71	7.3	1,790	7.5	10
July 10, 12	3,960	--	--	--	93	58	300	--	1.5	1.5	--	729	.96	3,830	204	128	64	5.1	2,280	7.5	10
July 13	3,730	--	--	--	86	116	660	--	1.6	1.6	--	1,440	1.96	14,560	322	231	70	5.2	2,470	8.2	--
July 15-17	4,373	--	--	--	78	71	350	--	2.4	2.4	.05	784	1.07	9,260	188	124	70	6.3	1,350	7.5	10

b Includes equivalent of 4 parts per million of carbonate (CO₃).

c Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

c Includes equivalent of 2 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN--Continued
 ARKANSAS RIVER AT VAN BUREN, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1958--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo- trate (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent so- lution ratio	So- lution ratio	Specific conductance (micro- mhos at 25°C)	pH	Col- or
														Parts per mil-	Tons per acre-	Tons per day	Calcium, mag- nesium	Non-carbon- ate					
July 18-20, 1956..	3,777	--	--	48	17	164	--	105	71	275	--	2.1	0.05	660	0.92	6,930	190	104	65	5.2	1,180	7.3	10
July 21 a.....	3,240	--	--	--	--	--	--	c 102	48	180	--	1.3	--	515	.70	4,510	173	89	--	--	881	8.4	--
July 22-27.....	2,577	5.1	0.00	57	14	169	7.6	104	66	290	0.3	2.5	.10	697	.95	4,850	200	114	64	5.2	1,250	7.9	5
July 28 a.....	3,640	--	--	--	--	--	--	93	111	620	--	1.9	--	1,360	1.95	13,370	316	240	--	--	2,330	8.2	--
July 29 a.....	3,400	--	--	--	--	--	--	c 90	50	350	--	2.8	--	842	1.15	7,730	208	134	--	--	1,440	8.3	--
July 30-31.....	3,080	--	--	59	21	286	--	94	89	480	--	2.0	--	1,090	1.48	9,960	234	164	73	8.1	1,860	7.5	10
Aug. 1-2, 5-7.....	2,760	4.8	.00	67	14	352	11	92	93	580	.3	2.2	.10	1,240	1.69	9,240	224	149	76	10	2,170	7.9	5
Aug. 3-4.....	3,240	--	--	68	28	519	--	81	123	880	--	2.4	--	1,840	2.50	16,100	264	218	80	13	3,090	7.2	20
Aug. 8-9.....	2,445	--	--	49	18	286	--	82	94	450	--	2.4	--	1,020	1.39	6,730	196	130	76	8.9	1,780	8.4	10
Aug. 11 a.....	3,240	--	--	--	--	--	--	c 89	77	330	--	2.2	--	813	1.11	7,110	196	115	--	--	1,850	7.8	--
Aug. 12-17.....	2,463	--	--	54	14	167	--	100	96	360	--	2.9	.10	1,060	1.54	8,730	217	134	65	5.2	1,920	7.5	7
Aug. 18-22, 25.....	2,843	--	--	44	9.5	170	--	108	54	170	--	1.5	.05	394	.86	4,780	149	90	50	2.5	1,670	7.9	7
Aug. 23-24, 26-28.....	1,328	--	--	58	12	102	--	138	62	375	--	1.2	.05	548	.75	1,960	174	91	53	3.2	911	7.6	7
Aug. 29-31.....	1,140	--	--	69	21	221	--	138	87	375	--	1.5	.15	977	1.33	3,010	258	146	65	6.0	1,860	7.5	7
Sept. 1, 3-6.....	1,180	--	--	60	13	152	--	134	60	260	--	1.3	.10	691	.94	2,300	203	93	62	4.6	1,010	7.5	7
Sept. 2 a.....	2,040	--	--	--	--	--	--	118	50	185	--	2.1	--	518	.70	2,850	172	75	52	--	1,885	8.2	--
Sept. 7-18.....	553	5.6	.00	67	12	106	5.6	188	46	170	.3	3.0	.05	541	.74	808	216	62	51	3.1	934	8.0	5
Sept. 19-22.....	652	--	--	67	15	138	--	174	49	240	--	1.8	.10	1,664	.90	1,170	228	88	57	4.0	1,170	8.0	7
Sept. 23-24, 29-30.....	563	--	--	84	22	318	--	158	90	550	--	1.7	--	1,280	1.74	1,950	300	170	70	8.0	2,150	7.7	10
Sept. 25, 28.....	686	--	--	104	26	479	--	142	119	830	--	1.9	--	1,820	2.46	3,370	366	250	74	11	3,020	7.8	10
Sept. 26-27.....	728	--	--	131	35	689	--	130	147	1,230	--	2.8	--	2,570	3.58	5,050	471	364	76	14	4,210	7.8	10
Weighted average	d 5,990	--	--	65	15	206	--	112	59	365	--	2.8	--	888	1.18	14,040	224	132	67	6.0	1,490	--	10

a Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

c Includes equivalent of 2 parts per million of carbonate (CO₃).

d Mean discharge for water year October 1955 to September 1956, 5,985 cfs.

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT VAN BUREN, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	60	32	44	39	52	64	62	73	86	88	75
2	74	60	38	42	36	51	65	63	78	84	84	78
3	72	52	45	41	35	53	65	66	71	85	84	75
4	72	52	42	--	37	53	60	69	71	85	84	76
5	73	52	42	42	37	59	61	73	71	82	84	75
6	76	55	41	43	36	64	63	72	73	83	92	75
7	68	49	42	43	36	54	58	75	73	85	87	69
8	67	49	42	41	41	49	59	72	79	88	85	70
9	69	48	35	40	40	50	54	75	78	84	84	--
10	65	48	38	40	39	54	51	76	82	81	84	69
11	67	50	38	38	40	52	51	75	80	79	84	70
12	70	54	35	38	42	46	55	77	80	82	83	73
13	66	60	35	37	40	45	59	79	79	88	84	75
14	60	60	40	40	41	45	65	74	76	82	82	76
15	63	65	34	39	42	44	61	72	76	81	83	77
16	65	52	31	32	49	39	55	72	80	82	84	74
17	58	50	40	35	51	49	57	74	80	83	83	74
18	58	45	39	35	48	51	57	75	80	81	83	72
19	59	48	36	32	52	46	58	78	82	82	83	73
20	60	45	35	32	45	46	60	77	84	80	75	69
21	68	48	38	34	46	46	67	78	84	83	75	68
22	64	54	38	38	48	47	64	78	82	88	74	74
23	68	52	40	37	49	49	55	78	84	89	74	78
24	58	49	48	35	59	49	55	73	82	89	76	69
25	58	48	50	35	51	55	59	67	89	83	80	66
26	58	48	50	37	52	61	67	69	87	84	84	68
27	59	49	46	38	52	63	69	77	81	84	73	69
28	59	40	48	44	49	59	71	74	79	84	79	68
29	57	47	50	45	49	56	64	76	82	83	80	72
30	55	47	40	39	--	55	64	80	84	84	78	75
31	52	--	41	38	--	62	--	76	--	82	79	--
Average	64	51	40	38	44	52	60	74	79	83	82	72

ARKANSAS RIVER BASIN--Continued

MULBERRY RIVER NEAR MULBERRY, ARK.

LOCATION.--At gaging station, a quarter of a mile upstream from Mill Creek, 5 miles northeast of Mulberry, Crawford County, and 11.3 miles upstream from mouth.

DRAINAGE AREA.--372 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1956.

Water temperatures: October 1953 to September 1956.

EXTREMES, 1953-56.--Dissolved solids: Maximum, 126 ppm July 6; minimum, 25 ppm Dec. 1-10, Jan. 23.

Hardness: Maximum, 44 ppm July 6; minimum, 10 ppm Jan. 11-20, Jan. 23, Feb. 1-10, Mar. 1-10, May 1-10.

Specific conductance: Maximum daily, 146 micromhos July 6; minimum daily, 24.3 micromhos Feb. 18.

Water temperatures: Maximum daily, 88° July 13, 16; minimum, 34° Dec. 16-19, Jan. 20-21.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180° C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25° C)	pH	Color
														Calcium, mg./l.	Non-carbonate, mg./l.			
Oct. 1-10, 1955	71.1	4.9	0.05	3.9	1.5	2.2	1.2	20	2.8	2.5	0.2	0.7	42	16	0	45.3	6.8	15
Oct. 11-20	20.7	4.1	.11	4.1	1.3	2.3	1.1	19	3.2	2.5	.2	.3	33	16	0	43.8	6.6	20
Oct. 21-31	8.74	4.2	.04	3.7	1.4	2.0	1.0	19	2.2	1.8	.1	.3	30	15	0	41.4	6.6	15
Nov. 1-10	4.20	4.2	.05	4.3	1.2	2.2	1.1	21	1.0	2.8	.1	.7	30	16	0	44.7	7.0	15
Nov. 11-20	6.52	5.2	.00	4.8	.9	2.6	1.1	21	2.2	2.2	.1	.3	28	16	0	46.2	6.7	5
Nov. 21-30	19.5	5.7	.02	5.1	1.1	2.6	1.2	20	2.2	2.2	.1	.8	29	17	1	47.9	6.8	7
Dec. 1-10	23.8	6.2	.02	4.9	1.2	2.3	.9	20	2.4	2.5	.1	1.6	25	17	1	45.3	6.9	10
Dec. 11-20	19.9	9.4	.08	3.8	1.6	2.6	1.1	16	3.5	5.0	.2	3.2	39	16	3	47.9	6.3	3
Dec. 21	16.0	9.4	---	---	---	---	---	16	2.0	4.5	---	4.8	31	28	15	58.9	7.2	---
Dec. 22-31	13.5	9.0	.03	3.6	1.2	2.7	1.1	15	2.6	4.7	.0	1.9	35	14	2	47.6	6.5	2
Jan. 1-10, 1956	9.84	8.0	.04	3.4	1.6	2.3	1.1	17	2.8	4.3	.0	.4	31	15	1	44.0	6.2	1
Jan. 11-20	8.79	---	---	1.9	1.3	1.7	.9	10	4.2	1.8	---	.4	36	10	2	31.1	6.9	30
Jan. 21-22, 24-31	10.9	---	---	3.2	1.2	2.3	.7	15	3.8	2.2	---	1.1	29	13	1	40.5	7.2	10
Jan. 23	10.0	---	---	---	---	---	---	12	3.0	2.0	---	1.1	25	10	0	28.6	7.3	---
Feb. 1-10	.872	7.2	.14	3.0	.6	2.0	1.3	11	3.4	3.8	.0	1.3	32	10	1	32.4	5.9	20
Feb. 11-20	1.095	---	---	3.3	1.1	2.3	.7	16	3.0	2.0	---	.5	30	13	0	41.0	7.0	15
Feb. 21-28	.216	---	---	2.4	1.2	2.1	---	10	3.6	3.8	---	.8	33	11	3	31.5	5.7	---
Mar. 1-10	.174	6.6	.07	2.4	1.0	2.1	.6	9.0	3.0	3.0	.0	1.4	29	10	2	32.2	6.0	5
Mar. 11-20	.172	---	---	5.0	1.3	2.1	---	14	3.2	3.6	---	.7	31	13	2	37.0	6.2	---
Mar. 21-31	.231	---	---	2.9	1.5	1.9	---	11	3.4	4.7	---	.4	28	13	4	37.3	5.8	---

^a Estimated from specific conductance.

Apr. 1-10, 1956.....	397	4.3	.10	3.2	.7	1.9	.8	12	1.4	2.2	.2	2.0	43	11	1	34.0	7.1	30
Apr. 11-20	1,132	--	--	3.1	.9	1.6	--	12	1.6	1.5	--	.5	38	11	2	29.3	6.3	30
Apr. 21-30	627	--	--	2.9	1.1	1.6	--	13	2.0	2.0	--	.4	32	12	1	30.0	6.5	15
May 1-10	738	2.9	.11	3.3	.4	1.7	.9	12	1.6	2.0	.2	.3	38	10	0	31.0	7.4	25
May 11-20	1,501	--	--	3.4	.9	1.7	--	14	2.6	1.5	--	.5	36	12	1	32.6	6.2	30
May 21-31	514	--	--	3.6	1.0	2.0	--	18	1.2	1.5	--	.9	42	13	0	36.6	7.6	30
June 1-10	223	5.1	.00	4.0	.8	1.7	.8	18	1.2	2.0	.0	.9	40	13	0	39.0	7.2	15
June 11-20	113	--	--	3.9	2.0	2.3	--	20	2.4	2.2	--	.0	34	17	0	42.4	7.3	10
June 21-30	594	--	--	3.2	1.0	2.3	--	22	1.6	2.2	--	.3	40	16	0	47.7	7.2	5
July 1-5, 7-10.....	428	--	--	4.3	1.4	2.3	--	16	1.6	3.0	--	.2	40	16	0	47.8	7.2	5
July 6-10	44.0	--	--	4.4	1.5	2.7	--	16	2.0	3.0	--	.2	3126	44	31	146.2	6.9	--
July 11-20	15.1	5.6	.00	4.4	1.5	2.7	.9	24	2.2	2.2	.0	.9	43	17	0	47.2	6.9	5
July 21-31	9.35	--	--	4.4	2.4	2.4	--	23	3.4	2.2	--	.4	40	21	2	48.7	7.5	5
Aug. 1-10	1.93	5.7	.00	5.2	1.5	2.8	.9	26	2.2	2.0	.0	1.0	43	19	0	53.1	7.0	5
Aug. 11-20 .....	.65	--	--	4.5	1.8	3.0	--	25	1.0	3.0	--	1.4	48	19	0	58.0	6.9	7
Aug. 21-31 .....	.30	--	--	5.0	1.8	2.8	--	26	2.0	2.8	--	1.2	41	20	0	55.3	7.1	7
Sept. 1-10 .....	.00	5.6	.00	5.0	1.7	3.0	1.0	26	.8	2.5	.0	1.4	43	20	0	56.8	6.7	5
Sept. 11-20 .....	.00	--	--	5.2	2.4	3.2	--	28	2.2	2.8	--	1.1	40	23	0	58.1	7.1	7
Sept. 21-30 .....	.00	--	--	4.4	2.0	3.2	--	27	1.8	2.5	--	1.1	39	19	0	56.8	7.0	7
Average	239	--	--	3.9	1.3	2.3	--	18	2.4	3.4	--	0.9	38	15	0	45.4	--	13

a Estimated from specific conductance.

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

MULBERRY RIVER NEAR MULBERRY, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	60	39	40	40	48	60	61	70	80	84	74
2	74	60	40	41	41	48	60	61	68	84	84	74
3	71	55	42	41	41	50	60	61	70	84	84	73
4	74	50	42	40	41	50	--	62	68	84	84	72
5	74	50	42	40	41	51	58	66	70	84	84	72
6	75	54	41	40	41	55	60	69	70	85	82	71
7	70	50	42	40	40	56	58	68	70	85	82	71
8	68	49	43	40	45	50	55	--	72	85	84	70
9	65	46	39	39	42	50	58	70	74	84	64	67
10	64	46	40	39	45	50	54	70	75	80	85	67
11	66	46	39	40	42	50	50	72	77	80	84	69
12	69	50	39	39	41	48	52	71	78	80	82	70
13	65	55	36	39	41	--	55	72	75	85	82	70
14	63	60	40	39	46	45	60	74	75	85	82	70
15	60	61	35	39	48	45	60	68	75	88	82	75
16	61	60	34	38	50	45	55	62	75	88	82	75
17	60	50	34	37	51	45	51	62	76	85	84	72
18	58	49	34	35	48	50	50	65	78	83	82	72
19	58	45	34	35	45	49	55	65	80	83	82	72
20	59	45	35	34	48	48	50	68	80	81	76	72
21	60	46	35	34	45	49	55	70	81	81	78	70
22	62	52	35	35	45	48	58	70	81	81	70	--
23	62	50	35	35	38	50	58	71	82	78	70	--
24	62	49	40	38	50	50	55	70	82	78	76	--
25	59	47	44	36	52	56	55	68	81	85	76	--
26	56	45	46	38	50	54	60	65	81	81	76	--
27	55	45	45	38	50	59	64	66	82	85	78	--
28	60	40	45	41	48	59	66	70	82	85	78	--
29	56	39	48	45	47	58	65	70	80	85	78	--
30	55	37	46	41	--	55	61	70	--	80	76	--
31	52	--	40	41	--	55	--	74	--	80	76	--
Average	63	50	40	39	45	51	57	68	76	83	80	--

ARKANSAS RIVER BASIN--Continued

PINEY CREEK NEAR DOVER, ARK.

LOCATION --At gaging station, 7 1/4 miles downstream from Indian Creek and 10 miles north of Dover, Pope County.
DRAINAGE AREA --274 square miles.

RECORDS AVAILABLE --Chemical analyses: October 1933 to September 1956.

Water temperatures: October 1955 to September 1956.

EXTREMES, 1935-56.--Dissolved solids: Maximum, 72 ppm Aug. 16; minimum, 34 ppm June 21-30.

Hardness: Maximum, 44 ppm Sept. 21-30; minimum, 14 ppm Feb. 1-10.

Specific conductance: Maximum, 27.5 micromhos daily, 27.0 micromhos Feb. 17.

Temperature: Maximum, 27.5 Aug. 16; minimum, 34.7 Jan. 18.

REMARKS: Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium	Non-carbonate			
Oct. 1-10, 1955.....	94.1	5.7	0.07	8.3	1.7	2.2	1.4	26	4.2	4.0	0.3	1.2	51	28	6	69.1	7.2	25
Oct. 11-20.....	14.9	5.5	.00	8.9	1.7	2.2	.9	35	4.4	2.5	.2	1.0	44	29	1	69.6	6.8	10
Oct. 21-31.....	16.0	5.5	.00	9.4	1.8	2.5	1.3	36	4.2	2.5	.1	1.5	42	31	1	73.9	7.0	5
Nov. 1-10.....	16.0	5.5	.00	8.3	1.9	2.7	1.5	37	3.8	2.5	.1	.9	42	32	2	76.0	6.9	5
Nov. 11-20.....	53.8	5.3	.00	9.7	1.8	2.9	1.3	37	4.4	3.0	.1	.8	44	32	1	77.9	7.2	10
Nov. 21-30.....	56.2	5.9	.00	9.4	1.2	2.1	1.2	35	4.2	2.5	.1	.4	38	26	1	66.2	7.2	5
Dec. 1-10.....	41.9	5.7	.02	7.5	1.5	1.8	.9	27	4.0	2.0	.2	1.2	36	25	3	57.8	6.8	10
Dec. 11-20.....	26.4	7.8	.04	7.2	1.3	2.4	1.1	26	4.0	4.1	.0	.1	41	24	2	60.6	6.4	6
Dec. 21-31.....	17.1	7.8	.03	8.0	1.2	2.7	1.0	28	4.0	4.1	.0	.1	43	25	2	82.6	6.2	3
Jan. 1-10, 1956.....	12.4	6.2	.01	7.4	1.9	2.5	.5	30	4.6	4.0	.0	.6	40	29	4	65.5	6.3	5
Jan. 11-20.....	10.2	6.2	.01	7.4	2.1	2.3	.5	29	3.9	5.1	.0	.8	41	27	3	64.5	6.1	5
Jan. 21-31.....	28.6	--	--	7.9	2.6	2.1	--	29	4.9	4.5	--	.2	43	30	6	66.9	6.3	--
Feb. 1-10.....	1,815	6.4	.08	4.0	1.0	1.7	1.4	14	4.2	3.4	.1	1.4	39	14	2	39.2	6.1	3
Feb. 11-20.....	1,677	--	--	4.2	1.3	1.6	--	16	3.4	3.2	--	.5	36	16	4	36.3	6.0	--
Feb. 21-29.....	1,564	--	--	4.6	1.6	1.6	--	17	3.1	3.4	--	.2	36	18	4	40.6	6.2	--
Mar. 1-3, 5-10.....	181	--	--	5.5	1.1	2.1	--	20	3.5	3.8	--	.4	36	18	2	46.8	6.4	--
Mar. 4.....	191	--	--	--	--	--	--	19	3.0	8.0	--	3.6	a49	18	2	70.6	7.5	--
Mar. 11-21.....	115	5.8	.03	6.0	1.5	2.6	1.1	22	4.5	4.5	.0	.8	37	21	3	52.6	6.2	5
Mar. 22-31.....	185	--	--	5.8	1.3	2.2	--	20	3.3	4.8	--	.4	36	20	4	49.8	5.9	--
Apr. 1-10.....	253	6.2	.04	5.4	1.6	2.1	.6	20	3.6	4.3	.0	.5	35	20	4	45.5	6.3	5
Apr. 11-20.....	746	--	--	5.6	1.1	1.7	--	20	2.4	3.0	--	.7	44	18	2	43.5	7.1	20
Apr. 21-30.....	424	--	--	6.0	.9	2.0	--	22	2.4	1.5	--	.4	44	19	1	44.2	7.4	15
May 1-10.....	479	4.6	.00	5.1	1.3	1.1	.5	21	1.2	1.8	.1	.9	40	18	1	43.5	7.2	10
May 11-20.....	753	--	--	6.6	1.0	1.7	--	21	2.0	1.5	--	.7	44	21	0	49.5	6.8	15
May 21-31.....	165	--	--	8.2	.8	2.1	--	30	1.8	3.0	--	.4	49	24	0	57.6	7.9	10

a Estimated from specific conductance

ARKANSAS RIVER BASIN--Continued

PINEY CREEK NEAR DOVER, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1958.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium	Non-carbonate			
June 1-10, 1956	62.9	3.7	0.00	7.6	1.5	1.5	0.6	31	2.6	1.8	0.0	0.9	44	25	0	60.2	6.4	5
June 11-20	50.6	--	--	9.0	1.5	2.1	--	34	2.4	2.0	--	.5	46	28	0	64.7	7.0	10
June 21-30	28.8	--	--	9.5	2.2	2.2	--	34	3.0	1.8	--	1.2	38	33	5	77.6	7.2	5
July 1-10	36.6	5.2	.00	11	1.5	2.3	.9	40	1.6	2.6	.0	.9	38	34	1	76.4	7.4	8
July 11-20	16.9	--	--	8.4	1.7	2.3	--	36	2.4	2.5	--	1.7	39	39	0	73.6	7.1	5
July 21-31	10.1	--	--	10	1.7	2.3	--	40	2.4	2.0	--	.9	40	32	0	73.7	7.3	5
Aug. 1-10	3.19	4.0	.00	11	1.3	2.3	1.2	42	4.0	1.5	.1	1.1	40	33	0	77.1	7.0	10
Aug. 11-15, 17-20	.41	--	--	11	1.9	2.8	--	42	2.4	2.5	--	2.4	42	35	1	84.5	7.2	5
Aug. 16	.30	--	--	--	--	--	--	42	1.0	8.0	--	2.8	42	38	4	104	7.5	--
Aug. 21-24, 26-31	.39	--	--	10	2.1	3.7	--	44	2.2	2.5	--	1.1	40	34	0	93.0	7.5	7
Aug. 25	.30	--	--	--	--	--	--	43	1.0	6.0	--	3.2	40	37	3	101	7.6	--
Sept. 1-10	.41	2.9	.00	11	2.3	2.5	1.0	43	4.2	2.5	.1	1.0	46	37	2	82.9	7.3	5
Sept. 11-20	.54	--	--	11	2.8	2.4	--	46	2.4	2.0	--	.9	42	39	1	86.8	7.2	5
Sept. 21-30	.03	--	--	12	3.3	3.4	--	49	2.8	4.0	--	2.9	56	44	3	104	7.2	10
Average	216	--	--	8.1	1.3	2.2	--	31	3.2	3.3	--	1.1	44	28	2	66.2	--	8

a Estimated from specific conductance.

ARKANSAS RIVER BASIN--Continued

PINEY CREEK NEAR DOVER, ARK.--Continued

Temperature (°F) of water water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	65	48	58	42	49	56	60	76	85	90	76
2	--	59	50	56	43	51	59	62	74	86	87	78
3	72	60	54	56	41	--	62	66	71	86	88	79
4	75	59	54	55	42	53	63	68	72	87	91	82
5	74	61	53	55	43	51	62	70	74	86	88	82
6	75	56	53	--	42	60	63	72	74	86	88	80
7	72	57	54	--	43	55	59	72	75	87	89	75
8	70	57	53	--	44	52	59	71	80	86	91	76
9	69	56	51	--	43	53	55	72	81	85	88	75
10	70	56	50	--	45	53	52	73	82	83	88	72
11	73	59	52	41	43	50	54	73	80	82	83	82
12	--	63	50	40	44	47	57	75	81	83	90	81
13	68	68	50	40	45	46	60	76	78	85	90	79
14	66	69	50	40	51	46	62	74	77	86	87	79
15	66	71	48	40	50	46	58	65	77	92	89	79
16	64	61	49	39	50	47	55	65	77	86	92	75
17	66	59	49	38	51	50	56	67	80	89	91	70
18	65	55	50	36	47	54	56	69	82	84	87	69
19	65	57	49	38	43	50	56	73	84	85	80	70
20	66	57	51	37	43	51	58	74	84	84	73	72
21	68	58	51	39	43	47	60	76	85	84	76	73
22	70	61	52	39	43	50	60	77	86	82	76	75
23	72	59	52	38	43	51	58	78	85	82	80	70
24	64	58	55	37	54	53	57	72	85	85	80	68
25	65	57	57	39	54	56	60	70	85	84	85	67
26	66	56	59	39	51	58	64	73	86	86	82	70
27	67	55	59	40	51	60	68	74	85	86	82	70
28	64	51	59	44	50	61	69	74	83	84	83	73
29	62	49	60	42	50	57	66	77	84	89	84	71
30	63	49	57	42	--	56	62	78	87	88	86	74
31	63	--	56	41	--	55	--	78	--	90	83	--
Average	68	59	53	43	47	52	60	72	80	86	85	75

ARKANSAS RIVER BASIN--Continued
ILLINOIS BAYOU NEAR SCOTTSVILLE, ARK.

LOCATION--At gaging station at bridge on county road, 1½ miles north of Scottsville, Pope County, and 3 miles downstream from North Fork Illinois Bayou.

DRAINAGE AREA--242 square miles
RECORDS AVAILABLE--Chemical analyses: October 1953 to September 1956.

Water temperatures: October 1955 to September 1956
EXTREMES 1955-56--Dissolved solids: Maximum 86 ppm Oct. 22; minimum, 25 ppm Nov. 21-30; Jan. 11-20.

Hardness: Maximum 22 ppm Oct. 22; Aug. 29; minimum, 8 ppm Jan. 1-10.
Specific conductance: Maximum daily, 97.9 micromhos Oct. 22; minimum daily, 22.1 micromhos Feb. 18.

Water temperatures: Maximum, 88°F July 4, Aug. 7; minimum, 34°F Jan. 19-21.

REMARKS--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium	Non-carbonate			
Oct. 1-10, 1955	65.3	4.5	0.06	4.3	1.0	1.7	1.2	16	2.8	1.5	0.2	1.2	36	15	2	41.7	6.6	22
Oct. 11-20	22.2	5.5	0.00	4.1	1.0	2.1	.8	18	2.6	2.2	.1	.6	29	14	0	40.0	7.1	15
Oct. 21, 23-31	9.00	4.2	0.00	4.1	1.0	2.0	.7	17	2.6	1.8	.1	1.3	31	14	0	39.9	6.5	5
Oct. 22	9.90	--	--	--	--	--	--	18	1.0	19	--	--	a 86	22	7	97.9	7.4	--
Nov. 1-10	11.2	3.5	1.00	4.3	1.1	2.0	.7	16	2.8	2.5	.1	.6	26	15	2	40.4	6.5	5
Nov. 11-20	10.3	7.0	0.00	4.5	1.1	1.8	.7	18	2.4	1.8	.1	.4	30	16	1	40.0	6.4	7
Nov. 21-30	42.1	5.3	0.00	4.0	1.0	1.7	.7	16	3.0	2.2	.1	.4	25	14	1	37.5	6.8	7
Dec. 1-10	47.1	5.0	0.00	3.6	1.1	1.6	.6	16	2.6	2.0	.2	.3	26	14	0	34.8	6.7	10
Dec. 11-20	29.5	8.0	0.04	3.4	.9	1.7	1.1	13	2.5	3.7	.0	.0	30	12	2	36.1	6.3	5
Dec. 21-31	15.9	7.4	0.02	3.2	1.0	2.2	1.4	13	2.3	4.0	.0	.6	32	12	2	37.7	5.9	5
Jan. 1-10, 1956	11.7	--	--	2.2	.7	1.7	.8	9	2.0	2.0	--	.1	32	8	1	27.2	7.0	30
Jan. 11-20	10.0	6.4	0.04	3.6	.7	1.7	1.1	13	2.5	4.5	.0	.2	25	12	2	35.1	5.9	4
Jan. 21-25, 27-31	31.2	--	--	2.8	1.0	2.0	.6	14	1.8	2.0	--	.5	30	11	0	36.6	4.1	10
Jan. 26	16.0	--	--	--	--	--	--	2	3.0	2.5	--	3.1	a 92	12	10	39.2	4.8	--
Feb. 1-10	1,752	5.8	0.08	2.6	1.1	1.5	1.4	8	3.1	3.6	.0	.8	26	11	4	28.2	5.8	15
Feb. 11-20	1,924	--	--	2.0	1.2	1.8	.7	13	2.6	2.0	--	.2	26	11	0	36.3	7.1	10
Feb. 21-30	522	3.2	0.06	2.9	1.0	2.1	1.0	12	1.6	1.8	--	.5	31	11	1	37.4	6.8	15
Mar. 1-10	174	3.2	0.06	3.8	1.8	1.6	--	13	2.4	2.5	.1	2.2	38	11	1	34.4	6.8	10
Mar. 11-20	123	--	--	3.9	1.9	1.6	--	14	2.4	2.0	--	.4	34	13	2	31.8	6.7	15
Mar. 21-31	144	--	--	3.2	1.1	1.6	--	14	2.6	1.8	--	.3	30	12	1	31.4	6.5	10
Apr. 1-10	174	4.6	0.06	3.3	.7	1.8	1.0	14	1.8	2.5	.1	.5	37	11	0	33.6	6.5	20
Apr. 11-20	613	--	--	3.0	1.0	1.5	--	12	3.2	1.5	--	.6	36	12	2	30.0	6.6	30
Apr. 21-22, 24-30	294	--	--	3.6	.6	1.3	--	14	2.0	2.0	--	--	31	11	0	30.0	6.5	20
Apr. 23	289	--	--	--	--	--	--	23	2.0	2.5	--	.5	a 40	14	0	45.4	7.8	--
May 1-10	415	4.3	0.04	3.1	.6	1.5	--	12	2.2	2.0	.1	.1	37	10	0	31.4	6.4	15
May 11-20	316	--	--	3.5	.8	1.6	--	15	2.0	2.0	--	.3	34	12	0	32.7	6.6	15
May 21-31	80.0	--	--	4.2	1.0	1.4	--	16	2.0	1.5	--	.2	32	15	2	34.3	6.5	10

a Estimated from specific conductance.

June 1, 3-10, 1956	26.0	3.7	0.00	3.8	0.9	1.8	0.7	16	2.8	2.2	0.0	1.1	38	13	0	39.9	6.8	5
June 2	35.0	--	--	--	--	--	--	18	2.0	10	--	1.1	a61	21	6	69.6	7.4	--
June 11-20	31.2	--	--	4.0	1.3	2.0	--	18	1.2	2.2	--	.2	32	15	1	40.9	7.6	10
June 21-30	19.5	--	--	4.9	1.0	2.0	--	18	3.6	2.8	--	.4	32	16	2	41.9	7.3	10
July 1-10	58.1	5.1	.00	4.5	1.4	1.7	.8	16	3.2	4.2	.1	.9	56	17	4	49.3	6.4	10
July 11-20	24.6	--	--	4.4	1.0	1.8	--	18	3.6	1.5	--	.5	34	15	0	41.5	7.0	15
July 21-31	8.00	--	--	4.7	1.1	1.9	--	20	2.8	2.0	--	.3	32	16	0	42.6	7.0	10
Aug. 1-10	2.10	4.6	.00	4.5	1.2	1.6	.7	18	2.4	2.0	.1	.9	33	16	1	44.3	6.8	5
Aug. 11-20	.88	--	--	4.0	1.6	2.4	--	22	1.6	2.0	--	1.5	38	17	0	51.0	6.7	7
Aug. 21-30, 30-31	.81	--	--	4.0	1.4	2.7	--	21	1.0	3.0	--	1.6	38	16	0	54.5	7.2	7
Aug. 29	.30	--	--	--	--	--	--	21	1.0	10	--	.8	a63	22	5	71.9	7.2	--
Sept. 1-10	.31	3.3	.00	4.3	1.6	2.4	1.2	19	3.0	3.5	.1	1.4	38	16	3	49.4	7.3	5
Sept. 11-20	.10	--	--	3.7	1.5	2.4	--	19	1.2	3.0	--	1.3	36	15	2	47.8	7.0	7
Sept. 21-30	.02	--	--	3.4	1.5	2.3	--	16	1.2	3.0	--	1.8	34	15	2	46.5	6.0	7
Sept. 21-22, 24-30	.10	--	--	--	--	--	--	14	1.0	4.0	--	.11	a63	18	6	71.5	6.8	--
Sept. 23	.10	--	--	--	--	--	--	14	1.0	4.0	--	.11	a63	18	6	71.5	6.8	--
Average	190	--	--	3.7	1.1	1.8	--	16	2.3	3.2	--	1.0	37	14	0	42.7	--	11

a Estimated from specific conductance.

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

ILLINOIS BAYOU NEAR SCOTTSVILLE, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	57	38	40	39	47	55	60	75	85	85	77
2	70	61	38	38	46	46	58	58	74	86	86	76
3	71	52	44	40	40	48	60	60	72	86	86	73
4	72	52	44	40	41	47	60	63	69	88	86	74
5	74	49	44	--	42	51	58	64	72	85	87	75
6	75	52	42	--	41	57	56	66	74	86	87	--
7	72	48	42	--	39	58	56	68	74	83	88	72
8	68	47	44	--	43	46	55	68	75	81	86	71
9	65	44	38	--	43	48	55	69	78	83	86	68
10	64	44	37	37	44	49	51	71	78	80	86	77
11	67	45	39	38	42	49	50	72	79	80	85	69
12	67	51	38	36	41	46	52	71	79	81	83	71
13	61	57	37	36	39	44	51	72	78	77	84	72
14	61	59	39	36	45	44	57	74	75	82	83	73
15	61	64	36	39	48	44	60	70	76	84	82	74
16	61	57	35	36	47	45	52	65	77	85	84	73
17	57	49	35	35	49	44	52	64	78	85	84	74
18	53	47	36	36	47	50	52	67	80	84	84	--
19	58	46	35	34	46	48	53	70	81	83	84	73
20	56	47	36	34	46	46	53	73	82	81	78	71
21	59	45	37	34	45	48	54	75	84	84	74	71
22	61	50	37	36	42	46	58	75	85	81	72	70
23	62	49	38	35	46	47	57	75	85	79	74	71
24	60	46	40	35	49	47	54	72	85	80	76	70
25	57	46	44	37	52	49	55	68	81	84	77	68
26	55	42	46	35	48	53	61	71	84	85	77	64
27	54	43	47	37	48	57	62	74	84	86	77	64
28	61	42	44	42	47	57	64	75	83	85	79	66
29	56	37	48	45	45	53	65	76	82	84	78	65
30	53	38	45	39	--	51	62	77	83	84	79	66
31	51	--	40	38	--	53	--	76	--	86	79	--
Average	62	49	40	37	44	49	56	70	79	83	82	71

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT DARDANELLE, ARK.

LOCATION --At gaging station at bridge on State Highway 7 at Dardanelle, Yell County, 1 mile upstream from Whig Creek, 4.7 miles downstream from Illinois Bayou, at mile 253.8.

DRAINAGE AREA--3,707 square miles, of which 22,241 square miles is probably noncontributing.

RECORDS AVAILABLE--Chemical analyses: October 1948 to September 1956.

Water temperatures--Chemical analyses: October 1948 to September 1956.

EXTREMES 1955-56--Dissolved solids: Maximum, 1,790 ppm Aug. 7-9; minimum, 65 ppm Feb. 18.

Hardness: Maximum, 370 ppm Jan. 3-4; minimum, 32 ppm Feb. 18.

Specific conductance: Maximum, 3,300 micromhos Aug. 8; minimum daily, 111 micromhos Feb. 18.

Water temperatures: Maximum, 93°F Aug. 5-6; minimum, 35°F Jan. 18-20.

EXTREMES 1948-56--Dissolved solids: Maximum, 3,140 ppm Feb. 18, 1954; minimum, 65 ppm Feb. 18, 1956.

Hardness: Maximum, 583 ppm Apr. 4-6, 1954; minimum, 32 ppm Feb. 18, 1956.

Specific conductance: Maximum daily, 5,310 micromhos Mar. 21, 1955.

Water temperatures: Maximum, 94°F Aug. 17, 1952; minimum, freezing point Jan. 30, 1949 Feb. 1-3, 1951.

REMARKS--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	Color	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate					
Oct. 1, 5, 1955	13,200	--	--	71	18	260	--	93	41	478	--	2.9	--	1,020	1.39	36,350	251	175	69	7.2	1,830	7.9	50
Oct. 2-3, 6-7	18,950	--	--	62	14	182	--	103	44	338	--	2.9	--	780	1.06	39,910	212	128	65	5.5	1,410	7.9	13
Oct. 8 ^a	10,700	--	--	--	--	--	--	92	39	630	--	2.9	--	1,340	1.82	38,710	340	265	--	--	2,300	8.2	--
Oct. 8	104,000	--	--	--	--	--	--	132	44	200	--	6.4	--	579	.79	162,600	216	108	--	--	992	8.2	--
Oct. 9-16	49,140	--	--	40	8.9	73	--	106	47	121	--	2.7	--	368	.50	46,830	136	50	54	2.7	664	7.9	15
Oct. 17-19	13,600	--	--	47	9.3	111	--	105	51	175	--	3.1	--	491	.67	18,030	156	70	61	3.9	878	7.9	15
Oct. 20-21	10,450	--	--	56	11	144	--	124	62	228	--	3.3	--	608	.83	17,150	184	83	63	4.6	1,080	8.0	13
Oct. 22-29, 31	8,602	1.4	0.02	71	12	198	8.4	132	84	320	0.3	1.7	--	795	1.08	18,460	226	118	64	5.7	1,410	7.5	15
Oct. 30 ^a	8,180	--	--	--	--	--	--	160	102	460	--	2.1	--	1,120	1.52	24,740	316	185	--	--	1,920	8.2	--
Nov. 1-6, 8-10	5,958	--	--	74	14	191	--	135	77	320	--	2.4	--	816	1.11	13,130	242	132	63	5.4	1,440	7.7	13
Nov. 7 ^a	6,740	--	--	--	--	--	--	b154	97	510	--	2.4	--	1,230	1.67	22,380	336	210	--	--	2,100	8.3	--
Nov. 11, 13, 17-19	4,482	--	--	77	15	191	--	137	65	345	--	1.5	--	859	1.17	10,400	254	141	62	5.2	1,510	8.0	10
Nov. 12 ^a	5,400	--	--	--	--	--	--	132	63	250	--	2.0	--	995	.95	10,300	224	116	--	--	1,190	8.2	--
Nov. 14-16, 20	4,780	--	--	83	18	242	--	144	79	425	--	1.9	--	1,030	1.40	13,260	201	163	65	6.3	1,070	7.7	10
Nov. 21-24	3,760	--	--	91	17	280	--	146	79	490	--	1.8	--	1,130	1.54	11,470	297	178	67	7.1	1,060	7.7	12
Nov. 25-27	3,403	--	--	79	19	218	--	149	66	380	--	1.8	--	924	1.26	8,460	275	153	63	5.7	1,630	7.9	12
Nov. 28-30	2,987	--	--	100	23	309	--	165	85	550	--	1.8	--	1,290	1.75	10,400	344	209	66	7.2	2,210	7.9	10
Dec. 1-2	2,980	--	--	89	24	294	--	163	77	520	--	1.2	--	1,160	1.58	9,330	320	187	67	7.1	2,090	8.0	7
Dec. 3-7	4,460	--	--	100	24	354	--	164	84	625	--	2.3	--	1,420	1.93	17,100	348	214	69	8.2	2,470	7.9	7
Dec. 8-10	3,475	--	--	76	18	248	--	150	75	415	--	2.7	--	996	1.35	9,340	264	140	67	6.6	1,770	8.0	7
Dec. 11-12, 14-19	4,331	--	--	84	22	250	--	151	74	440	--	2.7	--	1,040	1.41	12,160	300	176	64	6.3	1,820	8.2	7

^a Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

^b Includes equivalent of 2 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN--Continued
 ARKANSAS RIVER AT DARDANELLE, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	Color	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nesium	Non-carbonate					
Dec. 13, 20	4,740	--	--	100	27	349	--	154	93	630	--	3.3	--	1,440	1.96	18,430	360	234	68	8.0	2,510	8.2	7
Dec. 21-24, 28-31	3,538	--	--	72	19	225	--	138	66	390	--	3.0	--	898	1.22	8,580	258	144	66	6.1	1,620	7.9	7
Dec. 25-27	4,887	--	--	87	24	293	--	145	76	515	--	3.1	--	1,190	1.62	15,700	316	196	67	7.2	2,080	8.2	7
Jan. 1-2, 5-9, 1956	3,986	2.5	0.03	73	17	212	14	118	64	392	0.1	2.9	--	935	1.27	10,080	252	156	63	5.8	1,620	7.6	5
Jan. 3-4	4,810	--	--	98	31	378	--	124	83	690	--	2.8	--	1,440	1.96	18,700	370	268	69	8.5	2,610	7.7	--
Jan. 10-12	3,427	--	--	90	26	322	--	128	84	600	--	1.2	--	1,300	1.77	12,030	330	225	68	7.7	2,390	7.9	--
Jan. 13-15	3,067	--	--	71	19	218	--	123	60	402	--	1.9	--	969	1.32	8,020	255	154	65	5.9	1,580	7.4	5
Jan. 16-19, 21-23	3,078	--	--	16	21	313	--	152	73	560	--	1.7	--	1,230	1.67	10,220	340	216	67	7.4	2,200	7.8	--
Jan. 20, 24-31	3,158	--	--	98	28	332	--	172	81	600	--	2.3	--	1,310	1.78	11,170	360	219	67	7.6	2,340	7.9	--
Feb. 1 ^a	3,850	--	--	--	--	332	--	c140	81	530	--	5.1	--	1,260	1.71	13,100	332	217	--	--	2,160	8.4	--
Feb. 2 ^a	19,000	--	--	--	--	--	--	76	20	46	--	2.5	--	179	0.24	9,180	86	24	--	--	307	8.0	--
Feb. 3-4, 9	13,700	--	--	32	8.8	98	--	56	22	180	--	1.9	--	408	0.56	15,130	116	70	65	4.0	757	7.3	--
Feb. 5-8, 12	9,520	--	--	47	15	184	--	67	24	345	--	2.7	--	811	1.10	20,850	179	124	69	6.0	1,360	7.3	5
Feb. 10-11, 14, 16	11,180	--	--	34	11	127	--	52	27	230	--	1.8	--	576	0.78	17,390	130	88	68	4.8	945	7.2	25
Feb. 13, 15	9,710	--	--	43	12	154	--	64	29	280	--	1.9	--	617	0.84	16,180	158	106	68	5.3	1,140	7.5	--
Feb. 17, 20	22,900	--	--	22	6.6	80	--	40	22	137	--	1.6	--	370	0.50	22,880	82	49	68	3.8	579	7.3	35
Feb. 18 ^a	44,500	--	--	--	--	--	--	32	8.0	14	--	1.4	--	65	0.09	7,810	32	6	--	--	111	7.7	--
Feb. 19 ^a	31,400	--	--	--	--	--	--	46	18	80	--	1.1	--	224	0.30	18,990	66	28	--	--	384	7.9	--
Feb. 21, 24-29	13,410	--	--	32	8.8	114	--	48	27	216	--	4.8	--	480	0.65	17,380	116	76	68	4.6	894	6.8	--
Feb. 22 ^a	18,900	--	--	--	--	--	--	55	25	275	--	2.2	--	654	0.89	33,370	150	105	--	--	1,120	7.7	--
Feb. 23 ^a	17,100	--	--	--	--	--	--	74	47	395	--	2.6	--	899	1.22	41,500	201	140	--	--	1,540	8.0	--
Mar. 1-3	6,447	--	--	40	12	178	--	71	45	305	--	2.0	--	745	1.01	12,970	150	92	72	6.3	1,240	7.4	15
Mar. 4, 7-11	4,232	--	--	69	14	224	--	106	35	428	--	1.8	--	944	1.28	17,270	230	142	68	6.4	1,600	7.3	7
Mar. 5-6	5,235	--	--	64	20	290	--	104	53	508	--	1.8	--	1,210	1.85	17,100	242	164	72	8.1	1,840	7.4	5
Mar. 12-15	3,965	--	--	22	22	357	--	116	62	510	--	1.1	--	1,420	1.93	15,320	270	182	74	9.5	2,340	7.5	5
Mar. 16-23	3,806	--	--	57	24	361	--	110	68	610	--	1.3	--	1,140	1.55	11,710	240	150	73	8.4	1,960	7.5	5
Mar. 24, 28-30	4,765	--	--	57	24	371	--	92	66	460	--	1.3	--	1,070	1.46	13,820	224	146	72	7.8	1,730	7.5	7
Mar. 25-27, 31	4,755	--	--	62	13	214	--	96	52	378	--	1.7	--	892	1.21	11,450	208	130	69	6.4	1,510	7.6	7
Apr. 1, 4, 6-8	4,536	--	--	58	15	220	--	87	51	405	--	1.6	--	932	1.27	11,410	206	134	70	6.7	1,570	7.1	5
Apr. 2-3, 5, 9-10	4,998	1.7	0.01	69	15	275	16	95	67	485	1	1.8	--	1,080	1.47	14,570	234	156	70	7.8	1,880	7.3	7
Apr. 11 ^a	8,180	--	--	--	--	--	--	76	46	370	--	1.8	--	847	1.15	18,710	196	134	--	--	1,450	8.2	--
Apr. 12-15, 17, 19-21	7,270	--	--	35	11	150	--	56	36	260	--	1.2	--	615	0.84	12,070	132	86	71	5.7	1,040	7.1	15
Apr. 16, 18	9,250	--	--	24	6.8	98	--	44	34	160	--	1.7	--	403	0.55	10,080	88	52	71	4.5	671	7.8	25
Apr. 22-23, 29	5,510	--	--	48	13	180	--	73	39	325	--	0.7	--	784	1.04	11,370	174	114	69	5.9	1,270	7.7	5

^a Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

c Includes equivalent of 4 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN--Continued
 ARKANSAS RIVER AT DARDANELLE, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	Color	
														Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-carbonate					
Aug. 10, 1956 ^a	2,140	--	--	--	--	--	--	104	46	610	--	2.0	--	1,410	1.92	81,470	272	187	--	2,410	8.2	--	
Aug. 11-13	2,753	--	60	17	314	--	--	101	92	510	--	3.9	--	1,250	1.70	9,291	220	136	76	9.2	2,020	7.5	5
Aug. 14-16	2,483	--	54	16	241	--	--	97	75	395	--	3.5	--	912	1.24	6,110	200	121	72	7.4	1,620	7.8	5
Aug. 17-21	3,134	--	58	12	173	--	--	112	78	288	--	2.8	--	721	.98	6,100	194	102	66	5.4	1,250	7.5	5
Aug. 22-31	1,904	3.3	0.00	51	8.4	90	5.3	122	52	142	0.2	1.1	--	435	.59	2,240	162	62	54	3.1	782	7.7	5
Sept. 1-2	1,365	--	50	13	79	--	--	144	48	135	--	1.8	--	434	.59	1,600	178	60	49	2.6	872	7.7	10
Sept. 3-4	2,045	--	56	15	118	--	--	146	55	195	--	2.7	--	575	.79	3,170	201	82	56	3.6	993	7.9	7
Sept. 5-7	1,242	--	61	19	195	--	--	130	69	330	--	1.9	--	808	1.10	2,700	230	124	65	5.6	1,380	7.8	7
Sept. 8-13	812	--	58	14	126	--	--	160	42	210	--	2.3	--	598	.81	1,310	202	71	58	3.9	1,060	7.8	7
Sept. 14-20	638	--	64	16	145	--	--	184	54	250	--	1.1	--	683	.93	1,180	234	82	57	4.1	1,150	8.2	5
Sept. 21-30	708	--	57	15	116	--	--	170	37	195	--	2.7	--	586	.80	1,120	204	64	55	3.5	990	8.0	7
Weighted average.	e 6,776	--	--	54	14	169	--	100	49	298	--	2.4	--	725	0.99	13,260	192	110	66	5.3	1,250	--	10

^a Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

e Mean discharge for water year October 1955 to September 1956, 7,375 cfs.

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT DARDANELLE, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	60	38	47	40	53	61	64	79	89	88	82
2	76	60	41	47	41	55	64	65	77	90	88	82
3	75	55	47	47	40	55	67	69	74	91	90	82
4	75	55	45	47	40	57	66	73	75	91	92	82
5	75	56	43	47	40	57	65	70	75	89	93	82
6	76	55	43	48	41	65	68	79	75	90	93	81
7	73	54	45	46	43	56	63	80	77	90	92	79
8	72	53	44	44	43	55	69	77	80	89	91	77
9	70	51	40	43	45	55	66	77	82	88	91	77
10	70	52	40	43	43	56	56	78	83	87	89	78
11	71	55	40	43	44	53	61	78	84	85	86	78
12	71	58	40	42	44	50	60	80	83	87	87	82
13	68	61	39	42	46	47	63	80	80	88	88	83
14	67	63	39	41	50	47	65	80	78	90	88	82
15	66	64	37	41	49	46	62	77	79	90	89	85
16	65	57	37	38	50	47	60	74	78	88	89	86
17	64	54	37	37	51	51	60	75	82	89	90	83
18	62	48	40	35	49	53	60	78	85	85	90	81
19	63	50	39	35	48	52	61	80	87	85	86	82
20	65	50	37	35	49	52	63	81	87	87	81	80
21	67	52	38	37	50	47	65	83	88	85	80	78
22	67	50	39	38	50	48	67	83	89	83	81	79
23	68	53	42	38	50	51	63	84	86	83	88	78
24	64	53	--	36	51	56	61	77	89	84	85	76
25	64	51	47	38	55	58	64	73	86	87	84	74
26	64	49	48	38	55	60	69	75	87	88	85	76
27	63	48	47	39	55	63	73	77	89	87	84	78
28	60	43	49	39	53	63	72	76	84	85	82	76
29	59	41	51	45	54	61	71	78	86	86	85	77
30	55	40	48	44	--	62	67	81	89	86	83	77
31	57	--	46	41	--	61	--	81	--	89	82	--
Average	67	53	42	41	47	55	64	77	82	87	87	80

ARKANSAS RIVER BASIN--Continued
CADRON CREEK NEAR CONWAY, ARK.

LOCATION.--100 yards downstream from bridge on U. S. Highway 64, about 5 miles northwest of Conway, Faulkner County.

DRAINAGE AREA.--750 square miles, approximately.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.

WATER TEMPERATURES: October 1955 to September 1956.

EXTRAPOLATED:--Dissolved solids: Maximum, 731 ppm Oct. 9-11; minimum, 30 ppm Nov. 21-30.

Hardness: Maximum, 207 ppm Oct. 9-11; minimum, 8 ppm Jan. 11-20.

Specific conductance: Maximum daily, 1,320 microhos Oct. 11; minimum daily, 25.6 microhos Feb. 23.

Water temperatures: Maximum, 87° F Aug. 10; minimum, 37° F Dec. 17.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)		Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
															Calcium magnesium	Non-carbonate			
Oct. 1, 1955	---	---	---	---	---	---	---	68	2.0	5.0	---	0.7	399	114	48	0	114	7.8	--
Oct. 2	---	---	---	---	---	---	---	56	1.0	1.5	---	1.4	104	119	46	2	119	7.8	--
Oct. 3	---	---	---	4.5	2.7	3.2	---	72	1.2	1.6	---	1.1	86	161	12	1	161	6.7	25
Oct. 8	---	---	---	---	---	---	---	72	1.4	1.8	---	1.1	87	171	12	62	171	7.9	15
Oct. 9-11	---	---	---	60	14	168	---	126	60	290	---	4.9	71	1,230	207	104	1,230	7.9	15
Oct. 12	---	---	---	---	---	---	---	40	8.0	89	---	1.1	289	331	118	85	331	7.7	12
Oct. 13	---	---	---	---	---	---	---	27	2.8	5.5	0.4	1.5	59	23	24	2	72.3	6.7	12
Oct. 21-31	---	4.2	0.09	7.0	1.7	4.2	2.7	33	3.2	4.0	---	1.2	65	29	2	2	77.7	6.4	10
Nov. 1-10	---	4.6	0.07	8.5	1.8	3.9	2.5	33	3.2	4.0	---	1.4	42	21	2	2	58.1	6.4	25
Nov. 11-20	---	4.1	0.07	5.6	1.7	2.8	2.5	23	3.0	3.5	---	3	44	20	0	0	61.6	7.0	25
Nov. 21-30	---	4.3	0.07	5.9	1.4	3.3	2.4	26	3.4	4.4	---	1.0	44	20	0	0	61.6	7.0	25
Dec. 1-10	---	2.8	0.05	4.2	1.5	2.3	2.5	20	1.6	3.0	---	1.2	30	17	0	0	48.4	6.8	30
Dec. 11-20	---	4.9	0.05	4.0	1.0	2.5	2.0	18	2.2	3.5	---	3	31	14	0	0	44.3	6.9	40
Dec. 21-31	---	8.8	0.23	2.4	1.2	2.7	1.6	12	2.8	5.3	---	0.6	34	11	1	1	40.1	5.8	15
Jan. 1-10, 1956	---	8.4	0.19	3.0	1.1	3.0	1.6	13	2.6	5.1	---	0.8	33	12	2	2	41.0	6.2	8
Jan. 11-20	---	7.2	0.24	3.2	1.2	3.0	1.5	15	2.3	5.4	---	0.6	33	13	0	0	43.2	6.3	10
Jan. 21-29	---	---	---	2.4	1.6	1.6	1.4	7	4.2	1.8	---	1.0	44	8	3	3	30.0	6.7	25
Jan. 30, 31, Feb. 1-10	---	5.2	0.22	2.6	1.6	1.9	2.2	6	6.0	4.1	---	2.3	32	12	0	0	43.5	7.1	17
Feb. 11-20	---	---	---	3.3	2.1	3.0	1.3	18	4.8	3.5	---	0.5	47	17	2	2	46.8	7.0	10
Feb. 21-29	---	---	---	2.3	1.1	1.9	---	8	3.5	3.4	---	1.6	40	10	4	4	32.8	6.0	--
Mar. 1-10	---	7.4	0.12	3.4	0.9	3.3	1.0	12	3.5	5.1	---	2.5	38	12	2	2	41.4	6.0	10
Mar. 11-20	---	---	---	2.8	1.7	3.5	---	11	3.9	5.5	---	1.8	42	14	5	5	45.9	5.8	--
Mar. 21-31	---	---	---	2.8	1.2	2.2	---	10	4.4	4.8	---	1.7	38	12	4	4	43.5	5.6	--

a Estimated from specific conductance.

b Contaminated with Arkansas River backwater, not included in average.

Apr. 1-10, 1956	3.9	.18	3.3	1.1	3.5	1.0	14	1.8	4.5	.2	2.0	47	13	1	46.5	6.7	25
Apr. 11-20	--	--	3.1	1.4	3.1	--	15	1.8	3.5	--	1.3	42	14	1	41.6	6.6	30
Apr. 21-30	--	--	3.8	1.0	3.3	--	18	2.4	3.5	--	.8	42	14	0	42.6	6.8	20
May 1-10	3.9	.18	3.3	.6	2.7	1.1	14	2.0	2.8	.2	1.8	54	11	0	38.8	6.7	35
May 11-20	--	--	3.6	1.3	2.8	--	18	1.8	3.5	--	.9	40	14	0	40.7	6.8	30
May 21-31	--	--	3.7	1.3	2.9	--	18	3.2	2.8	--	.9	48	15	0	44.4	7.5	30
June 1-10	4.8	.00	4.1	1.6	3.2	1.0	20	1.4	3.5	.1	2.2	44	17	0	55.0	6.6	30
June 11-20	--	--	5.2	1.9	3.4	--	25	4.8	3.5	--	.4	57	21	0	58.7	7.5	40
June 21-30	--	--	6.2	2.3	3.7	--	27	5.2	5.5	--	.7	62	25	3	67.5	7.6	40
June 25	--	--	--	--	--	--	27	2.0	15	--	.4	387	37	15	100	7.0	--
June 29	--	--	--	--	--	--	23	1.0	2.8	--	1.1	342	16	0	47.6	7.5	--
July 1-10	3.2	.13	4.7	1.3	2.3	1.5	20	3.0	3.0	.1	1.2	60	17	1	49.9	6.9	15
July 11-20	--	--	5.7	1.7	3.0	--	27	2.4	3.0	--	.5	55	21	0	59.6	7.5	40
July 21-31	--	--	7.2	1.8	3.3	--	33	1.2	3.0	--	.4	56	25	0	64.3	7.5	45
Aug. 1-9	4.2	.01	8.0	2.2	3.5	1.5	40	1.6	4.0	.3	2.2	62	32	0	85.1	7.0	20
Aug. 10-20	--	--	9.5	3.3	3.7	--	48	1.4	4.0	--	2.2	63	37	0	95.2	7.4	15
Aug. 21-31	--	--	12	4.7	4.7	--	57	2.0	5.0	--	1.7	74	46	0	111	7.0	10
Sept. 1-10	2.9	.00	13	4.1	4.7	1.5	64	1.6	4.5	.2	1.4	85	52	0	122	7.1	10
Sept. 11-20	--	--	16	3.8	5.0	--	67	1.6	4.5	--	1.3	88	52	0	129	7.3	15
Sept. 21-30	--	--	18	3.8	5.0	--	70	1.4	4.8	--	1.3	66	56	0	134	7.4	15
Average	--	--	5.5	1.8	3.1	--	26	2.6	4.4	--	1.3	53	21	0	63.5	--	23

a Estimated from specific conductance.

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

CADRON CREEK NEAR CONWAY, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	74	58	42	46	45	55	60	64	79	--	82	78
2	74	63	42	45	43	55	61	62	77	81	83	79
3	71	58	44	45	43	55	63	62	77	82	84	77
4	73	55	44	45	44	53	62	64	74	83	84	76
5	73	56	45	45	43	55	62	66	75	81	84	76
6	74	55	43	45	43	59	64	69	75	82	84	77
7	73	54	43	45	42	61	63	71	75	82	84	75
8	69	52	43	43	45	57	61	71	75	83	85	73
9	70	52	42	42	45	56	60	71	76	82	85	73
10	69	51	42	42	45	55	58	73	77	81	87	72
11	70	52	40	41	44	56	58	75	78	79	84	71
12	70	54	41	42	44	54	56	75	80	80	83	72
13	65	58	40	40	44	51	58	76	78	81	84	73
14	65	59	41	41	48	48	61	76	77	82	83	74
15	65	61	39	40	51	49	62	76	77	84	84	75
16	63	57	39	40	51	48	60	71	72	83	84	75
17	62	55	37	40	51	48	59	71	77	84	85	75
18	61	55	38	40	51	53	59	72	78	82	84	72
19	61	52	38	39	50	51	60	72	79	83	85	73
20	60	53	38	39	50	49	60	74	80	81	84	74
21	61	52	38	38	49	51	60	75	81	80	77	74
22	60	52	40	40	50	49	62	75	80	81	76	72
23	62	51	40	39	51	50	62	76	82	80	78	73
24	61	51	42	38	54	52	62	76	82	81	79	70
25	59	51	42	38	55	53	60	75	82	81	79	70
26	68	48	45	39	54	56	62	73	81	81	79	69
27	60	47	44	39	55	59	65	75	81	82	79	69
28	60	47	45	40	53	58	68	75	82	83	79	70
29	58	47	47	51	53	60	68	77	80	81	78	69
30	58	43	48	47	--	60	66	77	80	81	80	70
31	55	--	45	46	--	59	--	79	--	82	79	--
Average	65	53	42	42	48	54	61	72	78	82	82	73

ARKANSAS RIVER BASIN--Continued
ARKANSAS RIVER AT LITTLE ROCK, ARK.

LOCATION.--At gaging station at Missouri Pacific Railroad Bridge at Little Rock, Pulaski County, at mile 165.5.

DRAINAGE AREA.--158,201 square miles, of which 22,241 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1956.

Water temperatures: October 1945 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,660 ppm Aug. 12-14; minimum, 147 ppm Feb. 19.

Hardness: Maximum, 334 ppm Oct. 7; minimum, 54 ppm Feb. 4, 6, 9, 11.

Specific conductance: Maximum, 3,190 microhos Aug. 13; minimum daily, 249 microhos Feb. 19.

Water temperatures: Maximum, 98 F July 5; minimum, 36 F Jan. 18-20, 1953; minimum, 147 ppm Feb. 19, 1956.

EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,400 ppm Nov. 28-29, 1953; minimum, 147 ppm Feb. 19, 1956.

Hardness: Maximum, 334 ppm Oct. 7; minimum, 54 ppm Feb. 4, 6, 9, 11.

Specific conductance: Maximum, 3,190 microhos Aug. 13; minimum daily, 249 microhos Feb. 19, 1956.

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REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium carbonate	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate					
Oct. 1-6, 1955.	15,170	4.2	0.00	65	12	186	14	108	44	340	0.2	2.8		822	1.12	33,870	212	123	64	5.6	1,390	7.3	5
Oct. 7 a.....	13,500			--	--	--	--	103	38	590	--	2.7		1,320	1.80	48,110	334	250	--	--	2,230	8.0	--
Oct. 9 a.....	87,600			--	--	--	--	129	47	218	--	0.6		633	.86	149,700	213	107	--	--	1,970	8.1	--
Oct. 10 a.....	98,600			--	--	--	--	128	35	152	--	2.2		475	.65	127,700	210	105	--	--	803	8.2	--
Oct. 11-18.....	42,460			45	7.0	74		118	51	116	--	3.5		387	.53	44,370	142	45	53	2.7	875	7.9	23
Oct. 19-23.....	13,800			50	9.8	113		114	52	178	--	3.7		519	.71	19,340	166	72	60	3.8	899	7.9	23
Oct. 24, 26-31.....	9,446			69	10	169		133	75	270	--	2.0		726	.99	19,100	213	104	63	5.0	1,270	7.9	10
Oct. 25 a.....	11,600			--	--	--	--	b 143	77	340	--	2.7		781	1.06	24,460	254	137	--	--	1,320	8.4	--
Nov. 1, 3-9.....	7,120			67	15	176	--	136	71	295	--	2.6		768	1.04	14,760	228	117	63	5.1	1,360	8.0	10
Nov. 2, 10.....	8,050			88	19	281	--	152	98	470	--	1.5		1,110	1.51	24,130	238	173	87	7.1	1,950	8.0	12
Nov. 11-14, 17-20.....	4,972			73	16	210	--	138	74	360	--	1.6		864	1.18	11,600	248	135	65	5.8	1,550	7.9	8
Nov. 15-16.....	5,365			67	14	164	--	131	64	280	--	1.6		707	.96	10,240	224	117	61	4.8	1,280	8.0	15
Nov. 21-23, 29-30.....	4,542			69	18	192	--	141	61	330	--	1.7		791	1.06	9,700	246	130	63	5.3	1,420	7.8	10
Nov. 24-28.....	4,250			75	19	225	--	146	67	390	--	2.0		931	1.27	10,680	265	146	65	6.0	1,640	7.7	10
Dec. 1 a.....	3,680			--	--	--	--	c 151	57	320	--	1.3		864	1.18	8,560	290	166	--	--	1,460	8.3	--
Dec. 2-5.....	3,952			75	23	247	--	161	68	420	--	2.3		1,010	1.37	10,780	282	150	66	6.4	1,780	8.1	5
Dec. 6-11.....	4,878			85	26	300	--	156	78	525	--	1.7		1,200	1.63	15,800	319	191	87	7.3	2,110	7.4	5
Dec. 12-15, 18-20.....	5,333			80	19	216	--	203	41	365	--	.6		892	1.21	12,640	252	86	65	5.9	1,550	6.7	35
Dec. 16-17.....	4,890			--	--	--	--	131	71	500	--	5.8		1,150	1.56	15,180	282	184	68	7.3	2,030	7.4	7
Dec. 21-22, 25-28, 31.....	5,313			75	14	212	--	131	67	365	--	2.2		865	1.18	12,410	244	137	65	5.9	1,550	8.0	5
Dec. 23-24, 29-30.....	5,055			89	14	268	--	132	71	470	--	2.8		1,060	1.47	14,740	280	172	68	7.0	1,890	7.9	5

a Not included in weighted average. Dissolved solids and loads estimated from specific conductance. c Includes 3 parts per million of carbonate (CO₃).

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a Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

b Includes 6 parts per million of carbonate (CO₃).

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN—Continued

ARKANSAS RIVER AT LITTLE ROCK, ARK.—Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.—Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg/2)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nestum	Non-carbonate					
Jan. 1-5, 1956...	4,692	--	--	72	12	183	--	127	57	325	--	2.8	--	800	1.09	10,130	229	125	63	5.2	1,370	8.1	7
Jan. 6-8.....	4,313	--	--	88	19	290	--	118	68	535	--	1.6	--	1,210	1.65	14,090	298	201	68	7.3	2,090	8.1	10
Jan. 9-12.....	4,425	--	--	71	16	216	--	113	62	385	--	2.7	--	977	1.25	10,960	243	190	66	6.0	1,550	8.1	7
Jan. 13-16.....	3,322	--	--	86	19	275	--	129	70	500	--	2.5	--	1,160	1.58	10,400	292	187	67	7.0	1,950	8.2	10
Jan. 17-19.....	3,947	--	--	72	17	208	--	128	58	375	--	1.2	--	1,959	1.30	9,180	250	144	64	5.7	1,540	8.0	10
Jan. 20-28.....	3,531	2.4	0.05	87	19	271	13	149	67	490	0.2	3.8	--	1,170	1.59	11,150	295	173	65	6.9	1,950	7.3	10
Jan. 29 a.....	8,600	--	--	--	--	--	--	61	30	285	--	1.8	--	639	0.67	14,640	166	136	--	--	1,060	7.4	--
Jan. 30 a.....	24,400	--	--	--	--	--	--	72	15	125	--	3.4	--	345	0.47	22,750	108	49	--	--	583	6.2	--
Jan. 31, Feb. 1-2, 5	33,500	--	--	19	6.4	42	--	47	14	52	--	1.8	--	258	0.35	25,340	74	35	55	2.1	382	7.9	35
Feb. 3 a.....	49,800	--	--	--	--	--	--	75	17	125	--	3.6	--	340	0.46	45,790	110	48	--	--	575	8.2	--
Feb. 4, 6, 9, 11	44,850	--	--	15	4.1	35	--	35	11	66	--	1.5	--	217	0.30	26,260	54	26	58	2.1	317	7.8	35
Feb. 7-8, 10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Feb. 12-13, 15-18	37,840	--	--	18	5.5	52	--	34	13	102	--	2.3	--	295	0.40	30,140	68	40	63	2.8	436	7.9	40
Feb. 14 a.....	34,400	--	--	--	--	--	--	34	14	145	--	2.0	--	349	0.47	32,420	85	57	--	--	589	7.8	--
Feb. 19 a.....	76,600	--	--	--	--	--	--	47	10	44	--	2.0	--	147	0.20	30,400	59	20	--	--	249	8.0	--
Feb. 20, 22-23, 26	44,970	--	--	17	4.6	52	--	34	13	90	--	1.3	--	274	0.37	33,270	61	33	65	2.9	402	7.5	40
Feb. 21 a.....	61,000	--	--	--	--	--	--	31	8.0	66	--	1.9	--	182	0.25	29,980	58	33	--	--	308	7.8	--
Feb. 24-25, 27...	40,600	--	--	21	6.4	70	--	36	15	128	--	1.8	--	375	0.51	41,110	79	49	66	3.4	540	7.4	35
Mar. 1 a.....	21,600	--	--	--	--	--	--	36	12	98	--	1.4	--	258	0.35	15,190	69	39	--	--	435	7.9	--
Mar. 6 a.....	10,900	--	--	--	--	--	--	62	22	205	--	1.5	--	468	0.66	14,360	117	66	--	--	824	8.0	--
Mar. 12-13, 15, 19	7,465	--	--	46	14	156	--	89	39	290	--	1.4	--	707	0.96	14,250	172	100	66	5.2	1,160	8.2	10
Mar. 25, 27-28, 31	8,910	--	--	39	8.1	128	--	70	32	235	--	1.3	--	570	0.78	13,710	131	74	68	4.9	931	8.1	5
Apr. 1-4, 6-10...	8,473	8.0	0.00	40	10	149	5.2	73	40	255	1.1	1.4	--	594	0.81	13,590	141	81	69	5.5	1,060	7.8	5
Apr. 5 a.....	8,460	--	--	--	--	--	--	80	40	345	--	2.1	--	817	1.11	18,600	197	131	--	--	1,380	8.1	--
Apr. 11-14, 17...	11,730	--	--	38	9.4	138	--	65	22	245	--	1.8	--	562	0.76	17,800	134	80	69	5.2	983	7.9	10
Apr. 15-16, 18-21	11,806	--	--	26	6.9	96	--	53	28	164	--	1.9	--	399	0.54	12,710	94	50	69	4.3	695	7.8	12
Apr. 22-25.....	7,930	--	--	34	10	124	--	60	28	222	--	2.6	--	622	0.71	11,160	126	77	68	4.8	896	7.6	5
Apr. 26-27, 30...	6,830	--	--	44	15	165	--	84	42	295	--	1.4	--	594	0.94	12,800	172	102	68	5.5	1,180	7.8	10
Apr. 28-29.....	5,370	--	--	58	16	212	--	96	57	370	--	1.4	--	896	1.21	12,880	210	132	69	6.4	1,490	7.9	5
May 1, 8.....	15,350	--	--	29	8.5	97	--	60	24	166	--	1.1	--	439	0.60	16,190	108	58	66	4.1	724	7.4	10
May 2-7.....	24,400	--	--	45	20	5.9	--	48	17	100	--	1.6	--	281	0.38	18,510	74	35	63	2.9	462	7.3	20
May 9-11.....	11,320	--	--	40	13	169	--	53	26	328	--	1.5	--	757	1.03	23,140	166	122	69	5.7	1,230	7.4	5

a Not included in weighted average. Dissolved solids and loads estimated from specific conductance.

May 12, 15-16, 1956	6,900	--	--	196	--	75	25	392	--	9	844	1.15	15,720	206	144	67	6.0	1,480	7.6 10
May 13-14	6,340	--	--	23	16	72	34	600	--	1.0	1,240	1.69	21,230	282	222	71	8.1	2,130	8.0 5
May 17-18	10,540	--	--	312	75	72	34	288	--	1.5	683	.93	19,440	164	114	67	5.2	1,130	7.9 10
May 19 a	12,700	--	--	152	44	60	26	135	--	1.0	350	.98	12,000	98	47	--	--	592	8.0 --
May 20-21	10,950	--	--	96	5.8	62	28	171	--	1.8	436	.59	12,980	112	51	65	4.0	728	7.8 10
May 22-23, 27-30, 31	14,040	--	--	148	55	98	46	275	--	1.8	706	.98	26,760	194	114	62	4.6	1,150	7.8 5
May 24-26, 29-30	15,040	--	--	101	49	104	42	178	--	3.2	503	.68	20,430	168	82	57	3.4	863	7.6 10
June 1, 3-5, 7-10.	12,840	--	--	172	62	96	44	328	--	4.4	803	1.09	27,820	208	130	64	5.2	1,340	7.8 10
June 2 a	13,900	--	--	--	75	82	32	440	--	2.4	1,170	1.59	43,910	282	220	--	--	1,860	8.5 --
June 6 a	11,900	--	--	--	64	12	42	320	--	2.0	1,078	1.78	39,870	270	101	--	--	1,870	8.5 --
June 11 a	13,100	--	--	138	53	117	50	243	--	3.0	1,010	1.48	32,810	206	162	62	4.4	1,110	8.0 10
June 12-15	10,100	--	--	108	54	110	50	243	--	3.9	858	.89	18,690	166	86	56	3.5	913	7.7 10
June 13-19	7,012	--	--	108	54	120	50	190	--	3.8	541	.74	10,240	184	86	56	3.5	913	7.7 10
June 20-21	6,340	--	--	210	64	104	66	375	--	2.0	929	1.26	15,900	228	152	66	5.9	1,540	7.9 5
June 22, 28	5,155	--	--	184	54	90	60	320	--	1.8	789	1.07	10,980	200	126	67	5.6	1,310	7.5 5
June 23-27	4,908	--	--	125	44	97	49	215	--	1.7	565	.77	7,490	184	84	62	4.3	952	7.6 5
June 29 a	4,860	--	--	--	--	95	108	595	--	2.0	1,280	1.74	16,870	266	188	--	--	2,180	8.1 --
June 30 a	4,370	--	--	--	--	92	46	415	--	1.6	977	1.33	11,530	212	137	--	--	1,650	8.1 --
July 1, 3, 5, 8-9	4,336	--	--	204	60	101	63	358	--	1.7	820	1.12	10,710	211	128	68	6.1	1,440	7.4 7
July 2, 4, 6-7	5,042	--	--	152	49	97	56	260	--	2.6	834	.86	8,630	176	96	65	5.0	1,170	7.8 7
July 10-11	4,725	--	--	319	83	20	302	590	--	1.8	1,240	1.69	15,820	289	220	65	7.7	2,130	7.3 7
July 12-19	3,591	4.6	0.00	209	64	104	56	375	--	3.2	831	1.13	8,730	221	136	66	6.1	1,500	8.1 7
July 20-21	4,070	--	--	309	71	24	309	550	--	1.5	1,250	1.70	13,740	276	192	71	8.1	2,010	7.7 10
July 22 a	3,500	--	--	--	--	104	48	410	--	2.2	959	1.30	8,540	224	139	--	--	1,620	8.0 --
July 23-27	3,920	--	--	158	52	112	66	270	--	1.6	686	.93	6,705	181	99	64	5.0	1,250	7.3 7
July 28-31, Aug. 1	2,764	--	--	111	52	127	55	190	--	2.4	540	.73	4,030	179	75	57	3.6	936	7.4 10
Aug. 2-4, 7	3,458	--	--	164	58	118	68	300	--	1.9	752	1.02	7,020	218	122	62	4.8	1,270	7.8 10
Aug. 5-6, 8-10	3,166	--	--	268	67	110	86	470	--	1.7	1,090	1.48	9,380	249	159	70	7.4	1,810	7.6 10
Aug. 11, 15-17	2,820	--	--	319	60	25	319	545	--	3.0	1,210	1.65	9,210	252	163	73	8.8	2,020	7.5 10
Aug. 12-14	2,700	--	--	447	74	24	447	760	--	2.7	1,660	2.26	12,100	283	193	77	12	2,640	7.9 10
Aug. 18-21	2,568	--	--	222	54	18	222	375	--	1.9	893	1.21	6,190	208	112	70	6.7	1,530	8.0 10
Aug. 22-25	3,375	--	--	153	51	116	55	260	--	1.9	677	.82	6,170	180	96	65	5.0	1,120	7.8 10
Aug. 26-31	1,708	--	--	99	52	11	99	166	--	1.9	492	.67	2,270	174	67	55	3.3	828	7.8 10
Sept. 1-9	2,087	--	--	79	53	12	79	148	--	1.4	450	.61	2,510	182	61	49	2.6	782	7.5 10
Sept. 10-17, 19	1,066	--	--	133	62	16	133	236	--	1.7	657	.89	1,880	220	83	57	3.9	1,090	7.9 10
Sept. 18, 20-30	1,046	--	--	102	59	15	102	176	--	3.0	538	.73	1,520	208	57	52	3.1	941	7.5 10
Weighted average	d10,150	--	--	118	42	83	36	209	--	2.2	539	0.73	14,770	150	82	63	4.2	902	-- 11

a. Not included in weighted average. Dissolved solids and loads estimated from specific conductance. d Mean discharge for water year October 1955 to September 1956, 11,100 cfs.

LOWER MISSISSIPPI RIVER BASIN

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT LITTLE ROCK, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78	60	44	49	44	57	64	64	78	88	88	80
2	76	60	43	44	43	--	66	64	78	90	90	80
3	75	63	46	48	42	--	66	68	74	90	90	79
4	75	65	47	49	42	--	66	70	76	90	90	80
5	76	57	46	47	43	--	64	72	78	98	91	82
6	78	--	47	50	43	65	68	75	77	89	92	81
7	72	56	48	45	48	--	60	78	79	90	92	76
8	72	45	45	44	43	--	62	77	80	90	92	78
9	70	64	42	44	44	--	58	78	81	88	91	74
10	71	53	39	44	43	--	43	68	82	87	87	76
11	71	57	40	44	44	--	56	80	83	87	84	77
12	70	60	40	50	45	50	60	80	80	88	86	78
13	69	59	41	42	48	48	62	80	78	87	89	79
14	66	65	41	42	51	--	64	78	76	87	89	80
15	66	65	38	42	50	48	61	78	78	88	91	79
16	66	56	37	39	51	--	61	77	80	87	90	80
17	65	52	38	38	51	--	60	78	82	86	91	79
18	63	50	42	36	50	--	61	80	84	86	90	78
19	63	50	40	36	50	54	62	80	86	85	85	77
20	63	52	39	36	51	--	62	80	88	88	78	78
21	64	53	40	38	51	--	65	82	88	37	80	75
22	68	56	41	39	50	--	67	82	90	85	81	77
23	68	54	44	38	51	--	64	83	89	86	82	78
24	63	52	50	38	57	--	62	78	80	84	84	75
25	63	52	50	39	55	58	66	76	88	86	83	74
26	65	52	50	39	55	--	70	78	83	88	83	--
27	66	50	48	40	56	62	70	78	88	88	82	74
28	63	42	51	48	57	61	73	79	84	82	83	74
29	60	41	52	47	57	--	70	80	84	85	83	75
30	58	43	48	47	--	--	66	80	88	86	83	75
31	58	--	47	45	--	62	--	80	--	88	82	--
Average	68	55	44	43	49	--	63	77	82	88	87	78

ARKANSAS RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN KANSAS, OKLAHOMA, AND MISSOURI

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
MEDICINE LODGE RIVER NEAR KIOWA, BARBER COUNTY, KANS.													
Jan. 4, 1956	54.3	80	18	46	186	0	60	275	122	27	1.2	766	8.1
Feb. 12	72.1	98	19	46	242	0	49	324	126	24	1.1	787	8.0
Mar. 20	44.7	78	31	54	172	0	57	320	179	27	1.3	753	7.9
June 4	45.3	94	16	42	226	0	47	308	123	23	1.0	754	8.1
July 24	131	134	26	47	136	0	51	440	328	19	1.0	958	7.8
SALT FORK ARKANSAS RIVER NEAR JET, ALFALFA COUNTY, OKLA.													
Oct. 6, 1955	1,410	140	32		86	0	2,100	480	410			7,830	7.9
Nov. 9	.49	184	49		140	4	3,110	659	538			10,100	8.3
Nov. 23	.62	247	77		155	0	5,960	934	807			18,400	8.2
Feb. 13, 1956	39.4	191	47		154	0	3,390	668	542			11,000	7.9
Feb. 29	59.0	191	58		151	0	4,080	717	594			12,700	8.0
Mar. 20	1.26	263	63		161	0	4,680	915	783			14,600	8.0
Apr. 25	2.90	254	78		179	8	5,760	953	793			17,800	8.3
May 8	2.99	278	92		159	0	8,920	1,070	940			26,800	8.0
May 22	5.12	290	75		234	0	6,650	1,030	838			20,200	7.6
June 28	5.03	278	109		173	0	6,700	1,140	998			20,500	8.1
July 24	100	222	80		131	0	5,710	884	776			17,900	7.8
Sept. 4	2.54	297	204		107	0	8,300	1,580	1,490			24,400	7.9
SALT FORK ARKANSAS RIVER AT TONKAWA, KAY COUNTY, OKLA.													
Oct. 3, 1955	10,500	11	4.5	35	42	0	49	46	12	62	2.3	255	6.4
Oct. 4	7,470	19	3.0	40	64	0	53	60	8	59	2.2	313	7.0
Oct. 27	82.9	124	46		186	0	2,100	500	348			7,190	8.0
Nov. 4	33.8	136	52		172	0	2,500	555	414			8,500	8.1
Nov. 25	29.1	120	58		116	0	2,600	540	445			8,650	8.0
Dec. 20	39.4	124	65		160	0	2,550	575	444			8,510	8.1
Jan. 6, 1956	19.6	128	63		216	0	2,350	580	403			7,920	8.0
Jan. 19	17.1	142	77		236	0	2,800	670	476			9,060	8.0
Feb. 21	52.7	164	61		208	4	2,950	660	483			9,750	8.3
Mar. 23	23.5	134	66		154	0	2,650	605	479			8,750	7.7
Apr. 13	28.1	171	61		219	6	3,590	678	488			11,700	8.4
Apr. 26	13.6	148	51		236	0	2,720	580	386			9,170	8.2

ARKANSAS RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN KANSAS, OKLAHOMA, AND MISSOURI--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
								Total	Non- carbonate				
SALT FORK ARKANSAS RIVER AT TONKAWA, KAY COUNTY, OKLA.--Continued													
May 9, 1956.....	10.8	108	66	--	136	0	3,100	540	428	--	--	9,940	7.9
June 5.....	6.02	128	116	--	146	0	5,180	798	102	--	--	10,300	8.2
July 3.....	8.98	56	27	--	180	0	950	250	102	--	--	3,600	7.9
Aug. 15.....	2.64	211	94	--	109	0	5,960	914	824	--	--	17,900	7.8
SKEDEE CREEK AT LAKE PAWNEE, NEAR PAWNEE, PAWNEE COUNTY, OKLA.													
Oct. 10, 1955.....		38	9.7	15	163	0	6.5	135	0	19	0.6	265	7.5
CIMARRON RIVER NEAR WAYNOKA, WOODS COUNTY, OKLA.													
Oct. 5, 1955.....	34.9	380	83		136	0	9,150	1,280	1,180			26,300	8.1
Nov. 9.....	3.06	88	39		100	0	2,650	380	298			8,500	8.1
Nov. 22.....	3.47	76	37		128	0	2,350	340	235			7,690	8.0
Dec. 7.....	32.5	229	112		225	12	10,800	1,030	628			29,500	8.5
Jan. 4, 1956.....	64.9	220	102		174	4	8,800	969	828			25,300	8.3
Jan. 9.....	50.7	249	114		300	0	10,500	1,090	944			28,800	7.9
Jan. 19.....	45.0	368	129		259	0	10,100	1,450	1,240			28,800	8.2
Feb. 1.....	74.0	274	109		226	16	8,920	1,130	918			25,300	8.5
Feb. 13.....	273	131	75		249	4	4,680	637	796			14,400	8.3
Feb. 29.....	41.7	206	121		237	12	10,700	1,010	796			29,700	8.4
Mar. 20.....	51.3	174	92		196	0	8,860	812	652			25,000	8.1
Apr. 25.....	3.76	125	60		171	0	3,830	558	418			12,000	7.9
May 8.....	10.2	419	213		136	0	26,700	1,920	1,810			64,700	8.2
May 28.....	17.4	449	165		164	16	20,000	1,800	1,640			51,500	8.4
June 4.....	46.1	245	97		182	8	10,900	1,010	848			32,500	8.4
June 28.....	43.4	448	71		174	0	8,170	1,410	1,270			23,800	8.0
July 3.....	4.20	302	61		107	0	5,220	1,010	922			16,000	7.8
July 9.....	176	199	55		131	0	5,960	721	614			17,600	8.0
July 24.....	130	460	125		184	0	19,000	1,660	1,510			49,900	8.2
Aug. 21.....	67.6	354	101		126	0	15,500	1,300	1,200			41,700	8.0

TURKEY CREEK NEAR DRUMMOND, GARFIELD COUNTY, OKLA.

Oct. 6, 1955	85.2	26	4.1	47	76	0	68	82	20	55	2.3	382	6.8
Nov. 9	150	157	--	112	112	0	1,980	1,020	928	--	--	7,030	8.1
Jan. 4, 1956	.55	110	--	188	188	0	1,320	670	508	--	--	5,040	8.2
Jan. 19	.38	100	127	234	234	0	1,480	770	578	--	--	5,590	8.1
Feb. 1	2.68	172	102	180	180	0	1,080	600	452	--	--	4,200	8.2
Feb. 13	2.52	80	83	352	352	0	690	540	252	--	--	3,080	8.2
Mar. 20	.65	100	105	--	320	0	1,280	680	418	--	--	5,040	7.9
Apr. 25	.71	78	48	364	364	0	570	392	94	67	8.0	2,620	8.2
May 8	.47	59	91	--	176	0	1,110	520	376	--	--	4,190	8.0
June 28	51.1	40	19	94	108	0	185	180	92	53	3.0	877	7.1

CIMARRON RIVER NEAR GUTHRIE, LOGAN COUNTY, OKLA.

Oct. 12, 1955	539	132	41	186	186	0	1,450	500	348			5,230	7.7
Oct. 17	274	188	56	208	208	0	2,300	650	480			7,880	7.8
Oct. 28	153	176	78	208	208	0	2,900	760	390			9,090	7.8
Nov. 9	117	154	90	128	128	0	2,800	755	650			9,230	8.1
Dec. 2	97.1	188	66	330	330	0	2,400	740	470			8,440	8.2
Jan. 6, 1956	110	219	94	310	310	0	4,970	934	680			15,600	8.2
Jan. 20	106	217	88	288	288	0	4,590	905	689			14,600	8.1
Feb. 7	128	211	118	173	173	0	5,860	1,010	868			17,700	8.0
Feb. 14	174	183	83	217	217	4	4,880	797	612			15,300	8.3
Feb. 27	148	215	97	247	247	8	5,370	935	719			16,400	8.4
Mar. 8	87.9	187	94	135	135	0	5,860	855	744			17,300	7.9
Mar. 20	74.8	191	92	171	171	0	5,120	855	713			15,400	7.9
Apr. 3	95.5	199	87	143	143	0	5,860	855	758			17,600	7.9
Apr. 17	63.8	213	83	249	249	0	4,330	976	724			13,600	8.2
May 2	63.5	215	90	247	247	0	4,230	926	714			13,500	8.1
May 10	100	146	91	166	166	12	2,600	620	432			5,540	8.3
May 26	469	144	46	148	148	0	2,600	550	368			8,530	8.1
June 7	140	192	37	188	188	6	2,500	630	490			8,530	8.3

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN KANSAS, OKLAHOMA, AND MISSOURI--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
CIMARRON RIVER NEAR GUTHRIE, LOGAN COUNTY, OKLA. --Continued													
July 6, 1956	98.2	192	44		192	0	1,900	660	502			6,790	8.2
July 16	410	270	63		207	0	6,210	933	764			18,300	8.1
July 24	527	180	29		124	0	1,900	520	418			6,700	7.8
July 27	154	260	47		140	0	3,050	840	726			10,000	8.0
Aug. 15	21.9	306	101		244	0	5,580	1,180	980			17,000	8.2
Aug. 27	55.8	335	54		127	0	3,240	1,060	956			10,900	7.9
Sept. 17	2.82	271	91		251	0	3,980	1,050	844			12,800	8.0
POLECAT CREEK AT HEYBURN RESERVOIR NEAR HEYBURN, CREEK COUNTY, OKLA.													
May 12, 1956		24	9.2	45	90	0	63	98	24	50	2.0	379	7.7
CANEY RIVER NEAR HULAH, OSAGE COUNTY, OKLA.													
Oct. 7, 1955	2,260	32	9.7	11	98	0	16	120	40	17	0.4	254	6.6
Oct. 10	628	37	6.7	15	124	0	22	120	18	21	.6	292	8.2
Oct. 12	318	38	6.1	11	98	0	22	120	40	17	.4	273	6.9
Oct. 13	178	35	7.9	13	104	0	21	120	35	19	.5	275	8.1
Oct. 14	93.2	35	5.5	13	106	0	21	110	23	21	.5	269	8.2
Oct. 18		36	7.3	11	108	0	23	120	32	17	.4	282	7.0
Nov. 28	20.3	40	8.8	16	138	0	23	136	23	20	.6	318	7.7
Jan. 25, 1956	11.4	45	8.6	15	140	0	24	143	34	18	.5	346	7.6
Mar. 5	10.8	48	7.3	16	140	0	24	150	36	19	.6	348	7.5
May 2	14.8	54	3.8	20	150	0	25	150	27	22	.7	370	7.3
CANEY RIVER NEAR RAMONA, WASHINGTON COUNTY, OKLA.													
Nov. 8, 1955	5.40	40	8.8	23	120	0	47	136	38	27	0.9	393	7.3
Jan. 31, 1956	14.5	96	17	139	28	0	180	310	287	49	3.4	1,140	6.0
Aug. 13	.97	95	25	194	31	0	430	340	314	55	4.6	1,660	6.6
HOMINY CREEK NEAR HOMINY, OSAGE COUNTY, OKLA.													
Nov. 23, 1955		53	24	61	222	0	118	232	50	36	1.7	773	7.9

SPRING RIVER NEAR QUAPAV, OTTAWA COUNTY, OKLA.

Oct. 25, 1955	154	19	14	134	0	10	250	140	11	0.4	427	7.5
Dec. 5	144	12	17	156	0	16	250	122	13	.5	544	7.5
Jan. 31, 1956	154	14	22	140	0	23	270	156	15	.6	601	7.7
Apr. 12	179	9.2	22	56	0	24	230	184	17	.6	230	6.8
June 5	299	43	3.5	4.4	0	8.0	122	68	7	.2	277	6.9
Aug. 7	162	57	4.4	5.7	0	9.5	160	51	7	.2	326	7.7

LOST CREEK NEAR SENECA, McDONALD COUNTY, MO.

Feb. 27, 1956	4.02	51	1.7	2.3	140	0	4.0	134	20	4	278	7.8
Apr. 3	3.54	48	2.4	7.5	126	0	5.6	130	26	11	276	7.4
May 2	4.19	50	.7	4.7	130	0	4.8	128	22	7	271	7.3

ZANE CAVE SPRING NEAR WEST SENECA, OTTAWA COUNTY, OKLA.

Oct. 20, 1955	3.80	50	1.2	6.2	140	0	8.0	130	16	9	256	7.3
Mar. 6, 1956		54	2.8	4.1	158	0	8.7	146	16	6	298	7.9

ELK RIVER NEAR TIFF CITY, McDONALD COUNTY, MO.

Feb. 27, 1956	112	42	3.6	2.8	126	0	5.4	120	16	5	232	7.7
Apr. 3	67.1	45	2.3	4.8	132	0	6.0	122	14	8	254	7.6
May 2	586	49	2.3	4.7	144	0	6.7	132	14	7	266	7.5

BIG CABIN CREEK NEAR BIG CABIN, CRAIG COUNTY, OKLA.

Oct. 5, 1955	4.130	18	1.7	4.4	36	0	4.0	52	22	15	114	6.1
Oct. 24, 1955	2.87	34	6.2	9.5	156	0	13	160	32	11	341	6.6
Jan. 2, 1956	1.15	84	6.2	12	174	0	17	160	36	14	372	7.1
Mar. 2	1.50	59	11	43	168	0	56	192	54	33	559	7.6
Apr. 9	9.26	20	5.6	20	60	0	22	88	39	33	284	6.8

NEOSHO (GRAND) RIVER NEAR CHOUTEAU, MAYES COUNTY, OKLA.

Oct. 21, 1955	3.100	45	6.7	7.2	110	0	10	140	50	10	279	7.5
Nov. 29	2.310	43	6.0	12	110	0	11	132	42	16	307	7.5
Jan. 3, 1956	140	43	7.9	9.8	92	0	12	140	64	13	320	7.7

ARKANSAS RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN KANSAS, OKLAHOMA, AND MISSOURI--Continued
Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
								Total	Non- carbonate				
NEOSHO (GRAND) RIVER NEAR CHOUTEAU, MAYES COUNTY, OKLA.--Continued													
Jan. 27, 1956	390	42	6.6	9.5	106	0	11	132	45	13	0.4	306	7.6
Feb. 28	1,940	34	9.5	13	76	0	9.8	124	62	19	.5	265	7.3
Mar. 16	1,580	43	6.9	14	68	0	10	136	80	18	.5	318	7.2
Apr. 24	1,130	48	5.1	11	114	0	16	136	42	15	.4	323	7.3
June 12	3,580	45	6.2	9.6	17	0	11	138	124	13	.4	335	6.2
July 6	2,450	46	5.1	8.7	28	0	10	136	113	12	.3	335	6.3
PRIOR CREEK NEAR PRIOR, MAYES COUNTY, OKLA.													
Jan. 25, 1956	0.29	50	26	68	86	0	120	230	160	39	2.0	782	7.5
Apr. 16	170	12	2.4	32	12	0	58	48	30	63	2.2	286	6.4
May 14	56	18	6.0	40	62	0	66	78	27	53	2.0	388	6.6
June 4	26.4	12	6.8	17	0	0	31	58	58	28	1.0	572	3.0
July 2	10.0	9.6	3.6	13	30	0	22	39	14	42	.9	171	6.6
FLINT CREEK NEAR KANSAS, DELAWARE COUNTY, OKLA.													
Oct. 10, 1955	16.5	42	2.4	5.9	104	0	9.5	115	30	10	0.2	238	7.3
Oct. 27	8.14	42	1.2	4.2	102	0	10	100	26	8	.2	240	7.3
Nov. 22	12.9	36	2.2	11	100	0	8.4	104	22	19	.5	232	7.2
Jan. 23, 1956	12.4	35	3.0	4.5	108	0	8.0	100	12	9	.2	212	7.3
Feb. 20	18.9	37	1.8	9.7	64	0	9.0	100	48	17	.4	226	7.1
May 16	416	30	3.2	3.3	83	0	6.0	88	20	7	.1	185	7.0
July 16	16.05	39	4.5	4.2	130	0	7.5	116	10	7	.2	233	7.0
Aug. 2	12.3	38	4.1	4.2	40	0	6.6	112	79	7	.2	256	6.7
Aug. 26	1.73	37	3.6	4.2	104	0	7.4	108	23	8	.2	236	7.0
DEER CREEK NEAR HYDRO, CADDO COUNTY, OKLA.													
Oct. 18, 1955	26.0	131	25	31	164	0	17	430	286	14	0.7	873	7.4
Nov. 22	18.8	134	38	33	172	0	17	490	349	13	.7	963	8.0
Dec. 15	17.7	140	39	33	172	0	17	510	369	12	.6	1,030	8.0
Jan. 5, 1956	17.1	172	34	28	270	0	16	570	348	10	.5	1,100	8.1
Jan. 31	4.02	86	13	26	320	0	14	270	8	17	.7	615	8.1
Mar. 1	16.3	144	53	32	270	0	18	495	356	12	.6	983	7.7
May 7	10.7	184	34	33	238	0	18	600	405	11	.6	1,100	8.1

LITTLE RIVER NEAR NORMAN, CLEVELAND COUNTY, OKLA.

Dec. 5, 1955.....	25	34	14	252	0	12	224	0	13	0.4	403	8.0
Jan. 4, 1956.....	17	44	14	273	0	17	224	0	12	4	442	8.2
Feb. 7.....	14	50	14	273	4	16	240	6	11	4	456	8.3
Feb. 26.....	18	50	18	322	0	17	252	0	13	5	494	8.2
May 1.....	40	21	87	216	0	50	185	8	51	2.8	495	7.9

LITTLE RIVER NEAR TECUMSEH, POTTAWATOMIE COUNTY, OKLA.

Dec. 5, 1955.....	43	53	142	320	0	232	324	62	40	3.4	1,290	8.0
Jan. 4, 1956.....	26	43	177	210	0	262	242	70	63	5.0	1,290	8.2
Mar. 7.....	30	43	138	270	0	210	252	43	55	3.2	1,120	8.0
Mar. 26.....	36	42	130	270	0	195	262	34	50	3.8	1,090	8.0
May 14.....	40	50	194	268	8	300	305	72	58	4.8	1,480	8.3

SALT CREEK NEAR PEARSON, POTTAWATOMIE COUNTY, OKLA.

Feb. 13, 1956.....	34	26	74	224	0	83	192	8	46	2.3	697	8.2
Apr. 24.....	30	16	57	112	0	90	140	48	47	2.1	510	7.7

SALT CREEK NEAR DEWRIGHT, SEMINOLE COUNTY, OKLA.

Oct. 26, 1955.....	6,650	1,970	74	0	71,200	24,700	24,600				144,000	7.6
Jan. 6, 1956.....	7,480	2,310	36	0	83,600	28,200	28,200				133,000	7.5
Feb. 13.....	3,950	1,350	40	0	45,100	15,400	15,400				90,100	7.7
Mar. 15.....	7,670	2,180	64	0	84,500	28,100	28,000				134,000	7.9

NORTH CANADIAN RIVER NEAR GUYMON, TEXAS COUNTY, OKLA.

Nov. 18, 1955.....	51	28	29	284	0	14	244	12	21	0.8	569	7.7
Jan. 24, 1956.....	24	11	11	118	0	7.0	104	8	19	.5	244	7.7
Feb. 13.....	51	29	28	268	0	11	248	28	20	.8	559	7.3
Apr. 24.....	48	29	32	248	0	15	240	37	22	.9	558	7.7
Aug. 10.....	53	27	29	254	0	16	245	37	20	.8	539	7.5
Aug. 20.....	72	36	5.2	306	0	4.5	326	75	3	.1	601	7.1

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN KANSAS, OKLAHOMA, AND MISSOURI--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25° C)	pH
								Total	Non- carbonate				
COLDWATER CREEK NEAR HARDESTY, TEXAS COUNTY, OKLA.													
Nov. 18, 1955.....	4.32	74	48	40	290	0	37	380	142	19	0.9	911	7.5
Feb. 13, 1956.....	8.50	74	45	41	282	0	28	370	139	19	.9	834	7.8
Apr. 23.....	2.88	82	40	57	252	0	42	370	164	25	1.3	370	7.7
Aug. 20.....	21.7	92	17	11	262	0	8.5	300	86	7	.3	582	7.1
PALO DURO CREEK NEAR RANGE, TEXAS COUNTY, OKLA.													
Dec. 12, 1955.....	2.71	56	34	152	194	0	210	280	121	54	4.0	1,290	7.9
Mar. 23, 1956.....	3.63	94	38	224	242	0	280	390	192	56	4.9	1,710	7.6
Apr. 30.....	1.76	80	58	247	270	0	380	440	218	55	5.1	2,050	8.2
Aug. 28.....	1.84	91	27	154	114	0	235	340	246	50	3.6	1,370	7.2
KIOWA CREEK NEAR SLAPOUT, BEAVER COUNTY, OKLA.													
Oct. 19, 1955.....	5.92	69	21	54	254	0	95	260	52	31	1.5	798	7.6
Mar. 28, 1956.....	8.45	72	20	65	272	0	95	260	37	35	1.8	844	7.9
June 11.....	8.77	38	26	49	190	0	70	200	44	35	1.5	616	7.9
CLEAR CREEK NEAR MAY, HARPER COUNTY, OKLA.													
Oct. 19, 1955.....	7.02	54	13	33	202	0	52	190	24	27	1.0	503	6.8
Mar. 21, 1956.....	9.34	62	21	38	204	0	49	240	73	26	1.1	564	7.2
Aug. 15.....	3.12	63	15	43	240	0	65	220	24	30	1.3	612	7.6
Sept. 25.....	3.10	50	21	47	164	0	62	212	78	32	1.4	627	6.2
WOLF CREEK NEAR FORT SUPPLY, WOODWARD COUNTY, OKLA.													
Feb. 20, 1956.....	48.6	70	23	70	240	0	105	270	74	36	1.9	864	8.0
Feb. 23.....	31.5	69	21	73	216	0	107	260	83	38	2.0	816	8.1
Mar. 28.....	15.9	90	18	96	236	0	120	300	106	41	2.4	1,000	7.3

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN KANSAS, OKLAHOMA, AND MISSOURI--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
								Total	Non- carbonate				
INDIAN CREEK NEAR WOODWARD, WOODWARD COUNTY, OKLA.													
Dec. 15, 1955.....	0.81	154	36	192	118	0	300	530	434	44	3.6	1,930	7.7
Mar. 28, 1956.....	2.57	138	28	125	192	0	195	460	302	37	2.5	1,420	7.8
Apr. 17.....	.15	196	42	336	136	0	435	660	548	53	5.7	2,620	7.7
May 23.....	.85	144	28	161	270	0	126	475	254	42	3.2	1,160	7.6
TRIBUTARY TO INDIAN CREEK NEAR WOODWARD, WOODWARD COUNTY, OKLA.													
Apr. 17, 1956.....	0.21	68	11	37	230	0	34	215	26	27	1.1	601	7.7
May 23.....	.07	77	17	37	286	0	37	260	26	24	1.0	660	8.0
NORTH PERSIMMON CREEK NEAR SHARON, WOODWARD COUNTY, OKLA.													
Apr. 17, 1956.....	1.15	104	8.6	38	304	0	42	295	46	22	1.0	791	7.8
May 23.....	.64	78	20	31	240	0	38	276	80	20	.8	655	7.9
SOUTH PERSIMMON CREEK NEAR SHARON, WOODWARD COUNTY, OKLA.													
Apr. 17, 1956.....	0.94	122	12	32	316	0	20	355	96	16	0.7	853	7.7
May 23.....	.19	106	26	22	328	0	13	372	103	11	.5	746	7.7
PERSIMMON CREEK NEAR SHARON, WOODWARD COUNTY, OKLA.													
Apr. 17, 1956.....	1.37	130	17	52	310	0	48	395	141	22	1.1	934	7.8
HACKBERRY CREEK NEAR SHARON, WOODWARD COUNTY, OKLA.													
Apr. 17, 1956.....	0.04	200	44	41	296	0	36	680	438	12	0.7	1,300	7.9
SAND CREEK NEAR WOODWARD, WOODWARD COUNTY, OKLA.													
June 5, 1956.....	1.51	71	19	30	156	0	44	255	127	20	0.5	638	7.1

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN KANSAS, OKLAHOMA, AND MISSOURI--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1958--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
BENT CREEK NEAR MUTUAL, WOODWARD COUNTY, OKLA.													
Apr. 17, 1956	0.36	552	117	38	232	0	34	1,860	1,670	4	0.4	2,640	8.1
Apr. 18	.74	352	98	41	226	0	1,150	1,280	1,100	7	.5	2,130	8.0
WENOKA CREEK NEAR WETUMKA, HUGHES COUNTY, OKLA.													
Jan. 6, 1956	3.64	4,190	1,250		57	0	44,200	15,600	15,600			87,900	7.2
Feb. 13	14.8	2,640	120		12	0	25,700	7,080	7,070			59,200	6.2
Mar. 15	3.13	3,420	965		10	0	35,600	12,500	12,500			74,300	6.0
Apr. 24	4.68	3,610	898		8	0	37,900	12,700	12,700			78,200	6.3
July 3	5.08	379	147		58	0	3,840	1,550	1,500			11,300	7.6
CAPTAIN CREEK NEAR WELLSTON, LINCOLN COUNTY, OKLA.													
Jan. 24, 1956	1.16	30	31	15	246	0	21	204	2	14	0.5	442	8.0
Feb. 29	.33	34	52	25	348	0	30	300	15	15	.6	596	8.0
Apr. 10	1.42	29	30	21	242	0	22	195	0	19	.7	435	7.9
DEEP FORK RIVER NEAR WELTY, CREEK COUNTY, OKLA.													
Oct. 11, 1955	774	26	8.5	25	112	0	32	100	8	35	1.1	296	7.3
Nov. 21	15.2	74	40	168	340	12	212	350	52	51	3.9	1,340	8.4
Jan. 16, 1956	14.0	56	44	190	286	6	236	320	78	56	4.6	1,400	8.3
Feb. 29	21.3	56	46	167	286	0	210	330	88	52	4.0	1,280	8.2
Apr. 10	45.4	68	32	210	336	0	202	300	23	60	6.3	1,230	9.2
May 30	774	26	12	38	124	0	119	116	14	42	1.5	433	7.8
July 13	54.3	39	22	79	206	0	119	186	17	46	2.5	759	7.2
LITTLE DEEP FORK CREEK NEAR EDNA, CREEK COUNTY, OKLA.													
Feb. 29, 1956	0.10	96	39	341	312	0	590	400	144	65	7.4	2,440	8.1
Apr. 10	.20	463	108	--	110	0	3,940	1,600	1,510	--	--	11,300	7.6
May 30	7.64	82	21	386	56	0	700	290	244	74	9.9	2,340	7.4

ARKANSAS RIVER BASIN—Continued
MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN ARKANSAS

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Per- cent so- dium	So- dium adsorp- tion ratio	pH	Specific conduct- ance (micro- mhos at 25°C)	
														Parts per mil- lion	Tons per acre- foot	Calcium, per mag- nesium	Non- carbon- ate					
OSAGE CREEK NEAR ELM SPRINGS																						
Nov. 8, 1955.....	21							a147	1.0	8.2		3.0					126	5		281	8.3	
June 20, 1956.....	37							140	4.0	6.5		5.8					129	14		254	8.0	
COVE CREEK NEAR LEE CREEK																						
Nov. 15, 1955.....	0.2							136	4.0	2.0		0.5					121	9		232	8.2	
June 26, 1956.....	2.4							b111	5.0	2.0		.4					98	7		190	8.4	
FROG BAYOU NEAR RUDY																						
Nov. 15, 1955.....								25	1.0	3.0		0.3					20	0		54.6	7.5	
June 26, 1956.....	16							20	2.0	2.2		.6					23	7		54.8	7.6	
SPADRA CREEK NEAR CLARKSVILLE																						
Nov. 15, 1955.....	0.6							24	4.0	8.5		0.6					33	13		107	7.4	
July 25, 1956.....	1.2							17	3.0	3.0		.4					15	1		41.3	7.4	
PETIT JEAN CREEK NEAR BOONEVILLE																						
Nov. 14, 1955.....	0							82	2.0	4.5		2.3					63	0		152	8.0	
Aug. 13, 1956.....	.1							58	4.0	5.2		1.1					41	0		122	7.9	
PETIT JEAN CREEK NEAR WAVELEND																						
Nov. 14, 1955.....	4.1							27	3.0	5.5		0.9					24	2		82.0	7.5	
July 5, 1956.....	40							25	1.0	5.0		.8					22	2		61.3	7.9	
DUTCH CREEK AT WALTREAK																						
Nov. 14, 1955.....	--							33	2.0	2.5		1.5					28	1		71.0	7.4	
Dec. 8.....	0.7							36	2.0	4.8		1.9					30	0		68.0	7.5	
July 5, 1956.....	.9							34	8.0	4.0		.1					20	0		61.3	7.3	
a Includes equivalent of 2 parts per million of carbonate (CO ₃). b Includes equivalent of 3 parts per million of carbonate (CO ₃).																						

a Includes equivalent of 2 parts per million of carbonate (CO₃).

b Includes equivalent of 3 parts per million of carbonate (CO₃).

ARKANSAS RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN ARKANSAS--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Percent dissolved solids	Specific conductance (micro- mhos at 25°C)
													Parts per million	Tons per acre- foot	Tons per day	Calcium, magnesium	Carbonate	

NORTH FORK CADRON CREEK NEAR GUY

Nov. 10, 1955.....	1.0							21	1.0	2.0		0.7				21	4	50.4
June 25, 1956.....	4.9							20	2.0	2.2		.4				16	0	50.6

FOURCHE LA FAVE RIVER NEAR NIMROD

Nov. 15, 1955.....	1.2							16	3.0	2.5		1.1				20	7	50.1
July 5, 1956.....	6.1							16	3.0	3.5		.5				15	2	47.5

SOUTH FOURCHE LA FAVE RIVER NEAR HOLLIS

Nov. 30, 1955.....	7.7							14	5.0	2.5		0.7				14	3	28.9
July 5, 1956.....	.6							26	2.0	2.0		1.1				18	0	30.9

BAYOU METO NEAR LONOKE

Nov. 9, 1955.....	0							138	5.0	12		1.1				105	0	263
June 18, 1956.....	58							44	1.0	5.2		1.9				36	0	98.0

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN TEXAS
EAST AMARILLO CREEK NEAR AMARILLO

Oct. 14, 1955.....	11.4	83		55	34	132		c317	86	115	--	64	732	1.00		277	17	51	3.4	1.160	8.5
Nov. 17.....	6.98	86		67	39	131		372	104	120	--	37	765	1.04		327	22	47	3.2	1.240	8.1
Dec. 14.....	7.6	82		85	38	143		443	98	115	--	5.4		1.03		337	9	51	3.6	1.240	7.5
Jan. 11, 1956.....	10.6	79		59	36	131		295	109	122	--	70	898	1.10		297	5	42	3.0	1.240	7.4
Mar. 14.....	6.44	83		53	30	138		305	105	108	--	82	874	1.04		290	42	50	3.2	1.240	8.2
Apr. 18.....	19.6	87		51	40	138		300	110	109	--	82	892	1.04		293	46	51	3.5	1.210	8.2
May 18.....	11.9	99		50	36	137		d276	102	110	--	90		1.04		272	46	52	3.6	1.160	8.6
June 28.....	17.24	102		41	26	187		f 293	84	138	--	53	764	1.04		210	0	83	5.0	1.050	8.5
July 25.....	--	89		42	30	134		278	77	105	--	66	707	1.04		228	0	56	3.8	1.180	8.2
Sept. 12.....	3.14	89		40	34	248		c 232	71	298	--	82	1,020	1.39		240	33	69	7.0	1.480	8.4

c Includes equivalent of 8 parts per million of carbonate (CO₃).

d Includes equivalent of 12 parts per million of carbonate (CO₃).

e Calculated from determined constituents.

f Includes equivalent of 10 parts per million of carbonate (CO₃).

BONITA CREEK NEAR AMARILLO

Jan. 11, 1956	2.64	22	52	13	19	245	12	7.8	0.7	c 246	0.33	164	0	18	0.6	416	8.2
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CHICKEN CREEK NEAR AMARILLO

Jan. 11, 1956	4.97	22	48	9.0	11	200	8.0	4.8	1.9	208	0.28	157	0	13	0.4	336	8.2
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COETAS CREEK NEAR AMARILLO

Jan. 11, 1956	1.03	24	51	9.4	14	201	14	10	3.4	234	0.31	165	0	16	0.5	379	8.2
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RED RIVER BASIN

SALT FORK RED RIVER NEAR HEDLEY, TEX.

LOCATION --Half a mile downstream from Whitefish Creek, 2½ miles upstream from Jesse Arroyo and about 9 miles northeast of Hedley, Donley County. DRAINAGE AREA --868 square miles, of which 209 square miles is probably noncontributing.

RECORDS AVAILABLE --Chemical analyses: March to July 1956.

Water temperatures: March to July 1956.

EXTREMES: Maximum, 1,640 ppm Apr. 30; minimum, 443 ppm July 8-9.

Hardness: Maximum, 1,640 ppm Apr. 30; minimum, 198 ppm July 8-9.

Specific conductance: Maximum daily, 3,000 microhos Apr. 3; minimum daily, 440 microhos May 27.

REMARKS --Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. No discharge records available. No flow during much of the period.

Chemical analyses, in parts per million, March to July 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)		Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids			Hardness as CaCO ₃		Percent sodium chloride ratio	So- dium chloride ratio	Specific conductance (micro-mhos at 25°C)	pH
						Parts per million	Tons per acre-foot							Tons per day	Calcium, magnesium	Non-carbonate						
Mar. 28-31, Apr. 1-10, 1956		32		172	65	143		172	624	150	0.9	3.8		1,280	1.74		686	556	31	2.4	1,770	8.1
Apr. 11-14, 17-20		22		126	55	135		113	526	135	.9	1.0		1,060	1.44		540	448	35	2.5	1,530	7.9
Apr. 21-26		16		114	51	128		101	487	128	.9	.2		975	1.33		494	411	36	2.5	1,440	7.9
Apr. 30		27		450	126	163		84	1,630	160	.8	1.4		2,600	3.54		1,640	1,570	18	1.7	2,940	7.9
May 1-9, 26		32		104	39	132		144	379	135	.9	2.4		917	1.25		420	302	41	2.8	1,320	8.0
May 27-30		20		64	14	67		150	123	77	.7	2.2		450	.61		217	94	40	2.0	722	8.1
May 31, June 1-10		29		110	32	122		177	307	143	1.0	2.2		869	1.18		406	261	39	2.6	1,280	7.8
June 11, 13, 18-19		36		96	34	134		116	347	150	.8	1.8		869	1.20		380	284	43	3.0	1,310	7.9
July 3-4		39		216	88	216		70	907	260	.8	.5		1,760	2.39		901	844	34	3.1	2,400	7.7
June 12, 14-15																						
July 8-9		26		58	13	72		138	124	76	1.0	4.2		443	.60		198	85	44	2.2	711	7.9
July 10, 19		34		60	14	71		139	130	77	.6	3.2		476	.65		207	93	43	2.2	728	8.2
July 20, 21-23		34		88	24	112		160	237	127	.7	2.2		736	1.00		318	187	43	2.7	1,090	8.2
July 24-27	(b)	40		274	98	215		84	1,060	268	.7	.5		2,000	2.72		1,080	1,020	30	2.8	2,610	7.9

a Calculated from determined constituents.

b No flow July 28 to Sept. 30, 1956

RED RIVER BASIN

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RED RIVER BASIN--Continued

SALT FORK RED RIVER NEAR HEDLEY, TEX.--Continued

Temperature (°F) of water, March to July 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						--	61	82	76	--		
2						--	71	79	80	--		
3						--	73	77	84	72		
4						--	70	81	80	75		
5						--	70	79	80	--		
6						--	63	83	72	--		
7						--	69	77	83	--		
8						--	69	85	85	85		
9						--	61	82	72	87		
10						--	68	--	75	87		
11						--	--	--	80	--		
12						--	76	--	85	--		
13						--	81	--	70	--		
14						--	72	--	66	--		
15						--	--	--	80	--		
16						--	--	--	--	--		
17						--	63	--	--	--		
18						--	67	--	81	--		
19						--	71	--	83	73		
20						--	75	--	--	79		
21						--	74	--	--	70		
22						--	71	--	--	78		
23						--	69	--	--	78		
24						--	84	--	--	85		
25						--	76	--	--	78		
26						--	60	74	--	80		
27						--	--	64	--	87		
28						63	--	77	--	--		
29						45	--	82	--	--		
30						49	62	76	--	--		
31						59	--	79	--	--		

RED RIVER BASIN--Continued
EAST CACHE CREEK NEAR ELGIN, OKLA.

LOCATION --At gaging station at bridge on U. S. Highway 277, 1.1 miles upstream from Rock Creek, and 4½ miles west of Elgin, Comanche County.

DRAINAGE AREA 48 square miles.

RECORDS AVAILABLE--Chemical analyses: October 1955 to September 1956.

Water temperatures: October 1955 to September 1956.

EXTREMES 1955-56--Dissolved solids: Maximum, 1,210 ppm Apr. 1-2; minimum, 112 ppm Oct. 3-4.

Hardness: Maximum, 666 ppm Apr. 1-2; minimum, 78 ppm May 31.

Specific conductance: Maximum, 1,590 micromhos daily, 147 micromhos Oct. 2.

Water temperatures: Maximum, 84° July 5; minimum, freezing point Feb. 3.

REMARKS--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow May 13-25, June 16 to July 3, July 8-9, July 15 to Sept. 30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate		
Oct. 1-2, 1955 ..	19.5	--	--	71	15	14	--	228	34	38	--	5.0	--	302	0.41	16	53	11	507
Oct. 3-4,	4,085	--	--	26	5.1	3.1	--	92	12	8.0	--	2.9	--	112	.15	1,240	86	7	171
Oct. 5,	4,490	--	--	46	6.1	5.8	--	154	14	6.0	--	3.2	--	157	.21	1,800	140	8	273
Oct. 6,	4,226	--	--	82	15	13	--	266	42	28	--	4.7	--	321	.44	196	268	10	534
Oct. 8-10,	87.0	--	--	85	18	23	--	352	52	48	--	5.4	--	356	.48	84	284	15	622
Oct. 11-12,	63.5	--	--	57	17	41	--	140	55	87	--	7.0	--	363	.49	62	210	30	657
Oct. 13-20,	30.1	--	--	92	22	74	--	226	74	152	--	5.5	--	556	.76	45	320	33	950
Oct. 21-31,	9.21	10	0.00	82	24	46	2.3	208	62	130	0.0	3.0	0.30	519	.71	13	305	23	1.1
Nov. 1-4,	3.28	--	--	62	22	48	--	154	67	115	--	5.1	--	430	.58	3.8	245	19	853
Nov. 5-30,	1.47	--	--	98	35	92	--	214	118	220	--	2.5	--	698	.85	2.8	360	214	2.0
Dec. 1-31,	4.21	--	--	136	42	116	--	344	158	240	--	2.4	--	959	1.1	500	278	31	1,560
Jan. 1-10, 1956 ..	3.45	26	.04	156	44	111	3.1	360	162	250	.2	2.4	.26	932	1.27	8.7	570	275	2.0
Jan. 11-20,	4.83	--	--	168	49	114	--	374	177	272	--	2.9	--	1,080	1.43	11	620	314	2.0
Jan. 21-31,	7.98	16	.01	188	48	132	2.2	324	202	280	.1	3.8	.34	1,080	1.35	13	650	344	2.3
Feb. 1-10,	2.83	--	--	168	58	132	--	316	225	235	--	2.8	--	1,140	1.48	21	650	370	2.2
Feb. 11-20,	5.56	16	.00	175	51	133	2.8	316	225	230	.0	2.8	.28	1,140	1.55	17	640	381	2.3
Feb. 21-29,	2.91	--	--	116	46	122	--	196	242	230	--	1.6	--	889	1.22	7.1	480	320	2.4
Mar. 1-10,	2.56	14	.01	136	44	100	2.7	268	236	194	.2	1.9	.27	936	1.27	6.5	520	300	1.9
Mar. 11-20,	2.88	--	--	145	50	117	--	324	259	225	--	.8	--	964	1.31	7.5	470	304	2.1
Mar. 21-31,	3.23	--	--	168	51	115	--	332	285	205	--	.2	--	1,070	1.46	9.6	630	358	2.0
Apr. 1-2,	24.2	--	--	168	59	116	--	240	345	250	--	1.9	--	1,210	1.65	79	660	464	2.8
Apr. 3-10,	7.15	--	--	140	31	100	--	228	216	198	--	1.7	--	864	1.18	17	475	288	2.0
Apr. 11-20,	3.35	9.0	.01	133	38	82	4.2	254	230	146	.3	1.4	.29	841	1.14	7.6	480	282	2.6

Apr. 21-25, 1956	3.98	--	--	43	89	--	216	218	202	--	1.3	--	874	1.19	9.4	485	308	29	1.8	1.380	7.6
Apr. 26-30.....	7.24	--	--	124	146	--	244	263	320	--	1.4	--	1,140	1.55	22	580	380	36	2.7	1,840	7.7
May 1-10.....	1.86	--	--	110	140	--	240	210	205	--	.6	--	882	1.20	4.4	450	254	36	2.4	1,420	7.8
May 11-12.....	.20	10	0.01	120	106	4.2	300	187	192	0.2	.5	--	888	1.21	.5	475	229	32	2.1	1,400	7.7
May 26-30.....	249	--	--	45	9.1	--	136	42	19	--	3.2	--	210	.29	141	150	38	17	.5	365	7.8
May 31.....	302	--	--	24	4.4	--	74	8.8	12	--	6.8	--	129	.18	105	78	18	13	.3	209	7.9
June 1-5.....	37.5	--	--	37	8.6	--	134	28	13	--	2.8	--	178	.24	18	128	18	18	.5	308	7.9
June 6-10.....	14.1	--	--	49	16	35	164	44	62	--	2.5	--	316	.43	12	188	54	29	1.1	538	8.0
June 11-15.....	1.16	17	.04	49	12	24	172	42	36	.4	1.4	0.15	285	.39	.9	172	31	23	.8	455	7.9
July 4.....	5.10	--	--	62	11	28	a208	42	38	--	2.2	--	293	.40	4.0	200	30	23	.9	486	8.4
July 5-7.....	5.97	--	--	78	18	59	b236	127	52	--	3.8	--	487	.66	7.8	270	78	32	1.6	786	8.3
July 10-11.....	66.0	--	--	43	6.7	--	152	27	14	--	4.8	--	197	.27	35	135	10	18	.5	306	8.1
July 12-14.....	3.07	--	--	54	13	40	88	38	114	--	3.2	--	380	.52	3.1	190	118	31	1.3	602	7.5
Weighted average	45.8	--	--	43	8.6	14	134	28	22	--	3.3	--	197	0.27	24	143	33	17	4.9	322	--

a Includes 4 parts per million of carbonate (CO₃).b Includes 6 parts per million of carbonate (CO₃).

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

EAST CACHE CREEK NEAR ELGIN, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	63	--	43	40	55	68	73	72	--		
2	74	63	--	45	36	57	67	68	--	--		
3	68	56	--	42	32	53	65	70	75	--		
4	71	63	--	45	35	51	65	74	77	85		
5	74	53	--	41	35	62	54	--	79	88		
6	71	--	--	45	37	64	63	--	80	--		
7	77	--	--	40	--	--	62	79	--	--		
8	76	--	--	40	40	54	53	79	84	--		
9	72	--	--	42	--	54	68	80	--	--		
10	74	--	--	42	40	54	55	--	84	70		
11	65	--	--	43	43	48	61	75	85	77		
12	66	--	--	49	45	48	67	80	83	83		
13	57	--	--	45	44	48	60	--	87	85		
14	67	--	--	40	50	47	70	--	--	88		
15	66	--	--	40	49	45	65	--	87	--		
16	58	--	--	40	50	51	65	--	--	--		
17	56	--	--	39	42	54	61	--	--	--		
18	55	--	--	35	44	50	62	--	--	--		
19	57	--	--	35	44	55	65	--	--	--		
20	56	--	--	--	43	53	--	--	--	--		
21	58	--	--	37	49	49	--	--	--	--		
22	54	--	--	40	45	54	66	--	--	--		
23	54	--	--	41	60	--	69	--	--	--		
24	56	--	--	41	60	63	61	--	--	--		
25	43	--	--	42	--	64	70	--	--	--		
26	43	--	--	42	--	63	74	70	--	--		
27	45	--	--	47	55	--	74	67	--	--		
28	64	--	50	49	55	65	--	73	--	--		
29	63	--	45	45	55	60	--	79	--	--		
30	62	--	43	40	--	80	69	--	--	--		
31	62	--	40	40	--	60	--	75	--	--		
Average	63	--	--	42	--	56	65	--	--	--		

RED RIVER BASIN--Continued
LITTLE WICHITA RIVER NEAR ARCHER CITY, TEX.

LOCATION --At gaging station at bridge on State Highway 79, 1.5 miles downstream from confluence of North and Middle Forks, and 4.8 miles north of Archer City, Archer County.

DRAINAGE AREA --461 square miles.

RECORDS AVAILABLE --Chemical analyses: December 1952 to January 1956 (discontinued).

Water temperatures: December 1952 to January 1956 (discontinued). Maximum, 2,340 ppm Sept. 19, 1954; minimum, 95 ppm Sept. 25-26, 1955.

Hardness, 1952-56 --Dissolved solids: Maximum, 2,340 ppm Sept. 19, 1954; minimum, 40 ppm Sept. 23-26, 1955.

Hardness, 1952-56 --Dissolved solids: Maximum, 2,340 ppm Sept. 19, 1954; minimum, 40 ppm Sept. 23-26, 1955.

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Chemical analyses, in parts per million, October 1955 to January 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Bo- ron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃		Per- cent so- dium ad- sorp- tion ratio	Specific conductance (micro-mhos at 25° C)	pH		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium				Non-carbonate	
Oct. 1-7, 1955....	1,273	9.4		23	6.3	27		119	6.7	25	0.5	2.8		168	0.23	577	84	0	41	1.3	291	7.5
Oct. 8-18	86.5	9.6		26	6.8	25		130	7.0	21	.5	2.5		170	.23	39.7	92	0	37	1.1	296	7.7
Oct. 19-21, 28-31.	4.66	11		25	7.2	28		139	7.0	19	.7	1.8		a168	.23	2.11	91	0	40	1.3	300	8.0
Nov. 20, 27	0							196		24	--	--			--	--	128	0	--	--	396	8.0
Dec. 5	0							194		25	--	--			--	--	128	0	--	--	386	8.1
Dec. 11, 18	0							242		75	--	--			--	--	170	0	--	--	609	8.0
Dec. 25	0							238		150	--	--			--	--	226	31	--	--	847	8.1
Jan. 1, 1956	0							294		278	--	--			--	--	322	81	--	--	1,370	8.2
Jan. 6	48	9.2		52	20	104		265	32	130	.6	3.2		489	.67	63.4	212	0	52	3.1	870	8.2

a Calculated from determined constituents.

RED RIVER BASIN--Continued
LITTLE WICHITA RIVER NEAR HENRIETTA, TEX.

LOCATION.--At gaging station at bridge on State Highway 148, 1.5 miles northwest of Henrietta, Clay County, 4 miles upstream from Turkey Creek, and 5 miles upstream from Dry Fork Little Wichita River.

DRAINAGE AREA--1,037 square miles.

RECORDS AVAILABLE.--Chemical analyses: December 1952 to January 1956 (discontinued).

Water temperatures: December 1952 to January 1956 (discontinued).

EXTREMES, 1952-56.--Dissolved solids: Maximum, 1,700 ppm Mar. 15 (12 m. - 12 p.m.), 16, 1953; minimum, 57 ppm May 19, 1955.

Hardness: Maximum, 700 ppm May 1, 1953; minimum, 25 ppm Feb. 20, 1955.

Specific conductance: Maximum daily, 5,910 micromhos May 1, 1953; minimum daily, 81.1 micromhos Oct. 24, 1953.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to January 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-3, 5-7, 1955	2,288	9.0		22	5.6	24		108	5.8	24	0.5	1.8		166	0.23	1,030	79	0	40	1.2	266
Oct. 4	1,500	9.8		29	7.4	55		110	6.4	87	.5	2.8		264	.36	1,070	104	14	53	2.3	484
Oct. 8-16	533	14		26	7.0	29		132	6.5	29	.5	1.2		185	.25	266	94	0	41	1.3	316
Oct. 17-31	6.63	12		29	8.0	33		149	7.2	32	.5	1.2		205	.28	3.67	106	0	40	1.4	352
Nov. 1-13	3.19	12		35	9.7	44		180	8.2	47	.5	.8		252	.34	2.17	128	0	43	1.7	442
Nov. 22, 25-30	0	--		--	--	--		192	--	54	--	--		--	--	--	136	0	--	--	477
Dec. 9, 15, 25, 29	0	9.6		39	11	49		198	8.0	53	.6	.6		272	.37	--	142	0	43	1.8	480
Jan. 8-12, 1956	37.0	4.6		33	7.7	38		168	8.1	34	.3	.8		224	.30	22.4	113	0	42	1.6	379

RED RIVER BASIN--Continued
BEAVER CREEK NEAR WAURIKA, OKLA.

LOCATION.--At gaging station at bridge on State Highway 5, 4.5 miles northwest of Waurika, Jefferson County, 6.2 miles upstream for Cow Creek.
DRAINAGE AREA.--563 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.

Water temperatures: October 1955 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,210 ppm May 16, 18, 20; minimum, 125 ppm July 4-8.

Hardness: Maximum, 640 ppm Dec. 11-20; minimum, 76 ppm July 4-8.

Specific conductance: Maximum daily, 2,000 micromhos May 16; minimum daily, 208 micromhos July 4.

Water temperatures: Maximum, 85°F June 12; minimum, 34°F Jan. 18.

REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441. No flow June 26-30, July 1-3, July 26-31, Aug. 1-31, Sept. 1-30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃		Per- cent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium				Non-carbonate	
Oct. 1-10, 1955	477	10	0.06	29	8.6	11	3.5	124	24	16	0.1	1.3	0.21	177	0.24	228	108	6	18	0.5	591	7.1
Oct. 11-14	2.80	--	--	48	18	34	--	216	50	32	--	3.0	--	326	.44	2.5	192	15	28	1.1	214	7.8
Oct. 15-20	1.32	--	--	66	26	56	--	304	85	46	--	2.4	--	468	.64	1.2	272	23	31	1.5	743	8.0
Oct. 21-25	.88	--	--	67	30	63	--	332	94	51	--	2.2	--	502	.68	1.1	292	20	32	1.6	804	8.1
Oct. 26-31	.95	--	--	65	38	84	--	354	127	64	--	1.9	--	577	.78	1.5	320	30	36	2.0	961	7.8
Nov. 1-10	1.54	13	.00	60	46	112	4.5	372	150	84	.1	.8	.32	654	.89	2.7	340	35	41	2.6	1,080	7.9
Nov. 11-20	.97	--	--	96	58	123	--	510	189	94	--	1.0	--	838	1.14	2.2	480	62	36	2.4	1,340	7.6
Nov. 21-30	1.11	--	--	94	65	127	--	504	240	88	--	1.2	--	889	1.21	2.7	500	87	36	2.5	1,400	7.4
Dec. 1-10	2.39	17	.01	120	62	80	7.7	488	261	60	.1	.2	.27	874	1.19	5.6	555	155	24	1.5	1,300	8.0
Dec. 11-20	4.55	--	--	148	66	70	--	484	292	50	--	.0	--	909	1.24	11	640	244	19	1.2	1,300	7.6
Dec. 21-31	7.28	--	--	138	62	63	--	420	301	50	--	.0	--	872	1.19	17	600	256	19	1.1	1,250	7.7
Jan. 1-10, 1956	6.79	--	--	120	56	46	--	294	303	46	--	1.0	--	725	.99	13	530	289	16	.9	1,150	7.9
Jan. 11-20	4.68	28	.04	136	57	55	3.4	388	296	52	.8	.7	.30	817	1.11	10	575	257	17	1.0	1,220	7.6
Jan. 21-31	10.2	--	--	112	60	65	--	286	297	82	--	.2	--	801	1.09	22	525	290	21	1.2	1,220	7.8
Feb. 1-6	7.72	--	--	116	56	65	--	244	300	104	--	.0	--	808	1.10	17	520	320	21	1.2	1,250	7.9
Feb. 7-10	14.3	--	--	142	62	90	--	300	312	158	--	.5	--	951	1.29	37	610	364	24	1.6	1,460	8.0
Feb. 11-20	14.2	17	.00	155	54	105	2.1	316	294	195	.4	.7	.18	1,050	1.43	40	610	351	27	1.9	1,570	8.0
Feb. 21-24	8.20	--	--	124	58	89	--	228	322	144	--	.0	--	879	1.20	19	550	363	26	1.7	1,370	8.0
Feb. 25-29	9.62	--	--	122	57	59	--	284	317	75	--	.0	--	793	1.08	21	540	308	19	1.1	1,190	8.1
Mar. 1-10	6.30	--	--	108	61	78	--	292	313	100	--	1.0	--	895	1.12	14	520	280	25	1.5	1,270	7.9
Mar. 11-20	5.26	12	.01	136	58	72	3.1	322	327	90	.4	1.0	.39	927	1.26	13	580	308	21	1.3	1,320	7.6
Mar. 21-31	6.75	--	--	126	65	65	--	312	335	86	--	.6	--	871	1.18	16	580	324	20	1.2	1,300	7.5
Apr. 1-10	5.90	10	.03	122	60	73	3.3	310	321	78	.5	.7	.01	872	1.19	14	550	296	22	1.4	1,240	7.7

RED RIVER BASIN--Continued

BEAVER CREEK NEAR WAURIKA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium	Sodium absorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./l.	Non-carbonate				
Apr. 11-20, 1956	6.80	--	--	126	62	71	--	332	328	74	--	0.2	--	923	1.26	17	570	298	21	1.3	1,260	7.7
Apr. 21-25	4.42	--	--	138	65	73	--	368	341	74	--	0.5	--	970	1.32	12	610	308	21	1.3	1,310	7.6
Apr. 26-30	42.1	--	--	80	34	57	--	244	140	80	--	2.4	--	609	0.83	69	340	140	27	1.3	872	7.5
May 1-3	66.0	--	--	42	16	24	--	144	67	27	--	4.6	--	290	0.39	52	172	54	23	1.8	452	7.7
May 4-10	7.94	--	--	88	35	70	--	268	141	100	--	2.4	--	653	0.89	14	365	146	29	1.6	980	7.5
May 11-15	4.26	--	--	87	36	65	--	282	136	89	--	2.6	--	628	0.85	7.2	365	134	28	1.5	923	7.9
May 17, 19	6.05	--	--	89	36	62	--	298	131	86	--	2.8	--	617	0.84	10	370	126	27	1.4	928	7.9
May 16, 18, 20	5.47	--	--	118	50	205	--	328	120	405	--	1.3	--	1,210	1.65	18	500	231	47	4.0	1,980	7.7
May 21, 23	8.85	--	--	86	37	61	--	288	132	86	--	2.6	--	628	0.85	1.4	365	129	27	1.4	937	7.9
May 22, 24-25	11.2	--	--	98	51	204	--	270	118	412	--	2.0	--	1,150	1.56	35	495	234	49	4.2	1,950	7.8
May 26-31	179	--	--	48	11	27	--	142	50	42	--	3.3	--	294	0.40	142	166	50	26	0.9	460	7.5
June 1-10	128	10	0.06	44	10	15	--	144	40	26	0.4	3.9	0.08	230	0.31	79	152	34	17	0.5	387	7.5
June 11-15	2.42	--	--	37	11	22	--	150	29	30	--	1.7	--	213	0.29	1.4	138	15	23	0.8	372	8.0
June 16-20	0.64	--	--	39	23	47	--	156	49	59	--	1.2	--	368	0.50	0.6	240	30	29	1.3	643	8.0
June 21-25	1.12	--	--	95	25	57	--	284	39	60	--	1.7	--	409	0.56	1.1	248	16	24	1.0	922	7.6
July 4-8	1,045	--	--	31	11	17	--	180	44	16	--	2.3	--	275	0.17	353	76	2	23	0.9	348	8.2
July 9-10	11.0	--	--	31	11	25	--	184	26	22	--	1.5	--	210	0.29	2.1	136	7	28	0.8	369	7.8
July 11-18	3.78	--	--	34	13	22	--	184	26	22	--	1.5	--	210	0.29	2.1	136	7	28	0.8	369	7.8
July 19-20	40	--	--	48	18	43	--	246	41	36	--	2.3	--	318	0.43	3.3	196	0	32	1.3	554	8.1
July 21-25	24	--	--	51	18	41	--	252	40	38	--	1.3	--	322	0.44	2.2	200	0	31	1.3	554	8.2
Weighted average	38.5	--	--	38	13	25	--	135	49	28	--	2.1	--	240	0.33	24.9	148	38	27	0.9	385	--

RED RIVER BASIN--Continued

BEAVER CREEK NEAR WAURIKA, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	59	39	43	40	58	67	68	74	--		
2	74	55	41	46	--	59	67	65	73	--		
3	--	54	45	47	38	59	67	--	73	--		
4	71	56	44	47	36	60	65	72	75	80		
5	76	56	43	46	35	60	66	75	79	80		
6	74	55	43	45	36	60	61	75	80	83		
7	69	50	44	44	38	54	62	77	79	84		
8	65	49	46	44	40	55	62	78	81	84		
9	65	50	43	43	41	48	60	77	80	84		
10	63	50	41	40	41	50	58	78	80	84		
11	68	50	40	39	43	51	57	76	84	83		
12	68	52	41	37	45	50	60	76	85	84		
13	64	--	42	44	46	45	62	75	83	84		
14	64	55	43	44	50	46	64	74	81	83		
15	64	55	43	43	50	47	62	74	80	82		
16	63	50	40	38	52	44	60	73	81	82		
17	60	49	41	36	52	54	57	72	79	82		
18	56	49	40	34	50	55	57	75	79	80		
19	64	47	37	35	51	52	59	76	80	82		
20	64	52	39	36	51	53	61	75	78	81		
21	63	49	40	38	52	53	60	72	79	81		
22	65	59	44	39	54	55	62	72	81	81		
23	64	49	45	37	62	57	64	74	80	82		
24	60	50	50	43	64	58	66	72	81	81		
25	58	50	48	42	63	60	67	71	80	81		
26	58	50	47	44	62	62	73	72	--	--		
27	62	46	49	45	60	68	74	72	--	--		
28	60	43	51	45	56	64	75	73	--	--		
29	60	--	49	43	56	63	69	72	--	--		
30	60	40	49	43	--	65	67	73	--	--		
31	55	--	42	41	--	65	--	74	--	--		
Average	64	51	44	43	49	56	64	74	79	--		

RED RIVER BASIN--Continued
RED RIVER NEAR GAINESVILLE, TEX.

LOCATION.--At gaging station at bridge on U. S. Highway 77, a quarter of a mile downstream from Gulf, Colorado, and Santa Fe Railway bridge, 5 miles downstream from Fish Creek and 7 miles north of Gainesville, Cooke County.
DRAINAGE AREA.--30,782 square miles of which 5,936 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: May 1944 to April 1946, October 1952 to September 1956.
Water temperatures: October 1952 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 5,490 ppm June 21-23; minimum, 446 ppm July 11.
Hardness: Maximum, 1,480 ppm June 21-23; minimum, 160 ppm July 11.

Specific conductance: Maximum, 9,320 micromhos June 21; minimum daily, 776 micromhos July 11.
Water temperatures: Maximum, 89°F Aug. 13; minimum, 33°F Jan. 18, Feb. 3.

EXTREMES, 1944-46, 1952-56.--Dissolved solids: Maximum, 6,480 ppm Apr. 11, 1953; minimum, 250 ppm Sept. 30, Oct. 1-3, 1945.
Hardness: Maximum, 1,510 ppm Apr. 11, 1953; minimum, 120 ppm Sept. 30, Oct. 1-3, 1945.

Specific conductance: Maximum daily, 9,890 micromhos Apr. 11, 1953; minimum daily, 325 micromhos Oct. 1, 1945.
Water temperatures (1952-56): Maximum, 95°F July 13, 1954; minimum, freezing point Dec. 23, 1953, Jan. 21, 1954.

REMARKS.--Records of specific conductance of daily samples for period May 1944 to April 1946 available in district office at Austin, Tex. Records of specific conductance of daily samples for period October 1952 to September 1956 available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium carbonate	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-10, 1955 ..	38,870	--	--	72	17	116	--	118	142	172	--	1.8	--	605	0.82	63,490	250	154	50	3.2	1,060	7.7
Oct. 11-13	10,760	--	--	70	11	115	--	132	128	162	--	.4	--	590	.80	17,140	220	112	53	3.4	1,020	7.8
Oct. 14-15	5,720	--	--	115	27	210	--	148	228	340	--	--	--	1,040	1.41	16,060	398	278	53	4.6	1,600	8.0
Oct. 16-20	4,304	--	--	160	44	350	--	180	354	590	--	1.6	--	1,670	2.27	19,410	580	449	57	6.3	2,810	7.8
Oct. 21-31	3,251	14	0.02	194	57	405	7.8	152	472	800	0.0	1.7	0.32	2,170	2.95	19,050	720	596	55	6.6	3,550	7.8
Nov. 1-10	2,373	--	--	208	49	493	--	152	509	805	--	2.3	--	2,230	3.03	14,290	720	596	60	8.0	3,490	8.0
Nov. 11-20	1,020	--	--	232	66	594	204	567	980	--	--	2.5	--	2,680	3.62	7,330	850	683	60	8.9	4,300	7.8
Nov. 21-22	848	--	--	228	61	582	180	560	960	--	--	2.2	--	2,620	3.56	6,000	820	672	61	8.8	4,240	8.0
Nov. 23-30	824	--	--	284	81	727	232	642	1,250	--	--	--	--	3,280	4.46	7,300	1,040	880	60	9.8	5,270	8.0
Dec. 1-10	793	--	--	248	102	743	204	630	1,300	--	--	--	--	3,240	4.41	6,940	1,040	873	61	10	5,170	7.4
Dec. 11-20	576	--	--	264	103	776	208	665	1,350	--	--	--	--	3,450	4.65	5,320	1,080	910	61	10	5,440	7.5
Dec. 21-31	504	--	--	268	105	794	220	681	1,380	--	--	--	--	3,530	4.80	4,800	1,100	930	61	10	5,630	7.8
Jan. 1-10, 1956 ..	467	9.0	.03	288	107	841	6.3	703	1,500	.3	--	--	.54	3,690	5.02	4,550	1,160	980	61	11	5,720	7.9
Jan. 11-20	433	--	--	288	93	820	220	689	1,400	--	--	--	--	3,650	4.96	4,460	1,100	920	62	11	5,810	8.0
Jan. 21-31	495	--	--	268	103	783	192	662	1,360	--	--	--	--	3,510	4.77	4,690	1,090	932	61	10	5,970	7.8
Feb. 1-10	472	--	--	288	112	849	198	736	1,500	--	--	--	--	3,690	5.02	4,700	1,180	1,030	61	11	6,050	8.0
Feb. 11-20	680	--	--	288	103	883	192	710	1,500	--	--	--	--	3,780	5.14	6,940	1,140	999	62	11	5,970	8.1
Feb. 21-22	542	--	--	320	123	898	140	577	1,220	--	--	--	--	3,110	4.23	4,510	1,040	826	61	9.8	4,970	7.9
Feb. 23-29	452	--	--	320	112	1,040	182	798	1,800	--	--	--	--	4,430	6.02	5,450	1,260	1,100	64	13	6,320	8.2

	344	304	127	1,040	208	835	1,780	--	--	4,370	5.94	4,060	1,280	1,110	64	13	6,700	8.0
Mar. 1-10, 1956.	288	296	137	985	222	802	1,720	--	--	4,280	5.82	3,330	1,300	1,120	62	12	6,610	8.0
Mar. 21-31	263	288	127	906	216	747	1,600	--	--	3,990	5.43	2,830	1,240	1,060	61	11	6,150	7.8
Apr. 1-10	248	230	134	803	224	712	1,600	3	0.4	4,030	5.48	2,700	1,350	1,170	56	9.5	6,290	7.8
Apr. 11-20	246	288	117	856	212	714	1,520	--	--	4,000	5.44	2,660	1,200	1,030	61	11	6,060	7.5
Apr. 21-30	269	272	107	785	216	676	1,380	--	--	3,490	4.75	2,530	1,120	943	60	10	5,580	7.9
May 1	1,030	240	78	651	a192	575	1,120	--	--	2,910	3.96	8,090	920	762	61	9.3	4,630	8.4
May 2-4, 6	3,242	92	22	217	126	170	360	--	3.6	975	1.33	8,530	320	216	60	5.3	1,680	7.9
May 5, 7-10	4,490	220	42	482	122	541	780	--	5.5	2,230	3.03	27,030	720	620	59	7.8	3,550	8.0
May 11-16	1,000	--	--	--	128	694	800	--	3.5	2,550	3.47	6,880	860	755	56	7.5	3,910	7.5
May 17-20	513	300	66	635	132	780	1,050	--	--	3,050	4.15	4,220	1,020	912	58	8.6	4,670	7.7
May 21-28	409	312	78	759	176	743	1,300	--	--	3,390	4.61	3,740	1,100	956	60	10	5,330	7.9
May 29-31	18,140	190	45	408	140	426	700	--	3.7	1,970	2.68	96,490	680	546	57	6.9	3,200	7.9
June 1-5	7,518	320	49	675	128	874	1,030	--	--	3,140	4.27	63,740	1,000	895	59	9.3	4,660	8.0
June 6-7	3,550	228	39	478	126	595	740	--	4.4	2,270	3.09	21,760	730	628	59	7.7	3,570	8.1
June 8-10	1,917	180	29	406	196	479	560	--	4.8	1,760	2.39	9,110	570	410	61	7.4	2,830	8.0
June 11	1,340	200	44	413	126	522	660	--	1.3	1,960	2.87	7,090	680	576	57	6.9	3,140	8.1
June 12-18	996	320	69	775	166	632	1,250	--	--	3,440	4.66	9,250	1,060	944	61	10	5,370	7.9
June 19-20	716	424	100	1,230	166	1,120	2,020	--	--	5,160	7.04	10,010	1,470	1,330	65	14	7,980	8.1
June 21-23	530	424	103	1,370	134	1,120	2,250	--	--	5,490	7.47	7,860	1,460	1,370	67	15	8,670	8.1
June 24-30	376	354	82	867	144	846	1,400	--	--	4,010	3.43	4,070	1,220	1,100	61	11	6,130	7.8
July 1-5	300	368	95	957	128	969	1,000	--	--	1,540	3.46	3,320	1,300	1,200	61	11	6,710	7.9
July 6	1,280	182	35	1,245	112	430	800	--	2.2	1,720	2.68	16,490	680	585	61	6.1	2,080	8.0
July 7	2,860	184	61	1,481	108	143	260	--	3.5	2,720	2.98	16,490	680	585	61	8.1	3,490	8.2
July 8-10	1,940	70	20	161	108	143	260	--	1.8	765	1.04	4,010	255	166	58	4.4	1,310	8.0
July 11	1,220	45	12	89	90	57	155	--	3.3	446	.61	1,470	160	.86	55	3.1	776	8.0
July 12-13	810	88	41	247	120	211	430	--	1.9	1,140	1.55	2,490	330	292	58	5.4	1,950	8.0
July 14	572	172	61	487	140	428	850	--	1.1	2,220	3.02	3,430	680	566	61	8.3	3,640	8.1
July 15-16	417	276	100	881	130	789	1,450	--	--	3,670	4.98	4,130	1,100	994	63	11	5,820	8.0
July 17-20	357	328	117	1,150	102	1,030	1,880	--	--	4,720	6.42	4,370	1,300	1,220	66	14	7,340	7.9
July 21-23	257	392	93	1,160	128	1,050	1,900	--	--	4,860	6.61	3,370	1,360	1,260	65	14	7,450	7.8

a Includes 8 parts per million of carbonate (CO₃).

RED RIVER BASIN--Continued

RED RIVER NEAR GAINESVILLE, TEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per- cent so- dium ad- sorptio- n ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
July 24-25, 1956..	876	--	--	320	78	920		140	856	1,500	--	--	--	3,870	5.26	9,150	1,120	1,010	64	12	6,120	7.9
July 26-31.....	520	--	--	198	46	496		122	498	810	--	4.2	--	2,220	3.02	3,120	685	585	61	8.2	3,600	7.8
Aug. 1-10.....	246	16	0.06	280	90	861	10	120	770	1,450	0.4	--	0.52	3,580	4.87	2,380	1,070	972	63	11	5,700	7.9
Aug. 11-20.....	158	--	--	292	100	796		118	769	1,400	--	--	--	3,620	4.92	1,540	1,140	1,040	60	10	5,560	7.9
Aug. 21-31.....	153	--	--	276	105	755		118	745	1,340	--	--	--	3,470	4.72	1,430	1,120	1,020	59	9.8	5,360	7.8
Sept. 1-4.....	153	--	--	248	102	648		120	659	1,180	--	--	--	3,080	4.19	1,270	1,040	942	58	8.7	4,770	8.0
Sept. 5-10.....	126	--	--	272	105	728		126	727	1,300	--	--	--	3,420	4.65	1,160	1,110	1,110	59	9.5	5,260	7.7
Sept. 11-20.....	98.7	--	--	284	105	760		124	742	1,360	--	--	--	3,560	4.84	949	1,140	1,040	59	9.8	5,430	7.8
Sept. 21-30.....	88.7	--	--	272	117	768		124	740	1,420	--	--	--	3,640	4.95	872	1,160	1,060	60	10	5,560	7.4
Weighted average	2,177	--	--	146	37	323		136	341	533	--	--	--	1,530	2.08	8,990	516	405	58	6.2	2,470	--

RED RIVER BASIN--Continued

RED RIVER NEAR GAINESVILLE, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	58	43	48	39	60	65	68	78	82	85	83
2	--	52	42	46	34	76	69	70	76	84	87	85
3	78	46	45	39	33	75	--	68	75	82	84	84
4	74	50	46	38	34	72	63	72	75	78	85	85
5	78	48	44	40	35	78	65	75	78	87	86	84
6	76	50	48	39	35	78	64	77	78	85	87	80
7	73	52	50	40	46	50	68	81	75	86	88	78
8	79	56	48	38	47	54	65	80	84	88	87	80
9	71	57	45	41	48	55	68	78	80	87	87	79
10	74	56	48	39	45	53	55	75	82	81	88	42
11	73	60	40	40	46	48	54	76	84	79	87	80
12	76	60	42	41	45	40	55	78	85	80	88	80
13	71	61	40	40	48	44	56	75	86	82	89	82
14	69	60	41	42	55	46	--	76	85	82	87	80
15	72	62	40	40	49	48	--	73	86	84	88	79
16	65	48	40	39	52	47	68	78	80	84	88	82
17	70	46	39	34	55	50	65	79	82	85	86	82
18	57	46	40	33	54	50	68	78	80	85	88	80
19	60	60	40	34	50	48	70	75	85	86	86	79
20	62	58	42	35	52	50	60	80	85	85	80	78
21	63	62	45	38	55	55	63	78	85	85	82	78
22	62	64	48	40	58	58	59	80	86	84	84	80
23	65	55	42	41	64	58	64	80	86	80	85	79
24	65	60	44	42	64	58	65	78	84	84	85	82
25	68	64	45	42	53	59	68	82	82	85	83	78
26	60	53	40	44	54	65	68	80	88	86	82	77
27	62	48	41	--	61	70	70	78	80	86	84	78
28	60	45	42	46	59	68	68	80	80	84	85	76
29	65	48	46	49	60	66	69	80	86	82	84	75
30	62	45	50	44	--	65	65	82	84	86	85	76
31	60	--	48	41	--	68	--	78	--	86	84	--
Average	68	54	43	40	49	58	64	77	82	84	86	80

RED RIVER BASIN--Continued
WASHITA RIVER AT CARNEGIE, OKLA.

LOCATION --At gaging station at bridge on State Highway 9, 1,300 feet upstream from Running Creek, and 2.7 miles east of Carnegie, Caddo County.
DRAINAGE AREA, 3,129 square miles including that of Running Creek.
RECORDS AVAILABLE --Chemical analyses: October 1953 to September 1956.

Water temperatures: October 1953 to September 1956

EXTREMES, 1955-56 --Dissolved solids: Maximum, 2,460 ppm May 9-10; minimum, 200 ppm Oct. 4-8.

Hardness: Maximum, 1,480 ppm May 9-10; minimum, 148 ppm Oct. 4-8.

Specific conductance: Maximum daily, 2,970 microhos May 9; minimum daily, 298 microhos Oct. 5.

Water temperatures: Maximum, 90° F July 5; minimum, 33° F Feb. 4, 6.

EXTREMES, 1953-56 --Dissolved solids: Maximum, 2,460 ppm May 9-10, 1956; minimum, 200 ppm Oct. 4-8, 1955.

Hardness: Maximum, 1,480 ppm May 9-10, 1956; minimum, 135 ppm Sept. 22-25, 1955.

Specific conductance: Maximum daily, 3,530 microhos Aug. 26, 1954; minimum daily, 298 microhos Oct. 5, 1955.

Water temperatures: Maximum, 90° F July 14, 30-31, 1955; July 5, 1956; minimum, freezing point on several days during January, February and March.
REMARKS, 1954, Feb. 11, 1955 --Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Per- cent sodium absorption ratio	Specific conductance (micro-mhos at 25° C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./neutrum	Non-carbonate				
Oct. 1-2, 1955...	79.5	--	--	78	21	26	12	146	150	19	--	5.2	--	414	0.56	89	280	160	1	0.3	595	7.8
Oct. 3-9-10...	684	--	--	112	33	8.6	--	182	244	35	--	3.7	--	597	.81	1,100	415	266	12	.6	865	7.9
Oct. 4-8...	8,748	--	--	45	--	3.5	--	96	64	5.3	--	3.6	--	200	.27	4,720	148	70	5	1.1	325	7.5
Oct. 11-13...	254	--	--	180	40	63	--	274	395	67	--	5.2	--	947	1.29	649	615	390	18	1.1	1,320	7.9
Oct. 14-20...	164	--	--	224	73	103	--	310	586	128	--	5.7	--	1,380	1.88	611	860	606	21	1.5	1,940	7.9
Oct. 21-31...	110	30	0.02	220	90	130	4.9	240	743	170	0.1	4.8	0.23	1,610	2.19	478	920	724	23	1.9	2,110	8.0
Nov. 1-10...	91.1	--	--	292	88	147	--	358	815	175	--	6.0	--	1,830	2.49	450	1,080	796	23	1.9	2,350	7.7
Nov. 11-20...	80.7	--	--	300	90	145	--	336	861	170	--	4.8	--	1,850	2.52	403	1,120	844	22	1.9	2,390	7.6
Nov. 21-30...	71.2	--	--	320	98	136	--	404	885	170	--	4.6	--	1,920	2.61	369	1,200	869	20	1.7	2,470	7.7
Dec. 1-10...	65.0	--	--	288	107	138	--	350	881	165	--	2.8	--	1,870	2.54	328	1,160	873	21	1.8	2,380	7.9
Dec. 11-20...	59.3	--	--	284	112	141	--	332	889	160	--	3.6	--	1,840	2.50	295	1,170	898	21	1.8	2,340	7.9
Dec. 21-31...	64.0	--	--	300	105	133	--	344	903	155	--	4.2	--	1,870	2.54	323	1,180	898	20	1.7	2,340	7.9
Jan. 1-10, 1956...	57.1	--	--	292	95	131	--	312	891	155	--	4.4	--	1,840	2.50	284	1,120	864	20	1.7	2,330	8.0
Jan. 11-20...	55.0	--	--	312	98	126	--	380	882	156	--	5.9	--	1,910	2.60	284	1,180	868	19	1.6	2,360	8.0
Jan. 21-31...	58.3	--	--	300	98	134	--	340	877	145	--	8.0	--	1,850	2.52	291	1,150	872	20	1.7	2,330	8.0
Feb. 1-7...	55.9	--	--	284	107	96	--	310	865	140	--	7.3	--	1,730	2.35	261	1,150	896	15	1.2	2,210	7.9
Feb. 8-10...	350	--	--	142	49	76	--	204	417	81	--	5.5	--	902	1.23	852	555	388	23	1.4	1,290	7.9
Feb. 11-12...	86.0	--	--	172	56	74	--	240	485	81	--	6.4	--	1,020	1.39	237	660	464	20	1.2	1,430	8.0
Feb. 13-20...	82.8	--	--	304	103	73	--	366	831	120	--	6.6	--	1,700	2.31	288	1,180	860	12	1.9	2,160	8.0
Feb. 21-29...	58.0	28	.00	290	99	116	3.7	316	869	120	.0	7.2	.38	1,900	2.45	282	1,130	871	18	1.5	2,210	8.2

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	Mar. 1-10, 1956..	48.9	139	304	917	145	--	3.3	--	1,800	2.45	238	1,130	881	20	1.7	2,290	7.9
Mar. 11-20	48.2	224	139	302	915	150	--	2.3	--	1,850	2.52	241	1,120	872	21	1.8	2,330	7.8
Mar. 21-31	53.0	280	141	308	956	150	--	1.9	--	1,850	2.56	269	1,120	900	22	1.8	2,320	7.9
Apr. 1-10	47.3	296	137	308	943	140	4	2.6	.42	1,860	2.53	238	1,150	898	21	1.8	2,360	7.7
Apr. 11-20	37.2	272	103	284	915	168	--	2.3	--	1,860	2.53	197	1,100	868	23	2.0	2,350	7.8
Apr. 21-30	48.7	304	98	334	932	175	--	2.2	--	1,940	2.64	255	1,160	886	22	2.0	2,430	7.8
Apr. 27-30	39.0	240	61	280	677	140	--	1.9	--	1,470	2.00	155	850	620	25	1.9	1,940	7.8
May 1-8, 1958	40.4	276	90	266	888	170	--	1.9	--	1,860	2.53	203	1,860	842	23	2.0	2,300	7.7
May 9-10	100	364	139	256	1,290	170	--	1.4	--	2,460	3.35	664	1,480	1,270	17	1.6	2,870	7.7
May 11-13	55.3	304	103	270	1,040	60	--	3.0	--	1,920	2.61	287	1,180	958	15	1.2	2,170	8.2
May 14-20	29.4	190	57	276	537	70	--	3.0	--	1,180	1.60	94	710	464	20	1.3	1,510	8.1
May 21-24	47.8	204	61	290	557	110	--	2.2	--	1,230	1.67	159	760	522	22	1.6	1,670	8.3
May 25-31	1,247	76	16	134	157	24	--	3.6	--	390	.53	1,310	260	150	16	.6	593	7.9
June 1-2	505	76	17	128	173	13	--	3.7	--	399	.54	544	260	155	15	.6	577	8.0
June 3-4, 8	117	106	29	160	219	25	--	2.2	--	605	.82	181	390	289	15	.7	638	8.1
June 5-11	206	172	20	168	477	21	--	3.3	--	644	1.36	230	390	185	19	.8	606	7.9
June 12-15	38.1	176	54	255	437	67	--	1.7	--	840	1.11	130	690	441	13	.8	840	8.3
June 16-21	38.2	215	63	296	547	124	--	1.1	--	1,260	.71	130	790	541	21	1.5	1,710	8.3
June 22	189	264	95	132	998	310	--	.6	--	2,070	2.92	1,060	1,050	942	34	3.3	2,800	7.9
June 23, 28-30	50.0	128	37	208	336	48	--	.5	--	719	.98	97	470	300	20	1.1	1,030	8.1
June 24-28	42.4	104	27	190	222	34	--	.6	--	535	.73	61	370	214	15	1.7	782	8.0
July 1-4	21.2	146	57	b248	419	98	--	1.4	--	967	1.32	55	600	396	23	1.5	1,360	8.4
July 5-10	20.5	172	78	c268	540	180	--	2.0	--	1,300	1.77	72	750	530	28	2.1	1,810	8.4
July 11	100	156	54	d182	486	180	--	2.5	--	1,150	1.56	310	610	460	33	2.4	1,690	8.4
July 12-13, 20	342	51	13	136	92	34	--	5.0	--	323	.44	298	182	70	30	1.1	510	8.2
July 14	344	92	76	d172	409	46	--	6.6	--	816	1.11	758	540	398	15	.8	1,120	8.4
July 15-19	102	106	29	136	291	30	--	5.0	--	590	.80	162	385	274	16	.8	825	8.2
July 21-22, 25-27	199	66	16	144	132	28	--	4.3	--	371	.50	199	232	114	22	.9	576	7.8
July 23-24	94.0	90	27	142	230	32	--	3.7	--	515	.70	131	218	17	17	.8	762	7.8
July 25-31	21.2	114	31	180	271	56	--	3.2	--	643	.87	37	410	262	20	1.0	938	7.9

a Includes 6 parts per million of carbonate (CO₃).b Includes 14 parts per million of carbonate (CO₃).c Includes 14 parts per million of carbonate (CO₃).d Includes 8 parts per million of carbonate (CO₃).

RED RIVER BASIN--Continued

WASHITA RIVER AT CARNEGIE, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Aug. 1-10, 1956	9.51	18	0.06	148	51	94	5.1	236	402	106	0.5	2.2	0.28	985	1.35	26	580	386	26	1.7	1,360	8.1
Aug. 11-20	1.53	--	--	164	54	74	--	230	435	104	--	2.6	--	1,000	1.36	4.1	630	442	20	1.3	1,390	7.8
Aug. 21-31	.86	--	--	166	50	49	--	250	408	67	--	3.0	--	916	1.25	2.1	620	415	15	.9	1,230	8.0
Sept. 1-10	1.39	--	--	192	49	16	--	232	450	38	--	2.4	--	906	1.23	3.4	680	490	5	.3	1,220	7.7
Sept. 11-20	1.87	20	.06	166	43	52	4.6	284	387	40	.3	2.2	.12	869	1.18	4.4	590	358	16	.9	1,180	7.9
Sept. 21-30	1.01	--	--	192	37	58	--	296	400	68	--	2.2	--	922	1.25	2.5	630	388	17	1.0	1,300	7.9
Weighted average	211	--	--	100	29	32	--	152	245	40	--	3.8	--	568	0.77	324	368	243	16	0.7	787	--

RED RIVER BASIN--Continued

WASHITA RIVER AT CARNEGIE, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	58	40	48	41	55	69	71	76	86	86	76
2	74	55	45	47	36	57	71	69	76	85	87	80
3	70	54	46	47	34	57	68	73	77	87	87	81
4	70	56	45	47	33	59	68	75	78	87	88	82
5	73	54	44	48	34	61	65	77	76	90	88	83
6	72	53	44	47	33	62	64	79	80	88	86	77
7	69	51	45	44	39	53	64	78	83	89	87	75
8	64	62	45	43	40	53	64	79	83	88	87	77
9	67	52	42	45	41	57	66	79	84	87	88	75
10	68	52	43	44	43	59	--	76	83	80	88	76
11	69	53	42	44	44	52	57	80	82	82	87	77
12	68	55	39	43	46	48	61	80	85	79	86	77
13	67	56	43	42	48	47	66	82	83	83	89	73
14	67	56	42	44	49	50	68	71	84	84	87	80
15	67	58	41	43	46	46	70	74	84	84	89	81
16	64	51	40	40	47	42	65	76	84	85	87	81
17	63	49	41	38	47	55	65	79	86	84	87	81
18	64	47	41	38	49	57	60	79	87	79	84	80
19	65	51	38	38	49	56	64	81	88	83	77	80
20	65	49	40	40	49	53	67	80	84	79	79	80
21	66	55	43	39	50	48	65	80	81	82	76	74
22	66	56	44	38	53	52	67	80	87	82	80	78
23	64	53	--	39	58	59	68	78	87	83	83	76
24	63	50	50	41	59	61	59	74	84	86	84	74
25	62	52	47	41	57	56	70	72	86	86	82	77
26	61	51	45	43	55	64	70	--	86	86	80	75
27	62	45	47	43	55	62	75	68	81	87	81	74
28	59	46	50	44	55	63	73	69	85	88	81	69
29	59	44	45	44	55	62	70	75	87	86	80	73
30	58	41	45	44	--	61	67	76	86	86	77	70
31	59	--	39	43	--	68	--	76	--	87	76	--
Average	66	52	43	43	46	56	66	76	83	85	84	77

RED RIVER BASIN--Continued

WASHITA RIVER NEAR PAULS VALLEY, OKLA.

LOCATION.--At gaging station on U. S. Highway 77 bridge, 2 miles northwest of Pauls Valley, Garvin County, 6 miles downstream from Owl Creek, and 7 miles upstream from Washington Creek.
DRAINAGE AREA.--5,330 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1953 to August 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses in parts per million, October 1955 to August 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
Oct. 4, 1955	7,030	50	14	13	148	0	15	184	62	13	0.4	380	7.6
Oct. 6	8,700	106	16	11	232	0	10	330	140	7	.3	605	6.6
Oct. 10	3,790	53	12	7.8	116	0	6.0	180	85	9	.3	365	7.2
Oct. 18	655	116	24	33	180	0	42	390	242	16	.7	885	7.2
Nov. 1	326	138	60	69	172	0	101	590	449	20	1.2	1,380	8.1
Nov. 15	271	170	68	79	264	0	116	705	448	20	1.3	1,580	7.7
Nov. 29	180	156	63	82	186	0	113	650	498	22	1.4	1,530	7.9
Dec. 21	190	170	73	73	286	0	116	725	490	18	1.2	1,630	7.9
Jan. 4, 1956	175	200	70	90	340	0	108	785	506	20	1.4	1,660	7.7
Jan. 17	198	144	37	41	150	0	49	510	387	15	.8	1,080	7.7
Jan. 31	188	138	38	45	140	0	58	500	386	16	.9	1,070	7.9
Feb. 15	370	172	78	91	346	0	85	750	466	21	1.4	1,530	7.5
Mar. 15	159	144	44	87	168	0	96	540	402	26	1.6	1,410	7.6
Mar. 30	144	184	68	99	236	0	99	740	506	23	1.6	1,600	7.7
Apr. 11	153	200	49	93	280	0	142	700	470	22	1.5	1,620	7.8
Apr. 25	120	176	44	83	276	0	100	620	394	23	1.4	1,530	8.1
May 9	98.0	160	71	99	218	0	120	690	512	24	1.6	1,560	7.7
May 23	48.3	192	85	119	238	0	142	830	635	24	1.8	1,880	7.6
May 31	1,820	112	29	26	232	0	31	400	210	12	.6	795	8.0
June 5	1,020	92	20	10	234	0	12	310	118	7	.2	593	7.4
June 15	114	101	26	27	188	0	37	360	206	14	.6	775	7.8
June 29	150	126	46	52	150	0	65	505	305	18	1.0	1,110	8.0
July 19	225	123	53	58	274	0	65	525	300	19	1.1	1,150	8.1
Aug. 1	46.8	38	16	28	85	0	35	160	90	28	1.0	473	7.2
Aug. 22	2.86	63	55	69	168	0	80	385	248	28	1.5	1,030	7.3
Aug. 27	.37	69	60	73	210	0	92	420	248	27	1.6	1,090	7.3
Aug. 29	.31	71	62	73	222	0	91	430	248	27	1.5	1,120	7.7

RED RIVER BASIN--Continued

WASHITA RIVER NEAR DURWOOD, OKLA.

LOCATION --At gaging station at bridge on State Highway 18, 1.3 miles downstream from Caddo Creek, and 4 miles north of Durwood, Carter County.

DRAINAGE AREA --7,202 square miles.

RECORDS AVAILABLE --Chemical analyses: May 1944 to September 1956.

Water temperatures: April 1947 to September 1956.

EXTREMES 1955-56 --Dissolved solids: Maximum, 1,160 ppm July 30; minimum, 264 ppm Oct. 1-4, 7-10.

Hardness: Maximum, 715 ppm Dec. 11-20; minimum, 188 ppm Oct. 1-4, 7-10.

Specific conductance: Maximum daily, 1,710 microhos July 30; minimum daily, 379 microhos Oct. 12.

Water temperatures: Maximum, 84°F July 8; minimum, freezing point on Jan. 18, 19, Feb. 4, 6.

EXTREMES 1944-56 --Dissolved solids: Maximum, 1,160 ppm July 30, 1956; minimum, 70 ppm Nov. 2, 1951.

Hardness: Maximum, 715 ppm Dec. 11-20, 1955; minimum, 41 ppm Nov. 2, 1951.

Specific conductance: Maximum daily, 1,710 microhos July 30, 1956; minimum daily, 94.9 microhos Nov. 2, 1951.

Water temperatures (1947-55): Maximum, 87°F Aug. 6, 1950; minimum, freezing point on many days during winter months.

REMARKS --Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year

October 1955 to September 1956 given in WSP 1441. No flow Aug. 28, Sept. 14-30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (microhm-cm at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./residue	Non-carbonate				
Oct. 1-4, 7-10, 1955	3,589	--	--	51	15	14	--	126	80	18	--	3.9	--	284	0.36	188	84	14	0.4	444	7.4	
Oct. 5-6,	11,000	--	--	34	26	41	--	176	42	66	--	9.4	--	324	.44	9,620	190	46	32	1.3	691	7.9
Oct. 11-15,	3,284	--	--	53	16	10	--	124	83	14	--	4.2	--	287	.36	2,370	196	94	10	.3	435	7.3
Oct. 16-17,	1,044	--	--	77	19	20	--	160	124	27	--	4.8	--	394	.54	1,110	270	139	14	.5	607	7.8
Oct. 18-20,	1,776	--	--	99	30	30	--	220	176	42	--	4.8	--	521	.71	1,090	370	190	15	.7	825	7.8
Oct. 21-25,	572	--	--	112	40	52	--	214	285	61	--	2.4	--	670	.91	1,030	446	270	20	1.1	995	7.7
Oct. 26-31,	443	--	--	124	56	69	--	224	366	88	--	2.4	--	881	1.17	1,030	540	356	22	1.3	1,240	7.5
Nov. 1-10,	338	--	--	148	56	99	--	248	442	102	--	2.9	--	983	1.34	897	600	397	28	1.8	1,410	7.8
Nov. 11-20,	280	18	0.02	154	65	93	4.4	250	447	118	0.2	1.3	0.23	1,040	1.41	814	650	445	24	1.6	1,530	7.9
Nov. 21-30,	269	--	--	148	66	105	--	244	460	118	--	2.5	--	1,070	1.46	777	640	440	26	1.8	1,530	7.8
Dec. 1-10,	269	--	--	148	69	88	--	280	434	115	--	1.7	--	1,060	1.44	770	655	426	23	1.5	1,510	7.8
Dec. 11-20,	247	--	--	164	74	91	--	330	445	115	--	1.6	--	1,130	1.54	754	715	444	22	1.5	1,580	7.9
Dec. 21-31,	250	--	--	152	77	91	--	288	453	115	--	1.6	--	1,090	1.48	736	695	459	22	1.5	1,550	7.9
Jan. 1-10, 1956, ...	226	--	--	144	61	92	--	224	441	118	--	.1	--	1,040	1.41	635	610	428	25	1.6	1,480	7.9
Jan. 11-20,	207	--	--	172	59	100	--	300	449	122	--	2.0	--	1,090	1.48	609	670	424	24	1.7	1,560	7.8
Jan. 21-31,	260	--	--	139	66	93	--	262	394	120	--	3.3	--	985	1.34	691	620	406	25	1.6	1,430	8.0
Feb. 1-10,	275	--	--	128	65	71	--	212	398	105	--	3.8	--	927	1.26	688	585	412	21	1.3	1,360	8.0
Feb. 11-17,	467	--	--	152	67	67	--	300	381	110	--	4.2	--	936	1.27	688	635	409	18	1.1	1,440	8.0
Feb. 18-20,	463	--	--	112	44	36	--	242	223	75	--	2.5	--	643	.87	804	460	262	15	1.7	1,010	7.9
Feb. 21-23,	275	16	.00	122	46	71	3.4	226	296	96	.1	2.9	.21	819	1.11	606	500	305	23	1.4	1,160	8.2

RED RIVER BASIN--Continued
 WASHITA RIVER NEAR DURWOOD, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium adsorption ratio ^a	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Mar. 1-10, 1956...	208	--	--	122	66	92	204	435	110	1.2	--	--	--	949	1.29	533	575	408	26	1.7	1,390	8.0
Mar. 11-20.....	205	--	--	146	72	92	272	460	112	1.6	--	--	--	1,040	1.41	576	660	437	23	1.6	1,460	8.1
Mar. 21-31.....	206	--	--	138	69	88	248	437	115	1.6	--	--	--	998	1.36	560	630	427	23	1.5	1,500	7.8
Apr. 1-6, 9-10....	234	--	--	146	67	96	238	456	125	1.6	--	--	--	1,080	1.47	682	640	445	25	1.7	1,510	8.0
Apr. 7-8.....	279	--	--	116	45	71	236	309	79	2.5	--	--	--	914	1.24	689	475	282	24	1.4	1,150	8.0
Apr. 11-13.....	168	--	--	136	51	78	220	389	92	2.8	--	--	--	921	1.25	418	550	370	24	1.4	1,290	8.0
Apr. 14-20.....	139	--	--	156	66	103	256	469	130	1.6	--	--	--	1,120	1.52	420	660	450	25	1.7	1,560	8.0
Apr. 21-28, 30....	155	--	--	150	65	101	280	435	125	1.2	--	--	--	1,090	1.48	456	640	410	26	1.7	1,520	7.9
Apr. 29.....	527	--	--	84	34	49	174	208	67	5.2	--	--	--	555	.75	790	350	208	23	1.1	830	7.9
May 1.....	541	--	--	116	39	86	a234	287	101	3.6	--	--	--	758	1.03	1,110	450	258	29	1.6	1,140	8.3
May 2.....	857	--	--	132	46	124	b218	357	168	4.0	--	--	--	964	1.31	2,230	520	341	34	2.4	1,490	8.3
May 3.....	823	--	--	72	17	77	186	123	95	4.0	--	--	--	479	.65	1,060	250	98	40	2.1	766	8.0
May 4-10.....	202	--	--	116	43	89	238	303	103	2.5	--	--	--	790	1.07	431	465	270	29	1.8	1,200	8.1
May 11-20.....	136	10	0.01	134	54	96	4.8	411	132	0.3	1.6	0.50	0.50	991	1.35	364	555	376	27	1.8	1,460	8.0
May 21-23.....	97.3	--	--	136	54	94	a236	368	132	1.2	--	--	--	986	1.34	259	560	366	27	1.7	1,430	8.3
May 24-31.....	1,230	--	--	83	27	42	174	173	62	2.6	--	--	--	526	.72	1,750	320	178	22	1.0	787	7.8
June 1-4.....	2,425	--	--	82	23	31	150	188	32	4.4	--	--	--	484	.66	3,170	300	177	18	.8	696	8.0
June 5-10.....	1,076	--	--	62	16	24	146	115	20	5.5	--	--	--	357	.49	1,040	220	100	19	.7	521	7.9
June 11-14.....	333	--	--	88	20	36	158	163	39	4.3	--	--	--	520	.71	468	300	170	21	.9	722	7.9
June 15-20.....	158	--	--	110	23	50	184	244	51	1.6	--	--	--	637	.87	272	370	219	23	1.1	887	8.0
June 21-30.....	87.1	--	--	106	35	59	212	263	64	1.0	--	--	--	634	.86	149	410	236	24	1.3	976	8.2
July 1-10.....	74.9	13	.04	86	48	69	5.6	314	78	.4	3.0	.45	.45	736	1.00	149	410	287	26	1.5	1,060	7.8
July 11-15.....	86.0	--	--	96	44	87	140	334	102	--	3.2	--	--	763	1.04	177	420	306	31	1.8	1,130	8.2
July 16-20.....	51.4	--	--	69	35	68	146	202	92	--	3.0	--	--	573	.78	80	315	196	32	1.7	901	8.2
July 21-28, 31....	144	--	--	98	45	81	152	343	87	--	3.3	--	--	779	1.06	303	430	306	29	1.7	1,150	7.8
July 29.....	174	--	--	58	23	50	144	151	50	--	3.3	--	--	435	.59	204	240	122	31	1.4	680	7.8
July 30.....	120	--	--	144	60	139	128	497	200	--	2.5	--	--	1,160	1.58	376	605	500	33	2.5	1,710	7.8

^a Includes 4 parts per million of carbonate (CO₃).

^b Includes 2 parts per million of carbonate (CO₃).

Aug. 1-4, 1956...	67.8	--	--	88	57	122	300	56	--	2.0	--	632	0.86	116	370	270	25	1.3	930	7.7
Aug. 5-13.....	20.2	--	--	62	47	154	149	46	--	2.4	--	583	.60	24	205	122	23	1.3	385	7.6
Aug. 14-20.....	3.56	--	--	82	26	250	136	46	--	2.5	--	581	.69	4	300	125	23	1.2	793	8.1
Aug. 21-27, 29-31	1.31	--	--	76	39	212	166	54	--	2.6	--	491	.67	1.8	300	94	22	1.2	802	8.1
Sept. 1-10.....	.26	.06	14	50	46	312	95	61	-4	2.2	.18	472	.64	.3	315	54	26	1.3	787	8.1
Sept. 11-13.....	.20	--	--	55	47	366	67	68	--	2.6	--	483	.66	.3	330	15	29	1.5	840	7.9
Weighted average	440	--	--	87	35	185	211	62	--	4.1	--	573	0.78	681	361	210	22	1.1	880	--

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

WASHITA RIVER NEAR DURWOOD, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	73	61	38	41	41	54	60	63	73	78	79	76
2	74	50	41	40	34	49	63	63	72	80	79	77
3	71	48	50	42	33	51	61	62	70	80	80	77
4	72	38	44	39	32	43	57	68	70	79	80	--
5	75	52	43	41	33	60	60	70	73	79	79	79
6	72	58	49	43	32	60	58	73	74	80	80	73
7	63	48	40	41	37	42	56	73	75	80	80	74
8	57	45	43	38	44	44	55	76	78	84	80	72
9	66	43	38	37	42	48	60	76	78	--	82	69
10	57	44	38	38	42	52	--	74	79	80	82	70
11	69	49	36	36	38	48	49	73	79	80	80	71
12	68	55	34	36	45	43	53	74	79	75	80	74
13	60	59	37	35	46	43	60	74	79	75	80	76
14	59	58	40	40	49	42	65	74	76	77	79	--
15	55	65	35	38	48	43	67	66	77	79	81	--
16	61	48	33	34	49	42	58	68	78	79	81	--
17	59	48	34	34	51	44	56	70	78	78	81	--
18	56	45	36	32	45	50	55	73	79	79	82	--
19	56	45	36	32	42	50	58	74	80	78	--	--
20	60	49	35	33	45	48	56	74	81	77	72	--
21	61	48	40	35	45	43	57	74	79	75	71	--
22	61	66	42	37	47	46	60	73	80	77	70	--
23	64	52	40	38	55	48	62	74	79	79	71	--
24	65	46	46	38	59	52	60	60	80	79	75	--
25	66	44	48	38	57	56	64	70	80	77	75	--
26	50	43	45	40	52	60	63	71	79	79	76	--
27	57	44	47	42	51	65	68	73	83	81	75	--
28	57	39	46	48	47	57	72	74	76	80	--	--
29	54	36	47	48	46	54	62	77	78	82	78	--
30	53	36	41	38	--	54	63	76	80	79	80	--
31	51	--	39	37	--	59	--	79	--	79	79	--
Average	62	49	41	38	44	50	60	72	77	79	78	--

RED RIVER BASIN--Continued

RED RIVER AT DENISON DAM, NEAR DENISON, TEX.

LOCATION.--Immediately below dam on Red River, 1.7 miles upstream from Sand Creek, 4 miles northwest of Denison, Grayson County, and 3 miles upstream from gaging station near Colbert, Bryan County, Okla.
DRAINAGE AREA.--39,719 square miles above dam; 39,777 square miles above gaging station, of which 5,936 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: May 1944 to September 1956.

Water temperatures: October 1945 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,280 ppm Sept. 1-30; minimum, 954 ppm Jan. 1-31.

Hardness: Maximum, 450 ppm Sept. 1-30; minimum, 331 ppm Dec. 1-31.

Specific conductance: Maximum daily, 2,210 micromhos Aug. 29, Sept. 11, 26, 27; minimum daily, 1,560 micromhos Dec. 29.

EXTREMES, 1944-56.--Dissolved solids: Maximum, 1,430 ppm Aug. 11-20, Sept. 1-10, 1944; minimum, 464 ppm Oct. 21-31, 1945.

Hardness: Maximum, 522 ppm Aug. 11-20, Sept. 1-10, 1944; minimum, 233 ppm Dec. 21-31, 1945.

Specific conductance: Maximum daily, 3,520 micromhos Aug. 14, 1944; minimum daily, 656 micromhos Oct. 16, 1945.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for gaging station near Colbert, Okla., for water year October 1955 to September 1956 given in WSP 1441. No appreciable inflow between dam and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1955 ..	14,759	11		106	24	230	6.5	117	252	358	0.5	1.0	0.19	1,050	1.43	41,840	364	268	57	1,750	7.8
Nov. 1-30	4,073	10		103	22	210	6.2	117	236	328	.4	1.6	.13	976	1.33	12,580	346	232	56	1,640	7.6
Dec. 1-31, 1956 ..	3,652	9.8		106	21	186	6.0	116	228	302	.3	1.2	.08	870	1.32	10,340	331	224	56	1,500	7.9
Jan. 1-31, 1956 ..	4,016	11		102	20	184	5.9	123	224	306	.3	.8	.16	884	1.30	10,870	336	232	55	1,600	7.9
Feb. 1-29	2,250	10		103	20	186	5.7	126	235	318	.4	.8	.11	897	1.33	9,940	352	248	54	1,590	7.9
Mar. 1-31																				1,620	7.6
Apr. 1-30	1,089	11		104	24	200	5.8	130	235	318	.4	1.0	.13	963	1.36	2,830	358	252	54	1,650	7.7
May 1-31	2,097	12		107	24	209	5.8	134	244	322	.4	.8	.19	981	1.35	5,500	366	256	55	1,690	7.8
June 1-30	1,449	12		112	27	228	6.1	130	263	365	.5	1.2	.17	1,080	1.47	4,230	390	284	55	1,850	8.0
July 1-31	1,580	12		124	28	262	6.3	135	299	422	.4	1.2	.12	1,220	1.66	5,200	424	314	57	2,070	7.8
Aug. 1-31	1,381	12		117	29	285	6.6	132	305	435	.4	1.2	.29	1,260	1.71	4,700	411	303	60	2,120	7.9
Sept. 1-30	1,423	12		128	32	276	6.8	126	315	448	.5	.5	.20	1,280	1.74	4,920	450	346	57	2,190	7.8
Weighted average	3,550	11		106	23	219	6.2	122	248	346	0.4	1.1	0.17	1,030	1.40	9,870	359	259	56	1,720	--

a Residue on evaporation at 180°C.

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

RED RIVER AT DENISON DAM, NEAR DENISON, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	68	55	--	45	49	--	--	70	--	79	--
2	--	67	55	--	44	49	57	63	--	75	79	--
3	77	66	--	--	44	--	57	63	--	75	79	--
4	78	66	--	--	--	--	58	63	71	--	--	--
5	78	--	54	--	--	51	57	--	71	75	--	--
6	78	--	54	49	43	51	58	--	70	75	80	--
7	77	65	54	--	44	52	--	64	71	--	80	--
8	--	64	54	--	44	51	--	65	71	--	80	--
9	--	63	53	49	44	51	55	64	--	76	80	--
10	76	62	--	49	44	--	54	63	--	75	80	--
11	77	--	--	48	--	--	56	56	68	75	--	78
12	77	--	52	48	--	51	58	--	68	76	--	78
13	76	--	51	48	44	51	58	--	70	76	80	78
14	75	63	51	--	45	51	--	66	70	--	80	--
15	--	64	50	48	45	51	--	63	71	--	81	--
16	--	62	50	47	45	51	58	66	--	77	81	--
17	73	62	--	47	46	--	58	69	--	77	80	--
18	72	60	--	--	--	--	58	68	72	78	--	77
19	72	--	55	--	--	51	60	--	75	79	--	78
20	72	--	55	--	46	51	60	--	78	79	77	78
21	72	60	49	--	46	51	--	68	74	--	76	77
22	--	61	49	--	--	51	--	68	73	--	77	--
23	--	60	50	45	47	51	61	69	--	78	78	--
24	70	--	--	46	48	--	61	69	--	78	80	77
25	70	59	--	46	--	--	61	70	75	79	--	76
26	70	--	--	45	--	53	61	--	76	78	--	76
27	70	--	50	46	49	54	61	--	76	78	79	77
28	69	57	50	--	49	55	--	70	74	--	80	76
29	--	56	49	--	49	55	--	70	75	--	81	--
30	--	56	49	45	--	--	61	--	--	79	81	--
31	68	--	--	45	--	--	--	70	--	79	81	--

RED RIVER BASIN--Continued
NORTH BOGGY CREEK NEAR STRINGTOWN, OKLA.

LOCATION.--At gaging station on bridge on State Highway 43, 2.8 miles upstream from Mill Creek and 3.6 miles north of Stringtown, Atoka County. DRAINAGE AREA--139 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to August 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25 C)	pH
								Total	Non- carbonate				
Oct. 6, 1955.....	6.59	10	4.1	4.1	42		5.0	42	8	18	0.3	101	6.8
Oct. 19.....	.22	14	4.6	9.2	58		6.5	54	6	27	.5	129	6.8
Jan. 5, 1956.....	--	22	7.1	10	104		6.8	84	0	21	.5	194	7.5
Feb. 14.....	9.00	10	1.7	6.7	30		2.6	32	8	31	.5	93.4	7.0
Feb. 28.....	5.47	14	2.2	5.2	48		3.2	44	4	21	.3	123	6.5
Mar. 26.....	4.27	21	6.7	12	72		7.4	80	21	25	.6	181	6.6
May 2.....	72.2	12	4.6	5.0	47		5.0	49	10	18	.3	119	6.8
May 21.....	3.08	12	4.6	5.5	54		5.0	49	4	20	.3	126	6.2
May 26.....	280	6.0	2.9	4.0	24		3.5	27	8	24	.3	74.6	6.3
July 18.....	--	22	7.1	6.0	102		5.8	84	0	13	.3	187	7.1
Aug. 21.....	--	29	8.9	7.9	125		7.3	108	6	14	.3	237	6.8

Chemical analyses, in parts per million, October 1955 to August 1956

RED RIVER BASIN--Continued
CLEAR BOGGY CREEK NEAR CANEY, OKLA.

LOCATION.--At gaging station at bridge on U.S. Highways 69 and 75, half a mile downstream from Caney Creek, 1.5 miles north of Caney, Atoka County.

DRAINAGE AREA.--20 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.

Water temperature: October 1955 to September 1956.

EXTREMES: 1955-56--Dissolved solids: 20-32 ppm Nov. 11-20; minimum, 110 ppm June 1-2.

Hardness: Maximum, 675 ppm Nov. 11-20; minimum, 32 ppm June 1-2.

Specific conductance: Maximum daily, 3,010 micromhos Nov. 7-8; minimum daily, 122 micromhos June 2.

Water temperatures: Maximum 84°F June 23-27; minimum 73°F July 3, 7-8; minimum freezing point on several days during December and February.

REMARKS.--Records of specific conductance of daily samples available in District office at Oklahoma City, Okla. Records of discharge for water year

October 1955 to September 1956 given in WSP 1441. No flow on July 10 to Sept. 30.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Borates (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Percent sodium in total	Specific conductance (micro-mhos at 25°C)
															Parts per million	Tons per acre-foot	Tons per day	Calcium-magnesium	Carbonate	
Oct. 1, 1955.....	93.0	--	--	48	12	38	--	138	--	21	88	--	0.5	--	325	0.44	82	170	57	550
Oct. 2-5.....	629	--	--	29	7.9	18	--	96	--	15	35	--	.5	--	177	.24	301	105	26	294
Oct. 6-8.....	40.0	--	--	45	10	35	--	142	--	20	71	--	.2	--	277	.38	30	155	38	487
Oct. 9-10.....	27.0	--	--	59	17	61	--	172	--	31	122	--	.0	--	389	.53	28	215	74	711
Oct. 11-12.....	22.0	--	--	77	21	89	--	200	--	41	182	--	.5	--	537	.73	32	230	116	944
Oct. 13-15.....	18.5	--	--	75	25	119	--	168	--	33	260	--	.0	--	648	.88	32	290	152	1,230
Oct. 15-20.....	15.0	--	--	99	32	175	--	196	--	36	385	--	.0	--	898	1.22	36	380	220	1,620
Oct. 21-24.....	13.5	--	--	114	38	218	--	202	--	37	490	--	.0	--	1,090	1.46	40	440	274	2,040
Oct. 25-31.....	11.1	--	--	132	48	283	--	236	--	36	620	--	.0	--	1,340	1.82	40	525	332	2,470
Nov. 1-10.....	10.1	12	0.00	144	54	306	5.6	280	--	27	720	0.0	0.14	0.14	1,580	2.15	43	580	350	2,750
Nov. 11-20.....	10.4	--	--	171	60	345	--	344	--	34	900	--	1.7	--	1,690	2.30	47	675	383	2,960
Nov. 21-30.....	9.93	--	--	140	61	346	--	292	--	22	750	--	1.9	--	1,660	2.26	45	600	360	2,840
Dec. 1-10.....	11.7	16	.00	104	54	287	4.7	194	--	20	680	.0	.4	.10	1,460	1.99	46	480	321	2,570
Dec. 11-20.....	10.3	--	--	138	60	309	--	348	--	21	660	--	.0	--	1,500	2.04	42	590	305	2,580
Dec. 21-31.....	10.9	--	--	115	57	288	--	292	--	22	620	--	.0	--	1,350	1.84	40	520	280	2,390
Jan. 1-10, 1956.....	9.38	16	.00	108	51	277	3.2	254	--	26	590	.1	1.7	.01	1,280	1.74	32	480	272	2,330
Jan. 11-20.....	9.08	--	--	128	49	277	--	306	--	23	590	--	.6	--	1,330	1.81	33	520	269	2,300
Jan. 21-31.....	13.4	--	--	102	52	251	--	240	--	26	570	--	.7	--	1,200	1.63	43	470	274	2,240
Feb. 1-8.....	24.9	--	--	96	45	233	--	216	--	28	500	--	.1	--	1,130	1.54	76	425	246	2,010
Feb. 9-11.....	89.3	--	--	96	27	147	--	240	--	35	300	--	.5	--	760	1.03	183	350	154	1,410
Feb. 12-16.....	42.0	--	--	10	25	78	--	216	--	29	173	--	.1	--	504	.69	37	276	99	948
Feb. 17-23.....	1,024	--	--	32	17	8	--	106	--	11	29	--	2.4	--	136	.21	481	112	25	480
Feb. 24-28.....	141	--	--	53	12	24	--	106	--	17	43	--	2.2	--	271	.53	63	130	40	458
Feb. 24-29.....	48.0	--	--	77	17	41	--	238	--	40	87	--	.7	--	364	.52	51	200	65	697

Mar. 1-4, 1956	28.5	--	--	66	21	67	--	204	41	135	--	.6	--	438	.60	34	250	83	37	1.8	831	8.1
Mar. 5-10	23.2	--	--	73	31	179	--	230	42	132	--	.4	--	550	.75	34	308	120	36	2.0	1,960	7.6
Mar. 11-20	20.4	9.0	--	88	37	108	2.7	226	42	285	.2	.6	.21	784	1.07	43	370	165	39	2.0	1,310	7.6
Mar. 21-28	24.2	--	--	96	34	156	--	240	37	330	--	1.4	--	883	1.21	58	380	264	47	3.5	1,580	7.6
Mar. 29-31	18.0	--	--	120	37	190	--	276	36	415	--	1.2	--	1,050	1.43	43	400	230	50	4.0	1,720	7.6
Apr. 1-10	16.0	5.5	--	92	41	166	3.0	208	39	420	.1	1.2	.10	1,050	1.43	45	400	230	50	4.0	1,720	7.6
Apr. 11-20	11.4	--	--	100	39	190	--	236	37	420	--	.8	--	1,150	1.56	35	410	216	50	4.1	1,790	7.2
Apr. 21-28	--	--	--	114	48	209	--	272	35	495	--	.7	--	1,390	1.89	27	480	257	49	4.1	2,070	7.6
Apr. 29-30	34.1	--	--	56	5.0	21	--	152	40	30	--	2.5	--	275	.37	253	160	36	22	3.7	382	7.2
May 1	335	--	--	88	23	132	--	200	22	295	--	2.3	--	829	1.13	750	315	151	46	3.2	1,390	7.8
May 2	301	--	--	26	9.5	42	--	90	15	30	--	3.0	--	194	.26	158	104	30	23	.6	267	7.5
May 3	134	--	--	43	9.8	42	--	120	17	92	--	1.9	--	337	.46	122	148	50	38	1.5	517	7.5
May 4-10	43.1	--	--	58	18	68	--	168	23	155	--	1.3	--	482	.67	57	220	82	40	2.0	838	7.5
May 11-20	30.6	8.5	--	51	55	18	3.6	164	20	145	.2	1.3	.04	450	.61	37	210	59	41	2.1	808	7.9
May 21-28	7.50	--	--	48	13	62	--	148	12	132	--	1.1	--	376	.51	7.6	175	54	44	2.0	696	8.0
May 24-26	801	--	--	23	4.5	17	--	78	11	29	--	2.6	--	156	.18	294	76	12	33	.8	242	7.5
May 27-31	284	--	--	49	14	40	--	160	16	83	--	1.4	--	313	.13	240	180	49	33	1.3	546	7.7
June 1-2	1,418	--	--	17	2.3	7.0	--	60	5.1	12	--	2.6	--	110	.15	431	52	3	22	.4	156	7.3
June 3-10	64.4	--	--	34	7.1	23	--	124	15	40	--	1.2	--	189	.26	33	114	12	30	.9	346	7.6
June 11-12	26.5	--	--	46	11	36	--	172	18	62	--	1.0	--	284	.39	20	162	21	33	1.2	490	7.9
June 13-20	10.1	--	--	54	12	58	--	184	14	96	--	1.7	--	360	.49	9.8	182	31	41	1.9	625	7.7
June 21-30	1.04	10	--	64	16	58	4.8	216	16	122	.5	1.3	.05	328	.60	12.3	225	48	35	1.7	746	7.7
July 1-9	.17	--	--	66	18	67	--	226	14	136	--	.7	--	441	.60	2.0	240	55	38	1.9	795	7.9
Weighted average	54.4	--	--	44	13	50	--	129	18	104	--	1.8	--	331	0.45	49	164	58	40	1.7	573	--

RED RIVER BASIN--Continued

CLEAR BOGGY CREEK NEAR CANEY, OKLA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	60	40	46	42	51	65	63	71	82		
2	74	63	41	43	33	57	67	62	70	83		
3	73	55	49	43	32	53	66	63	73	84		
4	73	51	48	41	32	53	63	68	71	84		
5	74	51	47	43	32	58	63	71	73	83		
6	75	--	44	43	32	64	62	74	75	83		
7	70	55	48	43	37	62	60	73	76	84		
8	65	51	43	41	42	51	61	76	79	84		
9	65	46	41	38	44	52	62	78	78	83		
10	65	46	41	42	43	51	51	77	80	--		
11	65	49	38	38	42	50	53	77	80	--		
12	65	56	40	37	43	49	57	77	81	--		
13	66	60	38	36	43	45	61	78	82	--		
14	63	61	40	37	51	40	68	77	80	--		
15	61	61	38	40	51	45	70	75	78	--		
16	62	59	32	37	51	44	63	71	80	--		
17	60	53	32	37	53	49	63	70	81	--		
18	56	48	32	36	51	52	61	74	82	--		
19	56	49	33	34	49	52	61	76	83	--		
20	58	49	39	33	41	51	60	77	83	--		
21	61	49	42	36	41	51	62	77	83	--		
22	63	55	43	38	42	48	64	79	83	--		
23	66	55	47	39	53	50	65	78	84	--		
24	63	53	47	40	58	53	66	70	84	--		
25	65	53	47	39	52	59	66	70	84	--		
26	55	48	49	41	54	62	69	72	84	--		
27	56	47	48	43	54	66	71	73	84	--		
28	59	44	48	46	51	64	74	74	81	--		
29	58	43	49	48	53	60	68	77	82	--		
30	55	40	45	43	--	57	59	79	83	--		
31	54	--	41	40	--	61	--	80	--	--		
Average	64	52	42	40	45	54	63	74	80	--		

RED RIVER BASIN--Continued
TENMILE CREEK NEAR MILLER, OKLA.

LOCATION --At gaging station on county highway bridge, 1½ miles south of Miller, Pushmataha County, 4.7 miles upstream from Rock Creek.
DRAINAGE AREA 558 square miles.
RECORDS AVAILABLE. --Chemical analyses: October 1955 to August 1956.
REMARKS. --Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbon- ate				
Oct. 7, 1955	10.8	7.2	1.9	9.3	29		8.0	26	2	43	0.8	81.8	6.6
Oct. 19,	1.20	8.0	3.9	12	44		10	36	0	42	.9	110	6.8
Jan. 5, 1956	21.24	29	7.7	11	130		13	104	6	39	.5	243	7.6
Feb. 14,	24.4	6.4	2.4	3.6	24		8.0	28	6	42	.5	67.3	6.7
Mar. 27,	13.3	6.8	4.0	12	26		12	36	14	42	.9	106	6.6
May 1,	820	5.6	1.9	3.5	22		3.8	22	4	25	.3	61.5	6.9
May 22,	91	13	4.7	7.2	60		8.5	52	3	23	.4	140	7.1
May 25,	926	8.8	1.9	3.7	333		3.0	30	3	21	.3	78.8	6.9
July 18,	--	8.0	2.4	8.7	44		9.0	30	0	39	.7	162	7.0
Aug. 21,	--	5.6	1.9	4.6	29		5.4	22	0	31	.4	80.3	6.1

RED RIVER BASIN--Continued
LITTLE RIVER NEAR HORATIO, ARK.

LOCATION --At gaging station at bridge on State Highway 41, 0.9 mile downstream from Rolling Fork, 2 miles southwest of Horatio, Sevier County, and 28.5 miles upstream from Cossatot River.
DRAINAGE AREA --2,674 square miles.
RECORDS AVAILABLE --Chemical analyses: October 1953 to September 1956.
Water temperatures: October 1953 to September 1956.
EXTREMES 1955-56 --Dissolved solids: Maximum, 323 ppm Sept. 23-30; minimum, 46 ppm May 1-10.
Hardness: Maximum, 60 ppm Sept. 23-30; minimum, 14 ppm Oct. 1-6.
Specific conductance: Maximum daily, 621 microhos Sept. 29; minimum daily, 30.0 microhos Feb. 19.
Water temperatures: Maximum, 88°F Aug. 20; minimum, 36°F Jan. 20.
EXTREMES 1953-56 --Dissolved solids: Maximum, 323 ppm Sept. 23-30, 1956; minimum, 41 ppm Apr. 17-21, 23-27, 29-30, 1954.
Hardness: Maximum, 60 ppm Sept. 23-30, 1956; minimum, 10 ppm Jan. 1-8, 1955.
Specific conductance: Maximum daily, 621 microhos Sept. 29, 1956; minimum daily, 27.3 microhos Jan. 23, 1954.
Water temperatures: Maximum, 89°F July 14-18, 1954; minimum, 35°F Dec. 25, 1953.
REMARKS --Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium	Non-magnesium			
Oct. 1-6, 1955	4,802	--	--	3.6	1.2	2.9	--	18	1.8	3.2	--	1.5	51	14	0	49.6	6.6	60
Oct. 7-15	1,576	--	--	4.8	1.4	4.6	--	20	4.0	6.2	--	1.4	57	18	1	64.2	6.6	40
Oct. 16-22	1,369	--	--	5.6	2.0	7.7	--	23	1.4	12	--	.6	62	22	3	86.6	6.9	30
Oct. 23-31	191	6.3	0.35	7.1	1.6	12	2.3	26	2.2	19	0.2	1.4	74	24	3	114	7.3	22
Nov. 1-10	113	--	--	7.7	2.3	16	--	30	3.2	27	--	1.1	96	29	4	133	7.9	22
Nov. 11-20	92.8	--	--	8.7	2.4	21	--	32	3.6	34	--	--	105	32	5	181	7.9	22
Nov. 21-30	148	--	--	9.3	2.4	23	--	34	3.2	36	--	.8	106	33	5	191	7.2	22
Dec. 1-10	343	--	--	8.4	3.0	20	--	34	7.2	28	--	1.0	104	33	5	165	7.7	8
Dec. 11-20	237	--	--	8.8	2.4	17	--	32	6.6	24	--	.8	94	32	6	152	7.6	8
Dec. 21-31	175	--	--	9.0	2.5	17	--	34	5.0	24	--	1.1	93	33	5	151	7.4	10
Jan. 1-10, 1956	132	11	.14	8.8	2.4	20	1.3	32	6.3	32	.0	1.6	107	32	6	168	6.5	5
Jan. 11-20	117	8.4	.05	9.5	2.7	20	.9	32	6.3	32	.0	1.6	103	35	7	185	6.6	5
Jan. 21-30	344	--	--	9.4	3.0	22	--	32	6.6	34	--	2.2	103	36	10	184	6.2	--
Jan. 31, Feb. 1-10	10,060	--	--	4.2	1.3	3.0	--	12	4.6	6.4	--	2.2	55	16	6	54.0	5.9	--
Feb. 11-20	11,400	--	--	3.2	1.9	2.5	--	11	5.0	4.2	--	1.0	52	16	7	44.3	5.8	--
Feb. 21-29	6,919	--	--	4.1	1.2	3.6	--	13	4.4	4.8	--	1.0	46	15	4	48.3	5.8	--
Mar. 1-10	1,333	--	--	5.2	1.5	5.3	--	17	4.7	9.7	--	1.3	57	19	5	71.2	6.0	--
Mar. 11-20	1,263	--	--	5.7	1.9	5.4	--	18	4.8	12	--	1.0	59	22	7	82.7	5.9	--
Mar. 21-23	3,068	--	--	5.4	1.8	5.1	--	23	5.4	7.2	--	.5	58	21	3	74.1	6.7	35
Mar. 24-29, 31	4,214	--	--	4.6	.8	3.4	--	16	2.2	4.2	--	.6	49	15	2	51.3	6.6	45
Apr. 1-10	1,438	3.1	.15	5.2	1.0	5.7	1.0	20	2.2	8.0	.2	1.1	62	17	1	65.8	6.5	20
Apr. 11-20	691	--	--	5.5	1.5	7.2	--	20	1.8	10	--	.7	57	20	3	80.1	6.5	15

Apr. 21-29, 1956	443	--	--	--	24	2.4	15	--	.5	63	21	2	98.1	6.7	15
Apr. 30	7,100	--	--	--	14	1.0	8.0	--	2.0	256	16	5	81.4	7.4	--
May 1-10	9,788	--	--	--	16	3.4	3.5	--	1.1	48	15	2	46.2	6.3	40
May 11-16	1,688	--	--	--	20	3.8	8.0	--	.9	60	18	2	67.7	6.9	35
May 17	1,917	--	--	--	21	4.0	12	--	1.1	68	20	3	86.3	7.0	45
May 17, 24-31	1,470	--	--	--	17	3.2	6.5	--	.9	50	15	1	55.6	6.7	40
May 18-23		--	--	--											
June 1-10	492	--	--	--	22	3.2	13	--	.8	52	19	1	91.2	6.9	30
June 11-20	247	--	--	--	23	3.2	19	--	.8	72	22	3	119.2	7.0	30
June 21-30	97.5	--	--	--	26	2.4	28	--	.5	88	26	5	145	7.0	15
July 1-10	50.1	3.7	--	1.8	28	3.8	40	0.1	1.0	118	29	6	200	6.8	10
July 11-20	38.9	--	--	--	26	5.2	52	--	.8	141	34	13	233	7.2	15
July 21-31	17.7	--	--	--	33	1.8	56	--	.9	148	36	9	267	7.6	10
Aug. 1-10	17.3	--	--	--	32	6.6	74	--	.7	186	39	13	341	7.2	5
Aug. 11-20	9.95	--	--	--	31	2.4	94	--	1.4	212	45	20	386	7.2	5
Aug. 21-31	6.55	--	--	--	29	3.0	95	--	.7	210	44	20	386	6.9	5
Sept. 1-10	8.24	--	--	--	28	5.0	98	--	1.1	215	44	21	402	6.9	5
Sept. 11-22	7.61	--	--	--	31	4.4	114	--	.6	229	51	25	454	7.0	5
Sept. 23-30	4.01	--	--	--	27	8.0	152	--	.6	323	60	38	581	7.0	5
Average	1,599	--	--	--	24	4.0	32	--	0.9	100	27	8	161	--	21

a Estimated from specific conductance.

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

LITTLE RIVER NEAR HORATIO, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	60	43	44	45	53	63	64	78	84	84	82
2	75	61	40	44	44	52	65	63	77	85	84	80
3	74	60	47	44	42	52	64	63	77	87	85	79
4	74	58	46	43	42	51	61	63	74	87	85	79
5	74	58	--	44	41	55	62	65	77	87	85	80
6	73	58	45	45	41	57	62	68	78	86	86	80
7	72	56	46	46	39	52	61	69	80	86	87	79
8	70	55	45	44	43	52	59	72	81	87	87	75
9	69	51	43	43	44	52	62	73	83	87	87	74
10	60	50	42	41	45	55	52	75	82	86	87	74
11	68	51	41	41	44	58	57	75	83	85	87	74
12	71	55	39	41	44	55	57	76	82	85	86	74
13	69	58	39	40	44	52	60	76	83	86	86	75
14	67	62	41	40	47	50	64	77	80	86	87	77
15	65	65	39	40	50	50	65	75	78	87	87	78
16	65	63	37	40	51	48	62	72	79	87	85	78
17	65	57	37	40	52	48	62	75	80	87	86	78
18	62	55	40	39	51	49	62	74	81	86	85	77
19	62	53	41	37	51	49	65	74	82	86	86	77
20	61	50	42	36	50	49	61	75	82	84	88	76
21	63	50	42	37	49	51	62	76	83	85	81	76
22	64	52	42	39	49	49	65	76	84	84	79	76
23	65	55	42	40	51	49	65	77	85	85	78	76
24	64	53	44	39	53	49	65	79	85	85	78	76
25	61	40	47	39	53	50	64	77	85	84	79	73
26	60	--	48	41	53	55	67	78	87	84	80	71
27	60	49	47	42	55	59	67	79	87	86	80	72
28	64	48	47	44	53	59	69	80	85	85	81	72
29	61	45	48	48	53	55	71	80	83	85	82	72
30	60	43	47	44	--	55	65	80	83	85	83	72
31	56	--	44	45	--	58	--	81	--	84	81	--
Average	66	54	43	42	48	53	63	74	81	86	84	76

RED RIVER BASIN--Continued
RED RIVER AT FULTON, ARK.

LOCATION.--At gaging station at bridge on U. S. Highway 67 at Fulton, Miller County, 0.3 mile downstream from Missouri Pacific Railroad bridge, 2½ miles downstream from Little River, and at mile 463.0
DRAINAGE AREA.--52,380 square miles, of which 5,936 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1952 to September 1956.
Water temperatures: October 1947, October 1952 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,380 ppm Sept. 21-30; minimum, 67 ppm Feb. 14, 23-25.
Hardness: Maximum, 468 ppm Sept. 21-30; minimum, 41 ppm Feb. 14, 23-25.
Specific conductance: Maximum daily, 2,200 micromhos Sept. 22; minimum daily, 102 micromhos Feb. 25.
Water temperature: Maximum, 86° F Aug. 8-11; minimum, 35° F Dec. 16.
EXTREMES, 1952-56.--Dissolved solids: Maximum, 1,380 ppm Sept. 21-30, 1956; minimum, 54 ppm Nov. 1-3, 1954.
Hardness: Maximum, 468 ppm Sept. 21-30, 1956; minimum, 20 ppm Dec. 6-12, 1952, Mar. 4-9, 1953.
Specific conductance: Maximum daily, 2,200 micromhos Sept. 22, 1956; minimum daily, 102 micromhos Mar. 8, 1953.
Water temperature: Maximum, 88° F July 30, 1955; minimum, 35° F Dec. 23, 24, 26, 1953, Dec. 16, 1955.
REMARKS.--Specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180° C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25° C)	pH	Color
														Calcium	Non-carbonate			
Oct. 1, 1955.....	25,200	--	--	--	--	--	--	82	20	9.5	--	1.0	a 108	75	8	170	8.0	--
Oct. 2-5, 9.....	20,800	--	--	23	3.7	40	--	60	22	32	--	1.0	172	73	23	271	7.4	70
Oct. 6-8.....	12,830	--	--	33	6.1	20	--	68	51	60	--	.8	266	107	52	423	7.4	40
Oct. 10.....	41,500	--	--	--	--	--	--	112	142	185	--	1.2	a 671	261	169	1,060	8.1	--
Oct. 11-20.....	33,900	--	--	101	25	190	--	109	221	310	--	.8	1,010	355	266	1,650	7.9	15
Oct. 21-31.....	8,916	2.9	0.00	100	23	202	8.3	111	221	320	0.3	1.1	978	344	253	1,800	8.0	10
Nov. 1-10.....	4,678	--	--	99	21	186	--	124	224	280	--	1.7	939	334	232	1,570	7.7	10
Nov. 11-20.....	4,456	--	--	103	23	190	--	130	212	300	--	1.4	963	352	245	1,590	7.8	13
Nov. 21-30.....	6,660	--	--	104	21	195	--	120	219	300	--	1.2	974	346	248	1,600	7.6	10
Dec. 1-10.....	6,092	--	--	75	19	155	--	121	164	230	--	2.2	748	265	166	1,260	8.0	5
Dec. 11-12, 14-20.....	5,062	--	--	91	19	170	--	122	191	255	--	2.0	842	305	205	1,390	7.6	15
Dec. 13.....	5,500	--	--	--	--	--	--	122	188	380	--	1.9	a 1,180	424	324	1,860	8.2	--
Dec. 21-31.....	4,665	--	--	89	20	169	--	122	190	260	--	2.2	828	304	220	1,390	7.5	7
Jan. 1-10, 1956.....	4,355	12	01	98	21	162	5.0	135	195	265	.2	1.3	881	330	220	1,460	7.6	4
Jan. 11-20.....	3,901	--	--	92	27	159	--	152	196	260	--	1.2	856	340	216	1,460	7.8	--
Jan. 21-30.....	5,128	--	--	83	23	147	--	152	172	225	--	.7	749	300	192	1,290	7.5	--
Jan. 31.....	1,410	--	--	--	--	--	--	95	126	160	--	1.2	a 595	265	161	940	8.0	--
Feb. 1.....	11,300	--	--	--	--	--	--	70	38	62	--	.8	a 280	108	49	411	8.2	--
Feb. 2, 3, 5-6.....	24,180	--	--	22	5.1	10	--	40	19	32	--	1.1	169	76	27	257	7.3	--
Feb. 4, 7-11.....	30,880	--	--	16	3.1	19	--	39	21	26	--	.8	142	53	21	209	6.9	35
Feb. 12.....	32,600	--	--	--	--	--	--	50	30	52	--	1.1	164	73	32	306	8.2	--

a Estimated from specific conductance.

RED RIVER BASIN--Continued

RED RIVER AT FULTON, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on a filter at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium	Non-carbonate			
Feb. 13, 15-18, 22, 1956	26,430	--	--	15	2.7	21	--	43	19	27	--	0.7	128	48	13	203	7.0	35
Feb. 14, 23-25	33,450	--	--	12	2.7	8.1	--	32	10	17	--	0	67	15	15	131	6.9	--
Feb. 19, 26-29	25,840	--	--	40	9.7	51	--	72	68	90	--	1.0	331	140	81	564	7.5	--
Feb. 20	57,200	--	--	--	--	--	--	82	32	48	--	1.3	a 230	112	45	364	8.2	--
Feb. 21	58,700	--	--	--	--	--	--	74	25	34	--	1.3	a 182	98	37	288	8.2	--
Mar. 1-5	8,072	--	--	42	11	65	--	80	78	100	--	.7	399	150	84	606	7.2	13
Mar. 6-11	6,228	--	--	61	14	97	--	102	123	155	--	.6	592	210	128	887	7.3	10
Mar. 12-16, 20	5,832	5.4	0.04	78	15	121	8.1	122	144	190	0.2	1.1	687	256	156	1,110	7.3	10
Mar. 17-19, 21-22	6,180	--	--	59	15	94	--	112	115	145	--	1.1	576	208	116	855	7.3	10
Mar. 23	6,330	--	--	--	--	--	--	579	46	110	--	1.8	a 415	152	84	656	8.3	--
Mar. 24-26	12,100	--	--	17	4.5	20	--	49	24	29	--	.7	161	61	21	227	7.1	25
Mar. 27-31	10,040	--	--	25	5.0	31	--	61	36	45	--	.8	229	83	53	326	7.4	25
Apr. 1-3, 5-6	5,970	--	--	38	8.7	46	--	96	48	72	--	.9	337	131	52	486	8.2	22
Apr. 7-10, 1955	4,293	--	--	49	11	69	--	120	95	90	--	.3	374	127	88	605	8.2	10
Apr. 11-15	3,687	6.8	.05	59	14	72	4.5	139	97	115	1.1	1.4	471	204	90	751	8.2	10
Apr. 20-24, 28-30	2,310	--	--	70	19	96	--	165	112	145	--	.3	589	262	119	908	8.2	7
May 1	8,650	--	--	--	--	--	--	60	18	38	--	.8	a 164	72	23	259	8.2	--
May 2	23,600	--	--	--	--	--	--	48	15	33	--	3.3	a 139	63	23	219	8.0	--
May 3-9	38,560	--	--	16	3.0	11	--	50	15	14	--	1.6	127	52	11	164	7.2	25
May 10-12, 19	9,822	--	--	28	6.7	37	--	63	44	60	--	.8	254	97	46	378	7.5	40
May 13-15, 18	5,200	--	--	37	7.9	48	--	78	58	74	--	.7	324	125	61	487	7.8	20
May 16-17, 27-31	8,087	--	--	69	17	109	--	125	133	175	--	.4	650	242	140	977	7.8	20
May 20-22	4,767	--	--	42	9.1	62	--	78	72	96	--	.7	380	142	78	589	7.6	22
May 23-26	3,300	--	--	58	12	87	--	112	105	132	--	.8	548	194	102	789	7.9	10
June 1-3, 8-9	5,304	--	--	38	7.7	51	--	80	55	77	--	2.7	316	126	61	524	7.3	8
June 4, 7, 11	5,597	--	--	47	11	67	--	88	74	106	--	2.7	417	162	90	664	7.9	10
June 5-6, 10	5,957	--	--	62	13	91	--	98	109	146	--	1.9	532	208	128	870	7.5	7
June 12-16, 20	2,714	--	--	67	18	108	--	136	124	165	--	1.6	631	241	130	1,010	7.6	7
June 19, 21-24	1,650	--	--	55	17	80	--	156	86	118	--	1.9	487	207	79	793	7.9	7

a Estimated from specific conductance.

b Includes equivalent of 2 parts per million of carbonate (CO₃).

[illegible]

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

RED RIVER AT FULTON, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	61	44	45	45	54	63	68	--	84	82	78
2	74	64	45	46	45	54	65	64	76	85	82	78
3	74	61	--	46	43	55	65	63	75	85	84	77
4	75	58	49	45	43	55	65	64	75	85	84	77
5	75	58	47	45	43	59	65	64	76	85	84	78
6	75	59	48	48	42	62	63	64	77	85	85	78
7	72	58	48	47	40	63	63	70	78	85	85	75
8	71	58	47	43	40	55	60	70	80	85	86	72
9	88	51	45	42	40	--	58	68	80	85	86	70
10	68	51	43	42	43	55	55	70	80	85	86	70
11	68	53	42	--	43	60	55	75	80	85	86	72
12	73	54	39	42	43	53	56	75	80	85	84	74
13	70	63	39	42	45	52	60	77	82	85	84	74
14	70	60	--	42	48	50	62	76	80	85	84	74
15	67	65	40	42	50	--	65	76	78	85	85	76
16	67	63	35	40	50	48	63	75	78	85	84	77
17	66	53	39	40	55	48	62	75	80	85	85	77
18	63	53	39	40	--	51	61	75	80	84	85	77
19	63	51	41	40	--	50	61	76	80	84	85	76
20	63	51	42	40	--	50	61	76	80	84	82	75
21	65	51	42	40	--	--	62	79	80	84	82	75
22	66	56	42	40	--	52	62	79	80	84	74	75
23	67	56	45	40	--	52	--	79	80	80	74	76
24	65	53	50	40	--	52	62	79	83	82	76	74
25	63	51	50	42	--	52	64	76	80	82	76	70
26	61	51	50	43	--	55	67	--	83	82	78	70
27	63	51	48	46	53	60	69	76	83	84	78	71
28	62	48	48	50	53	60	70	79	82	84	78	71
29	61	45	50	50	54	58	70	78	82	84	80	71
30	60	43	50	50	--	--	70	--	83	84	80	--
31	60	--	49	45	--	62	--	--	--	84	77	--
Average	67	55	45	43	--	55	63	73	80	84	82	74

RED RIVER BASIN--Continued

BLACK BAYOU NEAR GILLIAM, LA.

LOCATION.--At gaging station near left bank on downstream side of bridge on State Highway 170, 0.2 mile downstream from Red Bayou and 2 miles southwest of Gilliam, Caddo Parish.
DRAINAGE AREA.--364 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 19, 1955	7.6	16	0.07	108	48	1,530		268	16	2,520		--		4,370	5.94	88.7	467	248	88	31	7,790	7.3
Nov. 22	12	14	.09	155	71	2,320		385	14	3,820		--		6,600	8.98	200	678	363	88	39	10,900	7.5
Dec. 8	15	17	.00	79	34	902		210	20	1,490		4.5		2,650	3.60	107	337	165	85	21	4,800	7.2
Jan. 18, 1956	18	8.4	.04	192	66	1,680		234	49	2,950		--		5,060	6.88	246	750	558	83	27	8,950	7.1
Feb. 9	1,050	6.0	.28	30	8.3	204		28	4.8	370		1.2		1,639	.87	810	108	85	80	8.5	1,280	6.6
Mar. 7	132	9.0	.00	74	16	534		40	7.2	970		2.2		1,630	2.22	581	250	217	82	15	3,120	6.7
Apr. 4	168	7.8	.02	78	20	500		35	7.0	940		2.3		1,570	2.14	712	276	248	80	13	3,000	6.8
May 1	198	10	.00	69	19	471		74	12	850		2.5		1,470	--	786	250	190	80	13	2,810	6.9
June 7	6.0	9.6	.00	122	55	1,330		332	27	2,220		--		3,930	5.34	63.7	530	258	85	25	6,950	7.5
July 11	5.2	12	.03	190	111	4,280		262	20	7,080		--		11,800	16.0	159	930	716	91	61	19,000	7.4
Aug. 14	4.0	11	.08	222	147	5,930		254	18	9,800		--		16,300	22.2	176	1,160	950	92	76	26,300	7.1
Sept. 19	3.9	10	.04	243	142	5,950		303	22	9,620		--		16,340	22.2	172	1,190	942	92	75	26,000	7.1

RED RIVER BASIN--Continued
RED RIVER AT SHREVEPORT, LA.

LOCATION.--At gaging station at Illinois Central Railroad bridge at Shreveport, half a mile downstream from Cross Bayou.
DRAINAGE AREA.--60,613 square miles, of which 5,936 square miles above Denison Dam is noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.

Water temperatures: October 1955 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,220 ppm Sept. 21-30; minimum, 150 ppm Feb. 22-29.

Hardness: Maximum, 444 ppm Sept. 21-30; minimum, 80 ppm Feb. 22-29.

Specific conductance: Maximum daily, 2,180 micromhos Sept. 27; minimum daily, 210 micromhos Feb. 27.

Temperatures: Maximum, 91 F Aug. 9-16; minimum, 40 F Jan. 19.

REMARKS.--Records of specific conductance of daily samples available in Subdistrict office at Baton Rouge, La. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean dis-charge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	So- dium (Na)	Po- tas- sium (K)	Bicar- bonate (HCO ₃)	Car- bonate (CO ₃)	Sul- fate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- dium	So- dium to chlor- ide ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
															Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mg- nesium	Non-carbon- ate				
Oct. 7-11, 1955.....	17,200	10	0.11	35	5.4	46	80	80	47	188	65	0.3	1.5	a263	0.36	12,200	109	43	48	1.9	439	7.6	
Oct. 12-20.....	34,200	10	.03	100	20	184	114	114	216	216	292	.3	1.7	a935	1.27	86,300	332	238	55	4.4	1,520	7.8	
Oct. 21-31.....	12,200	8.8	.01	96	20	205	111	111	225	212	312	.3	1.9	a974	1.32	32,100	322	230	58	5.0	1,580	7.7	
Nov. 1-10.....	5,240	12	.00	96	20	190	131	131	207	290	290	.3	1.0	a931	1.27	13,200	322	214	56	4.6	1,510	7.5	
Nov. 11-20.....	4,880	12	.00	101	21	191	147	147	207	295	295	.6	1.0	a962	1.31	12,700	338	218	55	4.5	1,560	7.9	
Nov. 21-30.....	5,700	12	.02	99	21	190	140	140	210	292	292	.5	1.2	a946	1.29	14,600	334	219	55	4.5	1,540	8.0	
Dec. 1-10.....	6,810	11	--	88	19	172	125	125	188	262	262	.4	2.2	a856	1.16	15,700	298	195	56	4.3	1,410	7.5	
Dec. 11-20.....	5,400	10	--	92	20	162	133	133	180	252	252	.3	1.7	a830	1.13	12,100	302	192	54	4.1	1,370	7.5	
Dec. 21-31.....	4,870	10	--	92	20	169	143	143	188	258	258	.4	1.6	a854	1.16	11,200	312	194	54	4.2	1,400	7.5	
Jan. 1-10, 1956.....	4,580	12	.02	102	19	166	152	152	189	262	262	.4	.5	826	1.12	10,200	332	208	52	4.0	1,420	7.9	
Jan. 11-20.....	4,320	10	.04	97	20	169	160	160	184	260	260	.5	.2	820	1.12	9,560	324	193	53	4.1	1,410	7.7	
Jan. 21-31.....	5,750	10	.07	94	17	161	138	138	178	250	250	.5	.5	779	1.06	12,100	304	191	53	4.0	1,330	7.8	
Feb. 1-4.....	12,700	9.4	.02	62	13	114	109	109	120	169	169	.5	.9	a574	.78	19,700	208	118	54	3.4	958	7.6	
Feb. 5-10.....	37,000	8.2	.18	28	4.7	42	68	68	37	60	60	.5	1.0	215	.29	21,500	89	33	51	1.9	384	7.5	
Feb. 11-20.....	35,000	10	.23	30	4.9	38	70	70	40	55	55	.5	.8	213	.29	20,500	96	39	46	1.7	375	7.7	
Feb. 21-30.....	44,100	10	.38	26	3.6	21	71	71	24	29	29	.6	.8	150	.20	17,900	80	22	37	1.0	265	7.6	
Mar. 1-10.....	17,100	10	.10	41	7.8	53	92	92	61	77	77	.5	.5	a314	.43	14,500	134	59	46	2.0	520	7.5	
Mar. 11-20.....	11,100	8.2	.07	54	11	80	104	104	90	122	122	.5	.5	a443	.60	13,300	180	94	49	2.6	742	7.7	
Mar. 21-28.....	9,360	11	.01	54	11	86	104	104	94	129	129	.5	.8	437	.59	11,000	180	94	51	2.8	786	7.9	
Apr. 1-7.....	10,400	11	.11	53	7.3	40	82	82	45	60	60	.4	.8	238	.42	9,600	172	82	45	2.7	438	7.9	
Apr. 8-20.....	5,490	12	.02	51	12	66	140	140	39	57	57	.3	.5	313	.40	6,500	112	62	45	2.2	659	7.9	
Apr. 21-30.....	3,590	15	.04	66	15	68	186	186	24	33	33	.3	1.8	168	.48	4,550	226	74	44	2.4	831	8.1	
May 1-14.....	36,900	12	.22	28	4.0	26	84	84	23	25	25	.3	1.6	170	.27	16,900	88	17	39	1.2	295	7.4	
May 15-23.....	11,900	13	.07	40	6.3	53	99	99	52	74	74	.3	1.0	289	.39	9,290	126	45	48	2.1	508	7.5	

a Residue on evaporation at 180° C.

May 24-31, 1956	7,380	12	0.03	51	9.8	69	125	66	102	0.4	1.2	372	0.54	7,410	167	64	47.	2.3	675	7.4
June 1-10	8,800	11	.03	42	8.4	60	94	65	88	.5	1.2	a 346	.47	8,220	140	63	48	2.2	571	7.6
June 11-20	4,620	12	.01	58	11	80	130	83	118	.5	1.0	a 447	.61	5,560	189	82	48	2.5	752	7.8
June 21-30	2,320	14	.01	79	13	93	212	85	139	.3	2.0	a 560	.76	3,510	238	84	44	2.5	934	7.8
July 1-10	2,640	16	.00	82	23	165	165	163	248	.4	2.2	781	1.06	5,970	299	164	54	4.1	1,360	8.1
July 11-20	2,140	15	.00	96	28	202	180	201	308	.4	2.0	941	1.28	5,440	354	207	55	4.7	1,620	8.2
July 21-31	1,930	14	.00	101	29	211	192	216	315	.4	1.8	982	1.33	5,120	371	214	55	4.8	1,680	8.1
Aug. 1-10	1,800	15	.00	98	29	222	170	226	332	.4	2.3	1,010	1.37	4,910	384	224	57	5.1	1,750	8.2
Aug. 11-20	1,890	14	.00	111	30	243	164	280	370	.4	1.8	1,110	1.51	5,060	400	266	57	5.3	1,890	8.2
Aug. 21-31	1,840	13	.00	112	32	244	171	259	375	.4	2.0	1,120	1.52	5,560	411	271	56	5.2	1,900	8.2
Sept. 1-10	1,930	16	.00	97	31	201	b 191	203	310	.3	1.5	a 987	1.34	3,540	370	214	54	4.5	1,640	8.4
Sept. 11-20	1,420	14	.00	116	28	236	185	244	360	.3	2.2	1,080	1.48	4,180	404	252	56	5.1	1,820	8.1
Sept. 21-30	1,730	12	.00	127	31	267	184	281	410	.3	1.5	1,220	1.66	5,700	444	283	57	5.5	2,010	8.1
Time-weighted average	9,800	12	0.09	77	18	140	137	148	213	0.4	1.3	694	0.94	18,400	266	154	53	3.6	1,170	--

a Residue on evaporation at 180° C.

b Includes equivalent of 7 parts per million of carbonate (CO₃).

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

RED RIVER AT SHREVEPORT, LA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	67	47	52	55	58	66	68	80	86	87	82
2	--	67	50	52	48	59	69	70	79	--	87	82
3	--	59	55	54	45	60	68	72	75	87	89	84
4	--	57	54	52	44	62	68	72	78	--	90	84
5	--	58	--	57	45	68	65	74	80	89	87	84
6	--	59	50	56	48	66	64	74	82	90	90	85
7	72	59	55	52	46	55	66	78	83	90	90	80
8	73	53	50	50	46	59	--	77	85	90	90	76
9	73	53	48	48	46	61	62	76	83	89	91	76
10	75	56	45	54	44	61	55	77	83	88	90	78
11	74	58	45	52	52	62	59	78	83	86	90	79
12	74	67	45	48	52	56	62	79	82	86	88	79
13	72	65	45	47	51	54	66	84	77	85	88	86
14	70	71	47	47	55	55	68	85	79	86	89	81
15	72	70	44	--	61	52	68	75	80	87	90	82
16	72	60	42	--	58	63	68	76	81	85	91	81
17	67	57	44	--	63	56	63	81	82	86	91	81
18	68	53	49	--	57	57	65	81	81	85	90	81
19	67	56	--	40	62	56	65	82	84	86	89	82
20	68	56	--	42	57	50	65	82	85	85	84	79
21	69	57	46	44	56	52	--	81	85	83	81	78
22	72	63	48	43	56	51	66	86	85	84	--	80
23	70	60	54	45	60	57	67	82	86	84	81	80
24	65	--	58	43	64	60	70	81	87	84	84	79
25	66	56	59	45	57	60	73	81	87	85	84	76
26	65	57	58	44	57	65	73	81	87	86	82	76
27	--	55	57	49	59	67	75	82	88	86	82	75
28	68	49	--	54	58	63	75	79	85	87	81	76
29	63	47	--	59	58	63	75	81	85	88	82	78
30	61	47	--	50	--	64	--	81	--	87	83	76
31	63	--	49	--	--	65	--	81	--	85	83	--
Average	69	58	50	49	54	59	67	79	83	86	87	80

RED RIVER BASIN--Continued
BAYOU DORCHEAT NEAR MINDEN, LA.

LOCATION --At gaging station, 500 ft. upstream from bridge on U. S. Highway 80, three-quarters of a mile upstream from Louisiana & Arkansas Railway bridge, 3 miles west of Minden, and 28 miles upstream from Bistineau Dam.

DRAINAGE AREA 1,097 square miles

RECORDS AVAILABLE --Chemical analyses: October 1955 to September 1956

REMARKS --Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 21, 1955	6.5	6.8	0.05	30	7.4	147		16	3.6	290		0.2	4516	0.70	9.06	106	92	75	6.2	974	6.5
Nov. 21	6.3	7.8	.04	54	12	267	28	28	7.2	520		.0	4914	1.24	15.5	184	161	76	8.5	1,680	6.6
Dec. 7	52	12	.12	39	9.7	214	21	21	7.4	410		.2	4744	1.01	104	138	120	77	7.9	1,350	6.3
Jan. 9, 1956	23	5.6	.07	78	14	434	18	18	9.1	830		.6	1,380	1.88	85.7	252	237	79	12	2,650	6.6
Feb. 6	1,340	8.8	.13	25	12	171	6	6	9.3	332		.4	562	.76	2,030	112	107	77	7.0	1,130	5.7
Mar. 6	935	13	.05	20	4.5	84	8	8	5.8	170		.4	302	.41	762	69	62	73	4.4	605	5.9
Apr. 2	1,120	8.8	.06	19	5.7	77	10	10	6.5	158		.4	280	.38	280	71	63	70	4.0	553	6.0
May 8	1,250	11	.12	17	4.0	82	10	10	5.0	165		.5	283	.38	955	58	50	75	4.7	569	5.9
June 8	11	11	.02	29	6.4	135	19	19	3.0	265		1.4	460	.63	13.7	99	84	75	5.9	905	6.2
July 10	34	9.2	.01	36	7.8	158	18	18	4.9	315		.2	540	.73	49.6	121	106	74	6.2	1,100	6.4
Sept. 17	0	9.8	.01	29	7.2	149	25	25	3.1	286		.2	496	.67	0	103	82	76	6.4	997	6.6

a Residue on evaporation at 180°C.

RED RIVER BASIN--Continued

CYPRESS BAYOU NEAR BENTON, LA.

LOCATION--at gaging station at bridge on State Highway 162, 2 miles upstream from Little Caney Bayou and 3 miles east of Benton, Bossier Parish.
DRAINAGE AREA--81 square miles.

RECORDS AVAILABLE--Chemical analyses: October 1955 to June 1956.

REMARKS--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to June 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 10, 1955	0.5	5.2	0.92	5.4	1.6	8.3	2.8	29	3.0	10		0.8	52	0.07	0.70	20	0	43	0.8	91.2	6.7
Nov. 18	2.0	15	.23	4.8	1.8	4.7	3.4	24	2.8	7.0		.5	52	.07	.28	19	0	30	0.5	72.2	6.2
Dec. 7	10	14	.43	2.5	0.9	8.5	3.0	14	5.5	10		.5	52	.07	1.40	10	0	57	1.2	73.8	6.1
Jan. 17, 1956	.9	16	.75	2.6	6	5.3	1.4	12	1.3	7.2		.2	41	.06	1.10	9	0	52	0.8	47.8	6.4
Feb. 7	267	9.6	.32	2.7	1.3	7.6	2.8	6	6.5	14		.6	48	.07	34.6	12	7	51	1.0	74.1	5.7
Mar. 8	17	14	.60	13	2.8		43	18	3.5	84		.7	171	.23	7.85	43	28	69	2.9	325	6.5
Apr. 14	34	14	.81	13	2.9	42	18	18	3.5	82		.9	168	.23	15.4	44	30	67	2.7	313	6.5
May 3	332	7	.48	3.6	1.2	6.8	2.2	7	5.8	12		1.4	44	.06	39.4	14	8	47	0.8	71.3	5.4
June 5	.2	9.4	.02	39	7.2	135		16	3.0	285		1.1	488	.66	.26	126	113	70	5.2	962	6.4

RED RIVER BASIN--Continued

LOGGY BAYOU NEAR NINOCK, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 71, a quarter of a mile downstream from Flat River, 2 miles southeast of Ninock, and 6 miles downstream from Lake Bistineau Dam.

DRAINAGE AREA.--2,628 square miles.

RECORDS AVAILABLE.--Chemical analyses: November 1954 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silicon (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nesium	Non-carbonate			
Oct. 25, 1955	20	11	0.00	65	29	132		279	58	198		0.2		630	0.86	34.0	281	52	51	1,140	7.8
Nov. 7	80	10	.04	80	37	170		345	72	258		.2		797	1.08	172	352	69	51	1,420	8.0
Dec. 12	40	12	.29	42	17	62		160	54	87		.5		354	.52	41.0	176	45	43	623	7.6
Jan. 3, 1956	70	11	1.1	40	14	138		138	34	218		.5		525	.71	99.2	158	44	65	983	7.2
Feb. 13	4,000	7.0	.32	11	4.1	52		29	8.8	87		.7		185	.25	2,000	44	20	72	364	6.5
Mar. 12	2,230	8.8	.48	19	4.1	85		52	16	133		1.2		294	.40	1,770	64	21	74	561	6.9
Apr. 12	3,750	6.4	.30	16	5.2	66		26	8.1	123		.7		239	.33	2,420	61	40	70	472	7.0
Apr. 30	905	4.0	.23	16	5.2	48		44	9.2	85		.7		190	.26	464	61	25	63	370	6.8
June 11	80	7.4	.04	40	19	70		174	41	103		.7		387	.50	79.3	179	36	46	683	7.5
July 13	15	11	.01	53	29	89		247	66	122		.2		491	.69	20.4	250	48	44	892	7.8
Aug. 16	9	11	.00	45	40	208		244	90	308		1.2		823	1.12	20.1	277	77	62	1,520	7.7
Sept. 25	10	7.8	.01	47	39	170		259	85	245		1.0		722	.98	19.5	277	64	57	1,370	7.8

RED RIVER BASIN--Continued
SALINE BAYOU NEAR LUCKY, LA.

LOCATION.--At gaging station at bridge on State Highway 4, 0.7 mile downstream from Sixmile Creek and 1.0 mile east of Lucky, Bienville Parish. DRAINAGE AREA.--154 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./l.	Non-carbonate				
Oct. 26, 1955.....	17	15	0.43	1.8	0.4	4.1	1.0	11	1.0	4.8		0.2		34	0.05	1.56	6	0	54	0.7	35.9	6.4
Nov. 23.....	46	12	.23	1.7	.7	4.3	1.6	12	1.7	5.2		.5		33	.04	4.10	7	0	50	.7	41.8	6.2
Dec. 28.....	33	15	.65	2.5	.4			10	1.6	28		.2		72	.10	6.42	8	0	84	2.9	115	6.0
Jan. 6, 1956.....	31	14	.64	2.5	.2	12		10	1.3	16		.2		52	.07	4.35	7	0	78	1.9	76.8	6.1
Feb. 15.....	354	11	.24	2.0	1.0	4.7	1.3	8	3.6	7.0		.4		35	.05	33.5	9	2	49	.7	48.8	5.7
Mar. 15.....	530	9.8	.29	1.8	.6	2.1	1.2	5	3.0	3.5		.8		25	.03	35.8	7	3	35	.3	32.2	5.5
Apr. 10.....	670	10	.56	1.7	.9	4.2	1.1	10	2.1	5.2		.8		32	.04	57.9	8	0	49	.6	44.7	6.1
May 3.....	444	9.6	.31	1.6	.4	3.4	.9	4	1.7	4.8		1.4		27	.04	32.4	6	2	52	.6	35.0	5.1
June 15.....	30	15	.67	2.0	1.8	5.3	1.0	14	1.3	7.8		.8		43	.06	3.48	12	1	46	.7	53.1	6.3
July 18.....	15	14	.21	2.0	1.2	15		12	1.7	22		.5		63	.09	2.55	10	0	77	2.1	106	6.1
Aug. 16.....	11	14	.18	2.5	.4	3.8	1.2	12	1.2	4.2		.5		34	.05	1.01	8	0	46	.6	38.0	6.5
Sept. 27.....	6.7	15	.27	1.0	.6	3.3	1.1	8	1.2	3.8		.5		31	.04	.56	5	0	53	.6	32.6	6.5

RED RIVER BASIN--Continued

BLACK LAKE BAYOU NEAR CASTOR, LA.

LOCATION --At gaging station at bridge on State Highway 4, 2.8 miles downstream from Fourmile Bayou, 2.8 miles northeast of Castor, Bienville Parish, and 6.0 miles southeast of Ringgold.

DRAINAGE AREA --423 square miles.

RECORDS AVAILABLE --Chemical analyses: October 1955 to September 1956.

REMARKS --Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 25, 1955.....	16	15	0.14	5.4	1.6	123		6	3.6	206		0.2		363	0.50	15.7	20	15	93	12	710	6.1
Nov. 22	45	18	.21	2.0	1.0	18		16	1.3	24		5		73	.10	8.87	9	0	81	2.6	109	6.5
Dec. 12	64	17	.23	2.8	.7	46		6	5.5	70		.2		145	.20	25.1	10	5	91	6.3	258	6.0
Jan. 3, 1956	51	15	.49	2.4	.5	12		12	2.3	15		.2		54	.07	7.44	8	0	76	1.8	77.3	6.3
Feb. 13	1,900	10	.21	1.9	1.3	8.9	1.8	4	6.9	15		.3		48	.07	246	10	7	61	1.2	77.3	5.5
Mar. 12	217	16	.26	4.6	1.6	24		11	6.5	38		.5		96	.13	56.2	18	9	74	2.4	160	6.1
Apr. 12	2,220	9.2	.46	1.6	1.4	5.8	2.0	10	4.9	8		.8		39	.05	234	10	2	51	.8	55.1	6.1
Apr. 30	216	14	.40	3.4	1.5	16		10	4.1	25		1.0		70	.10	40.8	15	6	70	1.8	114	6.0
June 11	39	14	.25	3.7	1.4	44		12	2.9	69		.9		142	.19	14.9	15	5	86	5.0	261	6.1
July 23	16	13	.32	2.7	1.3	16		14	2.9	22		.8		66	.09	2.85	12	0	74	2.0	109	6.3
Aug. 16	9	13	.16	2.7	.8	5.0	1.5	13	3.3	5.5		.5		38	.05	.92	10	0	48	.7	51.7	6.2
Sept. 25	10	15	.18	1.2	.7	4.5	1.6	9	2.4	5.0		.8		35	.05	.94	6	0	55	.8	44.0	6.4

RED RIVER BASIN--Continued

RED RIVER AT ALEXANDRIA, LA.

LOCATION.--At gaging station at old bridge on U. S. Highway 165 between Alexandria and Pineville, 1.7 miles downstream from Bayou Rigollette. DRAINAGE AREA.--67,500 square miles, of which 5,936 square miles above Denison Dam is noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1956.

Water temperatures: October 1952 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,070 ppm Sept. 1-10; minimum, 174 ppm Feb. 27-29, Mar. 1-4.

Hardness: Maximum, 406 ppm Sept. 21-30; minimum, 77 ppm Feb. 27-29, Mar. 1-4.

Specific conductance: Maximum daily, 1,850 micromhos Aug. 22, Sept. 26; minimum daily, 255 micromhos Oct. 6.

Water temperatures: Maximum, 93° F Aug. 2, 8, 10; minimum, 50° F Dec. 1, 26; minimum daily, 255 micromhos Oct. 6.

EXTREMES, 1952-56.--Dissolved solids: Maximum, 1,070 ppm Sept. 1-10, 1956; minimum, 91 ppm June 1-9, 1953.

Hardness: Maximum, 406 ppm Sept. 21-30, 1956; minimum, 57 ppm June 1-9, 1953.

Specific conductance: Maximum, 1,850 micromhos Aug. 22, Sept. 26, 1956; minimum daily, 133 micromhos June 24, 1953.

Water temperatures: Maximum, 93° F Aug. 8, 10, 1956; minimum, 50° F Dec. 25, 1953.

REMARKS.--Records of specific conductance of daily samples available in subdistrict office at Baton Rouge, La. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃	Percent sodium adsorption	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)			
														Parts per million	Tons per acre-foot	Tons per day							
Oct. 1-14, 1955	25,900	9.4	0.08	32	5.4	39		92		33	54		1.5		222	0.30	15,500	103	28	45	1.7	359	7.7
Oct. 15-20	37,200	9.4	.01	96	18	172		114		212	268		1.2		928	1.26	93,200	318	225	54	4.2	1,510	7.8
Oct. 21-31	16,100	9.0	.01	96	20	197		115		216	305		.9		957	1.30	41,600	322	222	57	4.8	1,560	7.8
Nov. 1-10	7,070	11	.00	94	19	192		124		202	285		1.5		939	1.28	17,900	312	211	57	4.7	1,510	7.8
Nov. 11-20	5,540	14	.00	98	21	180		162		192	275		1.5		916	1.23	13,700	331	198	54	4.3	1,480	7.9
Nov. 21-29	6,030	13	.02	97	21	177		164		190	270		1.0		903	1.23	14,700	328	194	54	4.2	1,450	8.0
Dec. 1-10	8,410	9.6	--	91	20	184		131		194	262		2.1		885	1.20	20,900	309	202	56	4.5	1,460	7.5
Dec. 11-20	6,820	9.6	--	83	20	170		139		162	265		1.8		825	1.12	15,200	289	175	56	4.3	1,370	7.3
Dec. 21-31	5,470	9.6	.02	87	20	187		132		169	240		1.6		814	1.11	13,600	298	174	53	3.9	1,380	8.0
Jan. 1-10, 1956	5,430	13	.04	92	19	182		162		186	250		.5		a 784	1.07	11,900	308	175	53	4.0	1,360	8.0
Jan. 11-20	5,480	11	.04	94	19	180		164		186	260		.5		a 831	1.13	12,200	312	178	56	4.1	1,420	7.8
Jan. 21-31	7,610	9.6	.13	73	15	141		134		128	218		.5		a 651	.89	13,400	244	134	56	3.9	1,140	7.2
Feb. 1-10	43,100	7.8	31	33	7.3	61		76		48	93		1.3		334	.45	38,900	112	50	54	2.5	595	7.6
Feb. 11-26	56,000	9.6	.29	27	5.0	42		70		29	65		.8		a 213	.29	32,000	69	32	51	1.9	391	7.6
Feb. 27-29, Mar. 1-4	38,700	8.8	.41	24	4.1	33		70		19	50		.2		a 174	.24	18,500	77	20	48	1.6	320	7.4
Mar. 5-12	20,700	8.8	.21	34	6.0	57		77		42	90		.6		a 277	.38	15,200	110	46	53	2.4	514	7.1
Mar. 13-20	23,900	9.4	.22	35	7.1	61		79		48	95		.5		a 295	.40	19,000	116	52	53	2.5	535	7.7
Mar. 21-31	16,800	10	.21	36	8.1	72		74		55	114		.5		a 332	.45	15,100	124	63	56	2.8	617	7.8

a Calculated from determined constituents.

Apr. 1-10, 1956....	20,300	7.2	.25	26	5.3	45	66	27	71	.7	a214	.29	11,700	86	32	53	2.1	399	7.2
Apr. 11-20.....	18,500	9.4	.23	23	5.1	44	62	22	72	.6	a206	.28	10,300	79	28	55	2.2	392	7.0
Apr. 21-30.....	8,790	13	.07	35	8.1	58	106	35	86	1.0	a288	.39	6,840	121	34	51	2.3	516	7.6
May 1-5.....	12,400	14	.05	45	11	62	142	41	94	1.4	362	.49	12,100	158	42	46	2.1	612	8.0
May 6-18.....	36,400	12	.22	26	4.6	35	82	21	50	1.3	215	.29	21,100	85	18	47	1.6	334	7.5
May 19-31.....	12,000	11	.06	41	3.4	56	90	42	86	.7	304	.41	9,850	117	43	51	2.3	516	7.7
June 1-7.....	9,640	12	.00	54	9.8	77	124	77	114	1.2	419	.57	10,900	176	74	49	2.5	713	7.9
June 8-14.....	7,910	12	.01	42	7.9	55	101	55	91	1.0	318	.43	6,790	137	54	46	2.0	558	7.6
June 15-22.....	5,500	12	.00	51	9.8	66	124	68	97	1.0	378	.51	5,610	167	66	46	2.2	656	7.6
June 23-30.....	3,390	12	.00	66	16	89	176	87	134	1.2	512	.70	4,670	230	86	46	2.6	867	7.9
July 1-10.....	3,630	15	.00	54	18	88	185	71	122	3.2	482	.66	4,720	206	57	48	2.6	825	8.1
July 11-20.....	2,950	16	.00	72	24	147	167	140	222	3.2	a706	.96	5,620	278	141	54	3.8	1,260	8.0
July 21-31.....	2,580	13	.00	90	28	177	206	168	268	3.0	a848	1.15	5,930	340	170	53	4.2	1,490	7.8
Aug. 1-10.....	2,290	15	.01	92	30	187	204	180	285	2.5	a862	1.24	5,760	353	166	52	4.7	1,540	8.3
Aug. 11-20.....	2,10	13	.01	96	31	206	201	196	318	1.8	a965	1.39	6,230	397	232	55	4.9	1,770	8.3
Aug. 21-31.....	2,220	13	.00	106	31	223	212	216	340	2.3	a1,040	1.44	5,230	397	226	55	5.0	1,790	8.2
Sept. 1-10.....	1,870	15	.00	111	30	230	215	200	306	1.5	a1,040	1.39	4,840	400	236	56	4.4	1,620	7.8
Sept. 11-20.....	1,830	15	.00	104	31	240	245	184	306	1.5	a1,040	1.39	4,840	398	187	53	4.4	1,620	7.8
Sept. 21-30.....	1,860	15	.00	111	32	208	246	195	322	1.8	a1,010	1.37	5,070	408	206	53	4.5	1,710	8.0
Time-weighted average.....	13,700	11	0.12	67	16	123	136	117	188	1.3	613	1.14	22,700	233	122	53	3.3	1,030	--

a Calculated from determined constituents.

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

RED RIVER AT ALEXANDRIA, LA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	70	50	58	62	59	69	75	84	88	89	87
2	83	71	55	61	61	62	66	73	84	90	93	89
3	80	65	60	60	57	64	77	74	85	91	92	86
4	81	66	58	59	55	62	70	75	81	92	--	89
5	81	64	57	61	53	64	71	73	83	89	92	85
6	80	65	57	--	55	67	71	73	85	88	91	86
7	82	63	60	60	56	64	68	75	86	91	91	85
8	79	63	57	58	55	61	66	76	87	89	93	83
9	76	58	56	56	56	62	65	77	85	89	91	82
10	75	60	54	56	57	63	61	78	87	90	93	80
11	80	62	55	55	54	60	62	79	87	90	90	79
12	76	65	57	54	58	59	63	79	85	90	92	80
13	73	70	53	55	59	58	65	81	83	91	92	85
14	72	71	54	53	59	57	65	81	83	91	--	86
15	75	73	52	55	62	56	68	77	84	92	92	85
16	74	67	57	56	67	55	70	78	82	91	91	80
17	70	64	54	54	67	57	68	80	80	91	--	85
18	72	69	54	53	69	58	67	81	84	91	88	84
19	70	62	55	51	69	57	68	82	85	90	92	83
20	73	60	53	52	67	56	67	82	87	92	89	84
21	69	64	55	55	65	54	66	84	88	89	87	84
22	70	65	57	55	65	55	67	83	89	84	86	85
23	72	65	60	55	67	58	68	84	89	85	89	87
24	70	63	65	53	66	60	69	83	89	86	85	82
25	70	62	62	55	63	61	72	88	90	88	84	80
26	69	60	63	54	64	63	71	--	91	89	85	79
27	70	61	62	58	69	64	74	--	91	90	82	79
28	73	55	62	60	66	64	76	--	89	92	85	80
29	69	54	63	65	58	65	75	--	--	91	85	80
30	64	--	60	64	--	66	79	--	89	92	84	76
31	69	--	59	60	--	67	--	--	--	91	86	--
Average	74	64	57	57	61	61	69	79	86	89	90	83

RED RIVER BASIN--Continued
OUACHITA RIVER AT ARKADAPLHIA, ARK.

LOCATION.--At gaging station at bridge on State Highway 8, at Arkadelphia, Clark County, 800 feet upstream from Missouri Pacific Railroad bridge.
DRAINAGE AREA.--2,311 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1948 to September 1956.

Water temperatures: October 1948 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 266 ppm Jan. 16; minimum, 41 ppm Sept. 21-30.

Hardness: Maximum, 76 ppm Jan. 16; minimum, 16 ppm Feb. 17-21.

Specific conductance: Maximum daily, 390 microhmhos Jan. 16; minimum, 16 ppm Feb. 17-21.

Water temperatures: Maximum, 93°F Aug. 6; minimum, 41°F Jan. 23-24.

EXTREMES, 1948-56.--Dissolved solids: Maximum, 266 ppm Jan. 16, 1956; minimum, 30 ppm Mar. 17-21, 23, 25-28, 1955.

Hardness: Maximum, 76 ppm Jan. 16, 1956; minimum, 11 ppm Jan. 25-31, 1949.

Specific conductance: Maximum daily, 390 microhmhos Jan. 16, 1956; minimum, 26.7 microhmhos Jan. 27, 1949.

Water temperatures: Maximum, 99°F July 7, 1955; minimum, 36°F Jan. 30, 31, Feb. 1, 2, 1951.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1955 to September 1956 furnished by district office, Corps of Engineers, Vicksburg, Miss.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)		Hardness as CaCO ₃		Specific conductance (microhmhos at 25°C)	pH	Color
															Calcium, mg/l	Non-carbonate			
Oct. 1, 1955.....	620	--	--	--	--	--	--	34	12	32	--	0.9	a132	51	23	194	7.5	--	--
Oct. 2-10.....	2,238	--	--	11	--	2.5	--	33	12	6.2	--	1.1	68	38	11	105	6.9	7	7
Oct. 11-17, 19-20.....	2,678	4.1	0.02	10	2.0	4.0	1.9	38	4.4	6.5	0.1	1.0	58	33	4	91.9	7.2	15	15
Oct. 18.....	2,680	--	--	--	--	--	--	40	10	36	--	0.8	a139	54	21	204	7.5	--	--
Oct. 21-22, 24-31.....	2,075	--	--	9.5	2.4	3.3	--	38	4.0	4.2	--	0.9	59	34	2	87.3	7.0	7	7
Oct. 23.....	2,060	--	--	--	--	--	--	37	4.0	30	--	0.9	a121	48	18	177	7.5	--	--
Nov. 1-7, 9-10.....	1,381	--	--	9.5	2.5	3.5	--	38	5.0	5.0	--	1.1	68	34	3	86.6	7.1	7	7
Nov. 8.....	1,180	--	--	--	--	--	--	39	5.0	10	--	0.8	a75	39	7	110	7.3	--	--
Nov. 11-20.....	1,431	--	--	--	2.4	3.0	--	37	1.2	4.2	--	1.0	96	32	2	84.5	7.1	5	5
Nov. 21, 23, 25-30.....	1,165	--	--	9.6	2.5	4.1	--	38	5.2	5.8	--	0.6	98	34	4	93.5	7.0	8	8
Nov. 22.....	1,110	--	--	--	--	--	--	37	--	20	--	0.6	a99	46	15	145	7.3	--	--
Nov. 24.....	1,040	--	--	--	--	--	--	40	8.0	14	--	--	a82	43	10	120	7.4	--	--
Dec. 1, 3, 5, 7.....	1,286	--	--	11	2.2	11	--	34	3.8	12	--	1.0	82	36	9	136	7.2	7	7
Dec. 2, 4, 6, 8-10.....	1,545	--	--	9.7	2.0	4.2	--	36	6.6	8	--	1.2	86	32	3	91.9	7.1	12	12
Dec. 11-20.....	926	--	--	9.4	2.1	5.9	--	34	2.0	9.0	--	1.1	67	32	4	102	7.3	7	7
Dec. 21-22, 26-28, 30-31.....	310	--	--	10	2.5	7.2	--	35	7.0	9.5	--	1.6	a130	37	7	176	7.8	8	8
Dec. 23-24.....	318	--	--	--	--	--	--	36	4.0	30	--	1.1	a120	44	14	176	7.6	--	--
Dec. 25.....	304	--	--	--	--	--	--	38	4.0	28	--	1.1	a120	40	10	176	7.7	--	--

a Estimated from specific conductance.

RED RIVER BASIN--Continued
OUACHITA RIVER AT ARKADAPLHA, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color
														Calcium, magnesium	Non-carbonate			
Jan. 1, 5-9, 1956 ...	274	--	--	10	2.8	7.3	--	38	8.0	8.2	--	0.6	87	38	5	111	7.4	7
Jan. 2	290	--	--	--	--	--	--	33	8.0	82	--	--	6	87	40	370	7.3	--
Jan. 3	266	--	--	--	--	--	--	44	14	28	--	--	a124	44	8	182	7.4	--
Jan. 4	248	--	--	--	--	--	--	38	8.0	43	--	--	a157	49	18	230	7.4	--
Jan. 10	314	--	--	--	--	--	--	35	12	22	--	7	a107	46	17	157	7.3	--
Jan. 11-15, 17-20	256	4.0	0.00	10	2.7	6.4	1.6	36	9.0	6.6	0.0	--	64	38	6	111	6.4	2
Jan. 16	227	--	--	--	--	--	--	31	10	90	--	--	a266	76	51	390	7.3	--
Jan. 21-28, 30-31	1,125	--	--	12	2.3	7.7	--	37	12	8.8	--	--	76	39	9	115	7.0	6
Jan. 29	515	--	--	--	--	--	--	44	18	70	--	1.1	a217	36	0	319	7.6	--
Feb. 1	2,990	--	--	--	--	--	--	20	12	6.5	--	2.5	a56	27	11	81.8	7.6	--
Feb. 2-10	13,470	--	--	5.4	1.8	3.3	1.4	20	8.4	3.5	--	--	66	21	4	66.0	7.1	20
Feb. 11-16	6,667	--	--	6.2	1.8	3.3	1.2	23	6.4	3.5	--	--	69	23	4	65.6	7.4	20
Feb. 17-21	18,420	--	--	4.3	1.3	2.2	1.2	16	5.4	2.0	--	--	56	16	3	48.0	7.3	25
Feb. 22-29	5,868	--	--	7.0	1.0	3.5	--	20	6.0	5.5	--	--	53	22	5	67.0	6.7	23
Mar. 1	3,830	--	--	--	--	--	--	22	5.0	22	--	--	a84	29	11	123	7.7	--
Mar. 2, 4-10	3,100	--	--	6.9	.8	2.6	--	21	3.6	3.5	--	--	50	20	3	60.6	6.9	25
Mar. 3	3,570	--	--	--	--	--	--	20	5.0	10	--	--	a56	22	6	82.5	7.7	--
Mar. 11-20	2,046	--	--	7.2	1.9	2.9	--	27	6.2	4.0	--	--	54	26	4	71.9	7.2	10
Mar. 21-31	2,476	--	--	8.6	1.0	2.7	--	27	6.2	3.5	--	--	52	26	3	70.1	7.0	10
Apr. 1-10	2,641	3.3	09	7.7	1.8	4.4	1.4	30	4.6	3.5	1.1	1.2	58	27	2	71.4	7.3	20
Apr. 11-12, 14-20 ..	2,788	--	--	7.2	1.9	3.7	--	27	5.2	4.5	--	--	49	26	4	69.7	6.7	10
Apr. 13	3,700	--	--	--	--	--	--	28	5.0	10	--	--	a89	31	8	101	7.8	--
Apr. 21-30	2,134	--	--	8.4	2.2	5.3	--	32	6.4	6.5	--	--	60	30	4	88.2	6.6	5
May 1-8	7,349	--	--	6.9	.8	3.2	--	22	4.4	4.0	--	--	51	20	2	60.3	6.5	20
May 9-16, 17-20	773	--	--	8.3	2.0	4.8	--	30	8.0	6.5	--	--	86	29	4	64.4	6.9	10
May 16	1,700	--	--	--	--	--	--	31	5.0	16	--	--	a66	33	10	127	7.9	--
May 21-31	1,366	--	--	9.5	2.3	6.0	--	29	12	7.5	--	--	68	33	9	103	6.7	10

^a Estimated from specific conductance.

June 1, 3-10, 1955 ...	261	--	--	--	34	12	8.0	--	.8	68	37	9	110	6.7	10
June 2, ...	275	--	--	--	29	11	34	--	2.3	a135	45	21	198	7.8	--
June 11-18, 20 ...	301	--	--	7.6	34	15	9.5	--	1.1	78	39	11	120	7.0	10
June 19, ...	281	--	--	--	29	22	22	--	4.4	a116	63	39	170	7.7	--
June 21-30 ...	287	--	--	6.4	30	17	7.2	--	.5	74	36	12	112	6.9	10
July 1-10, ...	360	3.3	1.8	2.8	30	20	6.5	.3	3.3	84	39	14	127	7.5	5
July 11-17, 19-20 ...	287	--	--	2.1	24	23	5.8	--	2.4	72	40	21	128	7.0	7
July 18, ...	272	--	--	6.5	25	24	9.0	--	2.0	a99	46	26	146	7.0	--
July 21-25, ...	361	--	--	8.2	28	19	9.8	--	3.9	76	39	16	136	7.0	5
July 26-31, ...	511	--	--	5.6	34	6.0	6.0	--	1.3	54	31	4	92.9	7.4	5
Aug. 1-8, ...	323	--	--	7.4	28	11	8.5	--	3.8	66	31	8	102	7.4	5
Aug. 9, ...	510	--	--	--	30	4.0	26	--	.7	a104	42	17	153	7.2	--
Aug. 10-20, ...	427	--	--	4.4	32	3.2	5.0	--	2.0	50	28	2	84.0	7.2	5
Aug. 21-31, ...	333	--	--	5.6	35	6.4	6.5	--	2.0	55	34	6	97.7	7.6	5
Sept. 1-3, 5-8, 10 ...	617	--	--	5.2	35	6.0	6.5	--	2.5	62	34	6	102	7.6	5
Sept. 4, ...	325	--	--	--	35	5.0	21	--	.7	a102	41	12	150	7.3	--
Sept. 9, ...	275	--	--	--	37	6.0	22	--	.5	a99	46	16	146	7.5	--
Sept. 11-15, 17-20 ...	1,149	--	--	4.7	37	3.2	6.5	--	2.3	54	33	3	96.2	7.1	5
Sept. 16, ...	1,200	--	--	--	34	3.0	42	--	2.0	a147	32	14	216	7.4	--
Sept. 21-30, ...	1,474	--	--	3.9	36	4.4	6.0	--	2.1	41	32	3	90.3	7.0	5
Average, ...	2,045	--	--	5.1	31	8.4	16	--	1.3	86	32	6	128	--	10

a. Estimated from specific conductance.

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

OUACHITA RIVER AT ARKADELPHIA, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	69	50	50	43	55	64	60	78	87	88	78
2	77	68	50	52	44	55	64	60	78	88	88	--
3	77	68	52	51	43	55	64	60	78	88	87	77
4	76	69	52	52	45	59	64	70	77	89	89	76
5	76	54	42	53	45	59	60	70	78	88	92	75
6	76	54	42	52	46	59	60	71	79	89	93	75
7	67	57	43	53	47	54	61	75	84	88	92	75
8	68	55	54	53	48	54	61	75	75	88	92	75
9	60	64	54	46	47	56	55	75	82	89	90	72
10	62	65	54	46	47	56	53	77	83	86	89	73
11	72	66	47	46	47	57	52	78	83	88	88	74
12	72	65	47	46	47	52	52	78	84	86	86	74
13	73	58	47	45	55	52	57	80	74	84	86	77
14	78	68	--	45	55	52	59	80	74	86	87	78
15	67	70	--	46	56	55	60	80	80	84	87	77
16	76	66	46	44	58	55	62	72	80	85	--	78
17	64	48	46	43	53	55	65	72	--	85	87	73
18	--	47	50	43	53	53	55	78	86	85	87	72
19	64	47	46	42	53	53	65	79	86	80	88	73
20	63	47	51	42	52	53	64	80	86	84	87	72
21	63	62	51	42	51	52	65	83	85	85	81	69
22	--	64	49	43	52	55	65	83	86	88	84	68
23	62	65	55	41	52	55	64	83	86	89	85	70
24	64	65	55	41	53	56	64	77	86	89	86	75
25	64	56	56	44	52	57	64	78	86	89	83	74
26	64	55	52	45	52	55	64	78	87	89	82	74
27	63	55	52	45	55	56	64	79	87	89	82	68
28	66	55	52	44	56	55	68	79	82	89	85	69
29	64	48	52	--	56	60	68	83	84	86	85	70
30	65	48	55	53	--	61	68	83	85	85	85	70
31	66	--	55	54	--	62	--	83	--	86	86	--
Average	68	59	50	47	50	56	62	76	82	87	87	73

RED RIVER BASIN--Continued
OUACHITA RIVER NEAR FELSENTHAL, ARK.

LOCATION.--At U. S. Engineers Lock No. 6, 3 miles south of Felsenthal, Union County.

DRAINAGE AREA.--10,787 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1949 to September 1956.

Water temperatures: October 1949 to September 1956.

EXTREMES, 1956--36.--Dissolved solids: Maximum, 2,590 ppm Jan. 31, Feb. 1-2; minimum, 72 ppm May 8.

Specific conductance: Maximum, 495 microhmhos Feb. 1; minimum daily, 120 microhmhos May 8.

Water temperature: Maximum, 93°F July 28; minimum, 39°F Dec. 12.

EXTREMES, 1949-56--Dissolved solids: Maximum, 2,590 ppm Jan. 31, Feb. 1-2, 1956; minimum, 44 ppm Jan. 23-31, Mar. 1-9, 1950.

Hardness: Maximum, 495 ppm Jan. 31, Feb. 1-2, 1956; minimum, 5 ppm May 8, 1956.

Specific conductance: Maximum daily, 7,610 microhmhos Oct. 7, 1954; minimum daily, 55.7 microhmhos Mar. 4, 1950.

Water temperatures: Maximum, 96°F June 9, 1953; Aug. 29, 1954; minimum, 35°F Feb. 3, 1951.

REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (microhmhos at 25°C)	pH	Color
														Calcium	Non-carbonate			
Oct. 1-3, 1955.....				39	11	170		24	14	330		2.2	705	142	123	1,210	6.8	10
Oct. 4.....								17	6.0	655		3.2	a, 1,340	256	242	2,220	7.2	--
Oct. 5-7.....				100	30	591		6	17	1,160		4.1	2,180	398	393	3,750	6.3	10
Oct. 8, 12-13, 15.....				51	21	260		16	16	520		4.3	1,030	214	200	1,830	6.6	10
Oct. 9, 11, 16-17.....				30	9.1	130		32	15	250		2.2	543	112	94	957	6.6	10
Oct. 10.....								32	6.0	152		1.8	a, 364	83	57	603	7.6	--
Oct. 11.....				64	20	315		16	15	620		6.2	1,220	242	228	2,140	6.6	10
Oct. 14, 19-20.....								28	8.0	158		2.5	a, 361	86	63	832	7.6	--
Oct. 21.....								20	4.0	495		2.1	a, 941	166	170	1,580	7.3	--
Oct. 22-31.....		3.6	0.01	31	7.9	132	4.6	30	12	235	0.3	1.1	523	110	86	929	6.7	17
Nov. 1-4.....				33	6.3	124		34	9.8	236		1.8	520	108	80	908	7.0	15
Nov. 5-7.....				40	7.5	156		32	10	300		1.6	593	131	105	1,080	7.0	15
Nov. 8-13.....				55	12	234		30	11	455		3.0	790	186	162	1,620	6.9	10
Nov. 14-15, 20.....				42	10	169		32	9.6	335		2.4	657	146	120	1,210	7.1	10
Nov. 16-19, 22-26.....				52	10	214		28	14	420		3.7	832	170	148	1,500	6.9	15
Nov. 21.....								35	6.0	225		2.3	a, 513	133	104	851	7.4	--
Nov. 27.....								22	8.0	480		3.2	a, 1,040	240	215	1,730	7.1	--
Nov. 28-29.....				74	18	334		20	16	660		7.3	1,270	258	240	2,260	6.8	10
Nov. 30, Dec. 1-2.....				85	22	393		16	13	790		7.6	1,550	302	290	2,730	6.8	12

a Estimated from specific conductance.

RED RIVER BASIN--Continued
OUACHITA RIVER NEAR FELSETHAL, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180°C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25°C)	pH	Color	
														Calcium, non-sestum at 180°C	Non-carbonate				
Dec. 3, 8-9, 1955	---	---	---	71	18	340	---	18	14	660	---	7.8	1,280	251	236	2,260	6.6	10	
Dec. 4-7	---	---	---	56	15	231	---	20	13	480	---	7.8	1,982	201	184	1,700	6.8	10	
Dec. 10	---	---	---	---	---	---	---	8	18	945	---	---	a 1,940	372	365	3,210	6.9	---	
Dec. 11, 13	---	---	---	104	22	502	---	2	22	970	---	13	1,890	350	348	3,300	5.2	10	
Dec. 12, 14-15	---	---	---	---	---	---	---	13	18	655	---	9.1	1,310	244	234	2,310	6.5	10	
Dec. 16-18	---	---	---	75	14	333	---	2	18	515	---	8.5	1,060	196	180	1,840	6.8	20	
Dec. 18-21	---	---	---	54	15	272	---	19	18	515	---	6.4	813	157	135	1,430	6.8	15	
Dec. 19-22	---	---	---	50	7.8	204	---	27	13	395	---	5.4	761	142	120	1,310	6.7	10	
Dec. 23-31	---	---	---	42	8.9	191	---	27	16	355	---	3.0	762	160	137	1,350	7.1	---	
Jan. 1-3, 1956	---	---	---	43	13	181	---	28	17	370	---	2.5	662	135	111	1,160	6.5	8	
Jan. 4-10	---	7.2	0.06	42	7.3	156	2.8	28	16	310	0.0	2.9	610	121	96	1,020	6.6	5	
Jan. 11-18	1.7	---	.04	26	7.6	137	5.3	27	16	270	.2	7.1	991	210	188	1,770	7.2	---	
Jan. 19-21	---	---	---	56	17	248	---	27	16	500	---	9.0	1,180	250	237	2,170	6.8	---	
Jan. 22-23, 25	---	---	---	66	21	284	---	16	14	625	---	16	a 1,670	314	306	2,770	7.0	---	
Jan. 24	---	---	---	---	---	---	---	10	21	815	---	14	2,060	368	366	3,270	5.4	10	
Jan. 26-30	---	---	---	100	29	508	---	3	19	1,020	---	18	2,590	495	494	4,490	5.0	---	
Jan. 31, Feb. 1-2	---	---	---	134	39	679	---	1	25	1,380	---	18	1,950	385	384	3,460	5.3	---	
Feb. 3-4	---	---	---	101	32	489	---	2	19	1,020	---	18	1,950	385	384	3,460	5.3	---	
Feb. 5	---	---	---	---	---	---	---	16	10	215	---	2.4	a 484	87	74	74	803	7.1	---
Feb. 6-8	---	---	---	14	5.6	55	---	9	7.7	117	---	1.1	286	58	50	449	6.4	---	
Feb. 9-13, 15	---	---	---	8.5	2.7	34	---	10	8.6	62	---	1.0	186	32	24	252	6.4	45	
Feb. 14	---	---	---	---	---	---	---	14	8.0	142	---	1.9	a 321	74	63	533	7.1	---	
Feb. 16	---	---	---	---	---	---	---	12	7.0	84	---	2.5	a 198	39	29	328	7.0	---	
Feb. 17-23	---	---	---	7.7	1.9	18	---	11	6.5	41	---	.6	111	27	18	181	6.2	---	
Mar. 1-4	---	---	---	9.0	1.3	14	---	13	7.2	34	---	.7	108	28	18	159	6.5	---	
Mar. 5	---	---	---	---	---	---	---	16	8.0	49	---	1.4	a 129	34	21	214	7.4	---	
Mar. 6	---	---	---	---	---	---	---	14	8.0	53	---	2.8	a 136	35	24	225	7.2	---	
Mar. 7-9, 10-12, 15-16	---	---	---	14	3.9	50	---	16	6.8	96	---	1.0	263	51	38	380	6.5	45	
Mar. 13-14, 17, 19-20	---	---	---	15	5.1	61	---	16	9.0	118	---	2.2	324	58	45	452	6.6	45	
Mar. 18	---	---	---	---	---	---	---	17	7.0	212	---	4.2	a 477	108	97	791	7.0	---	
Mar. 21-24, 27-31	2.8	---	.04	18	4.1	64	3.6	14	10	129	.3	2.1	334	62	48	495	6.5	40	
Mar. 25-26	---	---	---	29	6.3	126	---	14	6.4	252	---	3.0	538	98	87	870	6.8	25	
Apr. 1-3, 9	---	---	---	23	4.4	77	---	18	5.0	158	---	2.8	370	76	61	587	6.7	30	
Apr. 4-8	---	---	---	21	3.3	67	---	19	4.0	135	---	2.1	324	66	50	512	6.7	40	
Apr. 10	---	---	---	---	---	---	---	18	10	280	---	4.9	a 627	118	103	1,040	7.2	---	

a. Estimated from specific conductance.

Apr. 11-14, 1956.....	17	3.8	63	--	17	8.6	118	--	2.0	297	58	44	452	7.2	40
Apr. 15-20.....	15	2.9	48	--	20	7.8	90	--	1.7	237	49	33	352	6.7	50
Apr. 21.....	--	--	--	--	24	10	107	--	1.5	a251	60	40	417	7.7	--
Apr. 22-30.....	22	4.3	73	--	25	9.0	137	--	1.2	344	73	52	524	6.8	25
May 1.....	--	--	--	--	28	12	156	--	1.2	a362	83	60	600	7.8	--
May 2, 4.....	31	5.8	126	--	24	10	238	--	3.2	518	102	82	854	7.3	15
May 3.....	--	--	--	--	24	8.0	300	--	4.7	a645	133	113	1,070	7.5	--
May 5.....	--	--	--	--	18	5.0	97	--	2.0	a230	57	42	382	7.5	--
May 6-7, 9.....	9.9	1.6	22	--	18	4.6	40	--	1.6	137	31	17	186	7.1	50
May 8.....	--	--	--	--	18	--	20	--	1.2	a72	5	0	120	7.7	--
May 10-18.....	14	2.3	40	--	19	5.0	75	--	1.7	216	44	29	300	6.6	50
May 19-20.....	17	3.7	60	--	23	6.4	112	--	1.5	304	58	39	531	6.9	50
May 21-26.....	20	5.7	72	--	27	8.2	142	--	1.8	385	73	51	536	6.6	40
May 27.....	--	--	--	--	28	4.0	182	--	1.4	a55	91	86	689	7.8	--
May 28-31.....	30	6.9	130	--	28	9.4	245	--	1.8	582	104	80	887	7.0	30
June 1-6.....	29	7.1	123	--	29	9.4	230	--	1.5	581	102	78	856	6.7	40
June 7-19.....	27	5.6	104	--	33	10	195	--	1.8	504	90	64	738	7.3	20
June 20.....	--	--	--	--	28	12	352	--	2.6	a754	154	131	1,250	7.8	--
June 21, 29.....	67	22	318	--	24	18	630	--	5.9	a1,230	258	238	2,130	6.9	10
June 22, 24-28.....	95	31	504	--	24	19	990	--	4.4	1,530	364	345	3,240	6.8	15
June 23.....	--	--	--	--	24	12	230	--	9.4	a2,330	482	472	3,870	7.0	--
June 30, July 1-2.....	43	14	210	--	28	14	1,230	--	2.6	a2,790	165	142	1,470	6.9	10
July 3-4.....	35	13	162	--	24	15	315	--	2.5	665	141	122	1,130	7.0	15
July 5-13.....	00	7.0	122	4.2	22	11	235	.5	2.2	501	96	78	849	7.2	20
July 14-23.....	24	6.8	106	--	23	8.8	200	--	1.3	435	88	69	743	6.8	35
July 24-27.....	37	12	169	--	28	22	320	--	1.6	690	142	119	1,150	6.9	20
July 28.....	--	--	--	--	25	18	450	--	4.6	a947	168	168	1,570	7.2	--
July 29-31.....	58	18	281	--	22	23	555	--	2.8	1,140	218	200	1,880	6.6	15
Aug. 1-10.....	54	15	258	--	20	22	495	--	3.2	1,040	196	180	1,730	6.4	10
Aug. 11-20.....	60	16	268	--	20	16	550	--	5.2	1,120	216	199	1,970	6.8	7
Aug. 21-31.....	64	15	293	--	18	8.4	580	--	5.4	1,150	221	206	2,020	6.8	10
Sept. 1-2, 6-9, 12....	60	20	300	--	18	10	605	--	5.2	1,170	232	216	2,070	6.7	8

a Estimated from specific conductance.

RED RIVER BASIN--Continued
 OUACHITA RIVER NEAR FELSENTAL, ARK.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue on evaporation at 180° C)	Hardness as CaCO ₃		Specific conductance (micro-mhos at 25° C)	pH	Color
														Calcium magnesium	Non-carbonate			
Sept. 3-5, 10-11, 1956		--	--	52	14	242	--	23	5.6	485	--	4.5	945	187	168	1,690	7.0	7
Sept. 13-18		--	--	94	23	457	--	9	13	910	--	9.6	1,750	329	322	3,020	6.3	7
Sept. 19-21		--	--	65	16	305	--	11	12	610	--	9.1	1,210	228	219	2,110	6.4	8
Sept. 22-25		--	--	52	13	246	--	14	11	480	--	7.2	968	183	172	1,640	6.6	10
Sept. 26-30		--	--	78	20	378	--	14	11	765	--	7.4	1,460	276	165	2,570	6.6	13
Average		--	--	47	12	213	--	20	12	395	--	4.3	811	187	150	1,380	--	20

RED RIVER BASIN--Continued

OUACHITA RIVER NEAR FELSENTAL, ARK.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	63	53	50	50	57	60	68	82	--	85	82
2	80	63	54	50	50	58	65	70	75	87	85	83
3	80	63	53	50	47	58	66	68	77	86	86	83
4	83	60	58	50	48	58	63	68	79	86	87	82
5	82	63	52	48	48	59	65	70	80	82	87	82
6	81	63	51	50	47	59	65	70	80	87	86	82
7	80	60	51	50	45	59	63	69	81	85	87	80
8	75	60	51	50	45	59	63	69	83	89	90	80
9	76	58	50	45	45	59	66	70	84	86	90	78
10	75	58	50	47	47	60	63	72	84	85	90	78
11	75	60	50	49	45	60	62	74	83	85	90	78
12	--	60	39	46	48	60	62	75	83	85	90	78
13	--	63	46	48	46	60	64	75	80	85	89	79
14	73	64	47	46	45	60	64	76	80	85	87	80
15	72	59	46	48	45	60	64	76	80	86	90	80
16	70	63	44	47	43	50	65	74	80	86	89	80
17	68	60	45	45	45	55	64	74	83	86	87	80
18	69	59	50	45	45	56	65	75	80	85	90	80
19	68	56	46	45	46	50	63	75	80	87	79	78
20	76	56	45	45	55	50	63	74	83	87	89	78
21	68	57	46	46	55	50	63	75	85	87	80	78
22	68	60	45	47	56	52	65	80	85	85	80	80
23	68	60	47	45	57	51	63	79	85	85	85	80
24	68	58	50	43	56	55	64	79	85	85	85	76
25	--	56	57	43	56	50	65	80	85	87	85	75
26	66	56	54	45	57	50	66	82	86	86	85	76
27	67	56	57	45	57	60	68	80	--	85	85	77
28	66	53	56	45	57	60	70	80	85	92	84	75
29	65	50	60	45	57	60	71	80	85	85	85	76
30	63	52	50	50	--	60	69	80	85	90	85	75
31	63	--	50	45	--	60	--	80	--	88	84	--
Average	72	59	50	47	50	57	65	75	82	86	86	79

RED RIVER BASIN--Continued

CORNIE BAYOU NEAR THREE CREEKS, ARK.

(Formerly published as Cornie Creek near Junction City, Ark.)

LOCATION.--At gaging station at bridge on State Highway 15, 4½ miles downstream from Pidgeon Roost Creek, and 6 miles southwest of town of Three Creeks, Union County.

DRAINAGE AREA.--180 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955. (Specific conductance, chloride, and pH: May 1950 to September 1952, February 1956 to September 1956).

Water temperatures: May 1950 to September 1955, February to September 1956.

EXTREMES, 1950-55.--Dissolved solids (1952-55): Maximum, 20,600 ppm July 15-21, 1954; minimum, 287 ppm Apr. 28-30, 1953.

Hardness (1952-55): Maximum, 6,270 ppm 15-21, 1954; minimum, 62 ppm Apr. 28-30, 1953. Specific conductance: Maximum daily, 33,200 micromhos Dec. 9, 1954; minimum daily, 359 micromhos Apr. 30, 1953.

Water temperatures: Maximum, 95°F July 8, 1953; minimum, freezing point Jan. 30, 1951. REMARKS.--Records of discharge for February to September 1956 given in WSP 1441.

Specific conductance, chloride and pH, February to September 1956

Day	February				March				April			
	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH
1	60	--	--	--	50	4,460	1,390	4.30	56	3,870	1,200	4.30
2	177	5,710	1,830	4.40	68	4,210	1,330	4.40	50	4,120	1,310	4.20
3	444	1,280	360	5.2	108	4,490	1,410	4.40	50	4,210	1,330	4.30
4	714	1,259	345	5.1	154	6,340	2,010	4.40	46	4,430	1,410	4.20
5	754	1,550	440	5.8	185	4,530	1,430	4.40	56	3,990	1,270	4.30
6	804	1,980	560	5.1	181	3,730	1,150	4.5	232	1,820	530	4.7
7	844	1,770	505	5.1	108	4,340	1,350	4.7	391	892	254	5.1
8	589	1,950	550	5.0	84	4,880	1,530	4.8	466	1,380	405	4.8
9	564	1,520	440	5.7	44	5,670	1,270	4.20	524	2,040	600	4.7
10	564	1,220	330	5.3	34	5,630	1,130	4.20	425	2,010	600	4.7
11	524	1,620	480	4.9	32	5,650	1,130	4.20	331	1,770	530	4.9
12	492	2,320	660	4.7	41	6,210	1,950	4.20	263	2,200	660	4.7
13	466	2,320	870	5.0	82	4,830	1,470	4.40	222	3,600	1,110	4.5
14	391	2,730	780	4.6	263	1,710	500	4.9	169	2,820	640	4.6
15	283	3,170	950	4.6	345	1,790	510	4.8	114	2,780	835	4.5
16	161	3,800	1,170	4.40	360	2,250	650	4.7	82	2,770	840	4.5
17	212	3,510	1,070	4.30	345	2,430	705	4.6	68	3,140	940	4.40
18	331	1,750	500	4.7	285	2,420	680	3.70	60	3,670	1,150	4.40
19	444	1,020	278	5.3	232	2,550	740	4.5	50	4,080	1,310	4.20
20	466	1,520	428	5.1	194	2,830	820	4.5	39	4,620	1,490	4.20
21	466	1,880	540	4.8	177	3,100	910	5.2	30	4,570	1,470	4.00
22	408	2,150	610	5.2	185	2,530	735	4.6	28	4,590	1,470	4.10
23	296	2,280	650	4.6	285	1,420	395	6.5	24	4,970	1,590	4.00
24	161	2,640	760	4.5	307	1,970	570	4.7	23	6,060	1,970	3.90
25	102	3,010	890	4.20	307	2,260	650	4.6	20	6,600	2,150	3.80
26	82	3,650	1,110	4.30	331	2,290	680	4.6	20	6,620	2,170	3.90
27	64	3,840	1,170	4.20	307	2,450	720	4.6	17	6,580	2,170	3.90
28	60	4,360	1,350	4.30	232	2,450	710	4.6	16	6,670	2,170	3.90
29	53	4,580	1,430	4.20	133	2,860	850	4.6	15	6,640	2,290	4.00
30	--	--	--	--	87	3,420	1,050	4.40	17	7,110	2,390	3.95
31	--	--	--	--	68	3,790	1,170	4.40	--	--	--	--
Average	371	2,510	744	--	180	3,530	1,020	--	130	4,030	1,280	--

RED RIVER BASIN--Continued

CORNIE BAYOU NEAR THREE CREEKS, ARK.--Continued

Specific conductance, chloride and pH, February to September 1956--Continued

Day	May				June				July			
	Mean dis-charge (cfs)	Specific conduct-ance (micro-mhos at 25° C)	Chloride (Cl)	pH	Mean dis-charge (cfs)	Specific conduct-ance (micro-mhos at 25° C)	Chloride (Cl)	pH	Mean dis-charge (cfs)	Specific conduct-ance (micro-mhos at 25° C)	Chloride (Cl)	pH
1	30		2,190	3.85	3.5	9,250	3,100	3.45	4.1	15,300	5,400	3.45
2	133	6,610	1,030	4.40	3.1	9,380	3,150	3.40	3.3	13,800	4,800	3.50
3	274	3,270	960	4.6	2.9	9,490	3,180	3.40	2.7	13,300	4,600	3.55
4	285	3,080	890	4.40	2.9	9,520	3,220	3.40	2.7	12,100	4,150	3.50
5	307	2,920	850	4.5	3.0	9,570	3,180	3.40	2.5	12,200	4,100	3.55
6		2,790										
7	307	2,890	870	4.40	3.0	9,570	3,150	3.45	2.3	11,800	4,250	3.60
8	242	2,920	880	4.35	3.1	9,850	3,250	3.40	2.3	11,200	4,100	3.60
9	97	3,470	1,070	4.30	2.9	9,680	3,300	3.40	2.2	11,800	4,000	3.60
10	42	4,060	1,290	4.10	2.9	9,740	3,300	3.40	1.7	9,230	3,120	3.60
10	36	4,570	1,470	3.95	2.8	9,770	3,280	3.35	1.7	9,360	3,200	3.60
11	28	4,790	1,530	3.75	2.5	9,820	3,320	3.40	1.5	10,100	3,480	3.55
12	20	4,770	1,550	3.85	2.5	10,000	3,400	3.40	2.6	9,800	3,300	3.55
13	17	4,670	1,490	3.80	2.6	10,000	3,380	3.35	3.2	10,200	3,500	3.60
14	16	5,220	1,690	3.65	2.6	10,000	3,400	3.40	3.8	10,200	3,500	3.65
15	15	5,620	1,800	3.60	3.3	9,850	3,350	3.40	2.9	10,700	3,650	3.60
16	12	5,740	1,860	3.60	4.0	9,970	3,380	3.35	2.3	11,400	3,950	3.45
17	12	6,010	1,940	3.55	5.9	10,600	3,600	3.35	1.7	12,100	4,200	3.60
18	11	6,170	2,030	3.60	9.5	11,900	4,080	3.35	1.6	12,400	4,300	3.55
19	13	5,280	1,690	3.55	7.7	13,500	4,700	3.45	1.5	12,600	4,350	3.55
20	13	6,910	2,290	3.55	6.6	11,900	4,120	3.50	1.4	12,700	4,450	3.60
21	12	7,770	2,570	3.50	5.4	13,200	4,650	3.50	1.1	13,000	4,500	3.50
22	9.5	8,700	2,930	3.45	5.0	15,000	5,250	3.45	1.1	13,000	4,550	3.50
23	6.9	9,130	3,090	3.45	4.7	17,000	6,100	3.40	.9	13,100	4,600	3.55
24	6.4	9,420	3,230	3.40	4.4	17,600	6,100	3.40	.8	13,200	4,650	3.50
25	5.7	9,850	3,350	3.40	3.3	17,600	6,300	3.40	1.0	13,300	4,750	3.40
26	5.2	9,910	3,390	3.40	2.8	18,000	6,550	3.35	3.7	13,400	4,650	3.50
27	4.9	9,820	3,310	3.40	2.9	16,600	5,950	3.40	2.6	13,700	4,800	3.45
28	4.4	9,560	3,240	3.35	3.8	16,500	5,900	3.50	2.3	13,600	4,750	3.45
29	4.2	9,390	3,140	3.35	5.7	16,600	6,000	3.45	2.1	13,600	4,750	3.45
30	3.8	9,310	3,140	3.35	5.2	15,900	5,790	3.55	1.8	12,800	4,450	3.50
31	3.8	9,260	3,110	3.35	--	--	--	--	1.3	14,200	5,000	3.45
Average	63.8	6,250	2,060	--	4.02	12,200	4,250	--	2.15	12,200	4,250	--
Day	August				September							
	Mean dis-charge (cfs)	Specific conduct-ance (micro-mhos at 25° C)	Chloride (Cl)	pH	Mean dis-charge (cfs)	Specific conduct-ance (micro-mhos at 25° C)	Chloride (Cl)	pH	Mean dis-charge (cfs)	Specific conduct-ance (micro-mhos at 25° C)	Chloride (Cl)	pH
1	1.1	14,100	4,900	3.50	1.2	16,500	6,000	3.50				
2	1.2	14,600	5,200	3.55	1.3	17,500	6,400	3.35				
3	.8	14,900	5,300	3.70	1.5	17,000	6,200	3.30				
4	1.4	15,300	5,450	3.70	3.0	17,700	6,400	3.35				
5	1.6	15,900	5,800	3.60	2.8	17,100	6,200	3.40				
6	1.3	16,700	6,000	3.60	2.7	16,700	6,000	3.45				
7	1.0	16,900	6,100	3.55	1.9	16,400	5,900	3.45				
8	.8	17,700	6,400	3.55	1.4	15,200	5,500	3.45				
9	.6	17,500	6,500	3.55	1.2	15,200	5,500	3.55				
10	.6	17,600	6,400	3.55	1.2	14,800	5,400	3.55				
11	.8	17,800	6,500	3.60	.7	14,700	5,400	3.40				
12	.8	16,800	6,100	3.55	.4	14,700	5,200	3.40				
13	.5	18,000	6,600	3.65	.3	13,900	4,900	3.50				
14	.4	18,100	6,600	3.50	.0	14,700	5,200	3.40				
15	.4	18,200	6,700	3.45	.0	13,500	4,800	3.45				
16	.4	17,700	6,400	3.50	.0	13,500	4,900	3.40				
17	.7	17,600	6,500	3.50	.0	14,400	5,200	3.40				
18	.7	17,500	6,400	3.45	.0	14,300	5,100	3.40				
19	.5	17,600	6,400	3.35	.0	14,100	5,000	3.45				
20	.4	17,700	6,500	3.40	.0	14,000	5,000	3.40				
21	.3	17,900	6,400	3.45	.0	13,900	5,000	3.45				
22	.1	18,000	6,600	3.45	.0	14,000	5,000	3.50				
23	.1	18,100	6,700	3.40	.0	14,000	5,000	3.50				
24	.0	18,200	6,600	3.45	.0	14,000	5,000	3.40				
25	.0	18,200	6,700	3.45	.0	14,100	5,000	3.45				
26	.0	18,300	6,700	3.45	.0	14,200	5,100	3.50				
27	.0	18,400	6,700	3.40	.0	14,300	5,150	3.50				
28	.0	18,400	6,600	3.40	.0	14,500	5,250	3.50				
29	.0	18,400	6,700	3.40	.0	14,500	5,300	3.50				
30	.0	18,100	6,600	3.40	.0	14,500	5,250	3.60				
31	.2	16,900	6,100	3.55	--	--	--	--				
Average	0.54	17,300	6,300	--	0.65	14,900	5,380	--				

LOWER MISSISSIPPI RIVER BASIN

RED RIVER BASIN--Continued

CORNIE BAYOU NEAR THREE CREEKS, ARK.--Continued

Temperature (°F) of water, February to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					--	60	64	68	78	88	83	74
2					50	63	70	64	75	89	81	78
3					48	65	67	65	75	85	81	70
4					43	61	68	67	79	85	82	73
5					43	57	64	67	77	89	83	75
6					42	57	65	70	81	88	85	73
7					45	58	60	69	85	86	82	73
8					45	56	61	74	81	86	84	71
9					46	58	57	75	82	89	82	68
10					46	56	58	76	83	85	80	65
11					45	57	56	78	86	87	83	67
12					45	55	55	75	85	87	82	70
13					47	51	58	78	82	87	80	69
14					52	49	62	79	86	83	80	68
15					63	50	60	76	80	84	81	69
16					61	49	64	70	81	87	82	70
17					61	69	62	78	81	--	84	70
18					49	53	63	73	81	85	89	72
19					60	53	59	74	76	82	80	72
20					57	54	60	78	86	83	78	67
21					55	50	60	76	81	84	76	64
22					55	49	61	80	83	83	75	64
23					57	53	63	82	85	84	71	69
24					59	55	66	76	84	83	71	64
25					57	55	67	79	89	82	70	62
26					58	60	70	79	90	89	72	65
27					69	66	67	79	84	88	72	58
28					68	64	69	84	88	84	79	57
29					68	61	73	85	83	87	79	57
30					--	62	68	--	88	84	74	59
31					--	60	--	--	--	82	75	--
Average					53	57	63	75	82	86	79	68

RED RIVER BASIN--Continued

THREE CREEK NEAR THREE CREEKS, ARK.

LOCATION.--At gaging station at bridge on State Highway 15, 2½ miles southwest of town of Three Creeks, Union County, and 2½ miles upstream from small tributary.

DRAINAGE AREA.--27 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955. (Specific conductance, chloride, and pH: May 1950 to September 1952, February to September 1956.)

Water temperatures: May 1950 to September 1955, February to September 1956.

EXTREMES, 1950-55.--Dissolved solids (1952-55): Maximum, 13,200 ppm July 29-31, 1953; minimum, 133 ppm Apr. 28-30, 1953.

Hardness (1952-55): Maximum, 4,390 ppm July 29-31, 1953; minimum, 30 ppm Apr. 28-30, May 12-15, 1953.

Specific conductance: Maximum daily, 20,300 micromhos Sept. 4, 1952; minimum daily,

45.7 micromhos Feb. 1, 1952.

Water temperatures: Maximum, 89°F Sept. 1, 1951, Aug. 4, 1953; minimum, freezing point

Dec. 16, 1952.

REMARKS.--This station was previously published as Three Creeks near Junction City, Ark.

Specific conductance, chloride and pH, February to September 1956

Day	February				March				April			
	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH
1	24	4,200	1,220	6.5	11	2,490	730	6.0	9.7	1,900	558	6.9
2	43	1,200	335	6.0	22	1,930	560	6.0	8.7	1,800	528	7.1
3	200	1,330	380	5.6	55	1,440	410	6.4	8.7	2,030	600	7.2
4	415	1,170	330	5.7	53	1,460	410	5.8	8.3	1,980	588	7.1
5	380	1,340	370	6.3	32	1,430	400	5.9	16	1,920	562	7.2
6	255	1,190	330	6.4	21	1,440	400	7.2	160	753	203	7.3
7	141	1,310	380	6.2	17	1,370	390	6.3	270	697	194	6.0
8	139	1,520	425	6.3	13	1,570	440	6.7	222	689	192	6.6
9	175	622	162	6.1	11	1,860	540	6.6	58	758	212	6.6
10	104	685	190	6.2	10	2,080	600	7.4	72	693	194	6.9
11	95	641	175	6.1	8.7	1,960	580	6.7	70	727	204	7.1
12	86	1,170	330	6.5	8.7	1,890	520	6.6	32	1,120	315	5.2
13	48	1,540	450	6.2	29	310	76	6.2	23	1,210	355	6.2
14	17	1,540	435	6.5	22	639	175	6.1	18	1,210	350	5.9
15	25	1,600	455	6.4	300	645	173	5.7	13	1,230	355	6.8
16	31	1,670	470	6.2	123	643	168	.7	13	1,410	410	6.9
17	130	1,910	550	6.0	73	876	230	6.4	11	1,360	400	7.0
18	330	902	250	6.3	42	1,070	300	5.6	9.1	1,730	500	7.0
19	415	636	172	6.0	24	1,160	320	5.7	7.0	1,690	495	7.3
20	315	570	152	6.2	17	1,280	360	6.2	5.9	1,930	570	7.2
21	94	1,240	350	6.2	15	1,400	395	6.2	5.2	2,150	648	7.0
22	47	842	230	6.4	80	918	255	5.7	5.0	1,880	552	7.2
23	29	1,410	400	6.6	188	1,290	365	5.5	5.0	1,860	550	7.3
24	24	1,510	430	6.3	200	770	212	5.5	4.5	1,770	515	7.4
25	21	1,570	445	6.3	65	1,100	308	5.5	4.0	1,770	515	7.5
26	18	1,840	525	6.2	32	1,110	310	5.6	4.2	1,820	535	7.6
27	16	2,100	605	6.6	23	1,300	370	6.1	3.6	1,730	500	7.6
28	14	2,330	675	6.8	17	1,480	420	5.9	3.6	1,730	505	7.7
29	11	2,470	720	6.6	15	1,560	440	6.1	3.4	1,700	490	7.7
30	--	--	--	--	12	1,730	490	6.2	4.4	1,690	485	7.7
31	--	--	--	--	11	1,860	540	6.1	--	--	--	--
Average	126	1,450	412	--	56.5	1,360	383	--	35.9	1,500	436	--

RED RIVER BASIN--Continued

THREE CREEK NEAR THREE CREEKS, ARK.--Continued

Specific conductance, chloride and pH, February to September 1956--Continued

Day	May				June				July			
	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH
1	13	1,500	432	7.8	1.7	1,160	270	8.3	1.5	803	185	8.6
2	69	683	181	7.7	1.7	1,160	270	8.4	1.4	827	178	8.5
3	73	2,200	670	5.5	1.7	1,230	292	7.8	1.4	821	172	8.5
4	71	1,120	320	6.0	1.7	1,260	308	7.5	1.4	807	165	8.6
5	24	1,050	300	6.8	1.0	1,220	290	7.7	1.2	825	175	8.6
6	12	1,760	520	6.4	1.0	1,160	270	8.0	1.2	942	210	8.5
7	8.3	1,830	530	5.4	1.0	1,110	258	7.8	1.0	2,410	690	8.3
8	7.3	1,770	515	7.2	1.2	1,080	245	7.9	1.0	2,420	695	8.3
9	7.0	1,770	515	7.2	1.0	1,020	222	8.3	2.2	2,280	650	8.3
10	5.2	2,910	880	7.2	1.0	976	210	7.7	3.4	1,320	325	8.5
11	4.7	3,030	920	7.1	1.4	966	215	8.1	3.3	762	140	8.6
12	3.9	2,770	840	7.0	2.0	1,100	255	7.9	1.8	708	132	8.6
13	3.6	3,160	950	7.1	2.8	1,130	278	7.7	1.4	833	162	8.6
14	3.0	2,790	830	7.9	2.7	--	--	--	1.2	809	155	8.6
15	3.2	2,520	750	7.8	5.7	1,020	240	7.8	1.2	880	180	8.6
16	3.4	2,520	760	7.4	8.9	3,780	1,130	7.6	1.1	882	180	8.4
17	3.3	2,770	820	7.8	8.5	2,060	600	7.1	1.0	1,340	335	8.5
18	2.8	2,780	820	7.8	5.7	2,030	580	7.2	1.0	1,730	470	8.4
19	3.0	2,750	820	7.5	5.6	1,680	475	7.3	1.2	1,990	555	8.3
20	2.0	2,640	775	8.0	5.6	1,690	475	6.6	1.1	2,030	570	8.2
21	2.0	2,580	755	8.1	5.6	3,530	1,060	6.6	1.1	1,760	480	8.3
22	2.0	2,600	760	7.8	3.6	4,840	1,520	6.4	.8	1,080	245	8.5
23	1.9	2,620	760	8.0	2.6	3,000	910	6.8	1.2	1,070	245	8.6
24	1.9	3,120	930	8.0	2.3	2,540	740	6.7	1.4	884	175	8.6
25	1.7	3,280	990	7.6	1.9	2,530	745	6.9	1.5	693	110	8.6
26	1.7	3,080	900	8.0	1.8	2,320	665	6.5	1.2	729	120	8.6
27	1.7	2,020	560	8.2	1.5	2,130	610	7.0	1.2	606	80	8.5
28	1.5	1,900	550	8.3	4.2	1,760	495	6.5	.9	582	75	8.4
29	1.7	1,660	440	8.3	4.5	1,030	265	7.6	.9	532	60	8.6
30	1.5	1,330	330	8.3	3.4	845	188	7.7	1.2	538	62	8.6
31	1.5	1,260	305	8.5	--	--	--	--	1.7	523	58	8.5
Average	11.0	2,250	659	--	3.11	1,770	486	--	1.39	1,110	259	--
	August				September							
	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH	Mean discharge (cfs)	Specific conductance (micromhos at 25°C)	Chloride (Cl)	pH
1	2.4	753	135	8.6	5.0	604	115	8.4				
2	8.3	1,110	280	8.2	7.7	859	212	8.1				
3	5.0	299	50	7.8	3.4	994	235	8.3				
4	2.7	570	125	8.1	1.9	984	230	8.4				
5	2.0	616	120	8.4	1.2	1,100	272	8.3				
6	1.7	617	120	8.5	1.2	1,420	368	8.3				
7	1.4	671	130	8.4	1.2	1,610	435	8.3				
8	1.4	810	175	8.4	1.2	1,730	480	8.2				
9	1.4	1,410	365	7.6	1.2	1,870	530	8.0				
10	1.4	1,540	410	7.9	1.0	1,900	540	8.0				
11	1.2	1,430	380	7.8	1.1	1,800	500	7.5				
12	1.1	1,090	250	8.4	1.0	1,440	385	8.2				
13	1.1	1,110	260	8.1	1.2	937	210	8.4				
14	.9	863	175	8.5	1.2	1,150	275	8.3				
15	1.3	719	122	8.3	.9	1,150	285	8.3				
16	2.2	596	122	8.4	1.0	700	117	8.4				
17	2.3	519	64	8.4	1.0	702	120	8.5				
18	2.3	475	58	8.4	1.2	749	140	8.4				
19	1.5	526	70	8.2	1.2	617	90	8.4				
20	1.4	468	52	8.1	1.2	590	86	8.3				
21	1.5	535	66	8.3	1.0	534	67	8.4				
22	1.8	598	92	8.0	1.1	628	98	8.3				
23	1.2	2,190	612	7.4	1.2	631	100	8.4				
24	.8	811	160	8.2	1.1	632	98	8.3				
25	.5	2,350	670	7.4	1.2	573	76	8.4				
26	.4	2,370	680	7.2	1.1	609	84	8.2				
27	1.0	1,820	482	7.4	.7	547	64	8.2				
28	1.0	1,750	465	7.4	.9	528	60	8.4				
29	1.2	1,220	290	7.6	.7	620	94	8.2				
30	1.2	938	200	7.8	.7	617	90	8.4				
31	1.4	749	140	7.6	--	--	--	--				
Average	1.77	1,020	236	--	1.52	961	215	--				

RED RIVER BASIN--Continued

THREE CREEK NEAR THREE CREEKS, ARK.--Continued

Temperature (°F) of water, February to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					49	52	--	65	74	80	77	75
2					51	55	66	64	73	82	78	74
3					48	57	69	63	73	83	79	74
4					46	56	60	63	73	82	79	73
5					45	58	65	67	71	82	80	73
6					41	64	59	69	75	81	81	75
7					39	67	59	71	75	81	--	73
8					43	59	61	70	76	81	81	67
9					44	--	58	71	77	80	81	68
10					44	59	55	74	78	79	81	68
11					44	60	52	70	76	79	81	66
12					47	54	52	76	77	82	81	66
13					44	45	56	72	76	82	81	69
14					44	46	63	70	--	80	81	71
15					54	49	68	70	72	81	80	70
16					56	48	60	68	75	81	78	69
17					56	50	59	71	74	81	80	71
18					60	51	57	71	--	81	79	71
19					--	49	57	71	77	80	79	70
20					54	46	55	74	79	80	81	71
21					51	49	56	74	79	81	72	67
22					46	48	57	74	79	80	69	69
23					54	48	58	74	80	78	71	70
24					58	52	61	--	80	79	68	71
25					62	52	61	--	80	78	75	67
26					53	52	62	75	83	80	78	66
27					52	63	65	76	83	81	76	63
28					53	65	69	77	80	80	75	63
29					49	57	69	76	78	80	79	66
30					--	56	62	77	77	79	79	68
31					--	57	--	76	--	80	78	--
Average					50	54	60	71	77	80	78	69

RED RIVER BASIN--Continued
CORNEY BAYOU NEAR LILLIE, LA.

LOCATION.--At gaging station near left bank on downstream side of bridge on U. S. Highway 167, 2 miles upstream from Little Corney Bayou and 3 miles south of Lillie, Union Parish.
DRAINAGE AREA.--462 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1954 to August 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 19, 1955	8.3	2.0	0.01	134	17		308	1	2.1	760		0.0		1,220	1.66	27.3	404	404	62	2,480	4.7
Nov. 10	7.7	1.0	.02	126	16		300	0	2.6	730		.2		1,180	1.71	24.5	380	380	63	2,300	4.5
Dec. 8	10	3.4	.13	124	17		287	0	4.4	710		.2		1,150	1.56	31.0	380	380	62	2,290	4.2
Jan. 12, 1956	13	3.0	.05	147	19		335	0	3.8	830		.0		1,340	1.82	47.0	443	443	62	2,680	4.4
Feb. 6	1,170	8.7	.09	91	13		192	2	5.3	490		.2		801	1.09	2,530	280	278	60	1,590	5.1
Mar. 6	190	8.4	.08	58	8.3		133	3	5.6	325		.3		540	0.73	277	178	176	62	1,070	5.3
Apr. 16	660	9.9	.29	34	6.3		83	4	4.6	200		.4		340	.46	60.6	111	108	62	687	5.7
May 21	71	10	.02	65	10		175	2	4.2	543		.1		730	.39	145.2	252	250	60	1,500	4.8
June 10	11	8.5	.01	65	11		210	1	3.2	520		.4		630	1.39	35.2	292	281	62	1,690	4.7
July 19	7.3	0.7	.01	122	13		249	1	2.8	840		.0		1,590	1.40	20.3	366	365	60	2,080	4.8
Aug. 16	3.3	.9	.00	158	19		327	2	2.8	800		.0		1,290	1.75	11.5	422	421	63	2,530	4.8

RED RIVER BASIN--Continued

OUACHITA RIVER AT MONROE, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 80 at Monroe, 0.4 mile upstream from Illinois Central Railroad bridge and 5½ miles upstream from lock and dam No. 4.

DRAINAGE AREA.--15,298 square miles.

RECORDS AVAILABLE.--Chemical analyses: August 1954 to September 1956.

Water temperatures: August 1954 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,740 ppm July 3-9; minimum, 92 ppm Mar. 1-10.

Hardness: Maximum, 339 ppm July 3-9; minimum, 28 ppm Feb. 21-29, Mar. 1-10.

Specific conductance: Maximum daily, 3,650 micromhos Oct. 11; minimum daily, 165 micromhos May 9.

Water temperatures: Maximum, 95°F Aug. 11; minimum, 40°F Jan. 18.

EXTREMES, 1954-56.--Dissolved solids: Maximum, 2,860 ppm Oct. 16-18, 1954; minimum, 92 ppm Mar. 1-10, 1956.

Hardness: Maximum, 538 ppm Oct. 16-18, 1954; minimum, 26 ppm Apr. 1-9, 1955.

Specific conductance: Maximum daily, 6,070 micromhos Oct. 17, 1954; minimum daily, 142 micromhos Apr. 10, 1955.

Water temperatures: Maximum, 95°F Aug. 11, 1956; minimum, 40°F Jan. 18, 1956.

REMARKS.--Prior to Oct. 1, 1955, samples were collected at lock and dam No. 4, ½ miles downstream from present sampling site. Records of specific conductance of daily samples available in subdistrict office at Baton Rouge, La. Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-8, 1955	1,840	6.0	0.02	52	12	279	31	12	12	528	--	5.0	3,959	1.30	4,760	179	154	77	1,750	6.8
Oct. 9-10, 13-15, 20	3,670	7.8	.00	33	7.9	152	26	12	15	288	0	4.8	3,550	.75	5,450	115	94	74	6.2	6.8
Oct. 11-12, 19-19	2,930	7.8	.00	32	17	370	15	12	15	720	--	12	1,220	1.66	12,900	249	236	76	10	6.5
Oct. 21-26, 30-31	2,770	6.8	.00	36	7.5	131	27	13	28	258	.3	6.1	3,503	.68	3,760	120	98	70	5.2	6.9
Nov. 1-10, 1955	2,060	6.8	.05	33	7.5	132	33	8.9	8.9	255	.2	4.5	3,505	.69	2,810	114	87	72	5.4	7.3
Nov. 11-18, 28	1,920	7.8	.00	38	8.7	151	35	11	11	292	.4	5.9	3,608	.83	3,150	130	102	72	5.7	7.2
Nov. 19, 21-27, 29-30	2,110	6.8	.04	51	11	218	33	11	11	425	.4	8.5	3,842	1.15	4,800	171	144	74	7.3	7.2
Dec. 1-10, 1955	3,710	6.2	.05	56	13	261	24	11	11	512	2	9.9	3,978	1.33	9,800	194	174	75	8.1	7.1
Dec. 11-16, 25-31	2,520	7.2	.04	58	13	267	22	15	15	520	.2	14	3,997	1.36	6,780	198	180	75	8.3	6.8
Dec. 17, 19-24	2,110	7.6	.21	80	19	148	14	18	18	810	.0	17	1,380	1.88	7,860	278	266	77	11	6.2
Jan. 1-10, 1956	1,190	10	.07	42	9	181	32	16	16	345	.4	6.8	626	.85	2,010	143	117	73	6.6	6.8
Jan. 11-19	1,060	10	.07	42	8.7	180	30	17	17	342	.5	8.0	623	.85	1,780	141	116	73	6.6	6.8
Jan. 21-28	2,510	10	.11	39	8.4	166	32	19	19	312	.5	5.6	577	.78	3,910	131	105	73	6.3	6.7
Jan. 30-31, Feb. 1-2	7,480	8.8	.13	62	13	299	12	19	19	580	.5	11	989	1.36	20,200	209	199	76	9.0	6.2
Feb. 3, 7-10	22,400	6.0	.26	12	2.8	45	9	7.6	7.6	85	1.0	1.2	185	2.2	9,980	41	34	70	3.1	6.1
Feb. 5-6	20,600	6.6	.20	25	5.6	122	14	10	10	232	--	1.8	410	.56	22,800	86	74	75	5.7	6.7
Feb. 11-20	30,900	5.6	.14	8.9	2.4	32	8	7.7	7.7	60	.6	8	122	1.17	10,200	32	25	68	2.5	6.3
Feb. 21-29	36,200	5.6	.14	7.8	2.1	25	12	7.8	7.8	45	.6	2	100	.14	9,770	28	18	66	2.1	6.4

a. Residue on evaporation at 180°C.

RED RIVER BASIN--Continued
OQUACHITA RIVER AT MONROE, LA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./l.	Non-carbonate			
Mar. 1-10, 1956...	38,200	6.4	0.12	7.3	2.4		22	12	7.6	39	0.6	0.8		92	0.13	9,490	28	18	63	178	6.2
Mar. 11-20	36,800	4.4	.29	9.5	2.5		28	12	7.2	54	.6	.8		113	.15	11,200	34	24	64	227	6.1
Mar. 23-31	32,500	6.8	.17	13	3.5		51	12	8.6	97	.6	1.2		186	.26	16,500	46	38	70	369	6.4
Apr. 2-10	28,200	6.3	.17	14	3.4		52	12	7.6	100	.6	1.7		192	.26	14,500	46	38	70	377	6.2
Apr. 11-20	28,800	6.3	.16	11	3.0		45	12	6.7	83	.7	1.3		163	.22	12,700	40	30	71	319	6.1
Apr. 21-30	19,300	5.6	.15	15	3.6		55	22	8.7	100	.5	1.9		201	.27	10,500	52	34	70	392	6.7
May 2-12	16,300	6.8	.08	32	8.0		158	16	7.8	305	.5	2.6		529	.72	23,300	112	99	75	1,060	6.6
May 13-20	20,000	8.9	.10	18	3.2		65	16	6.8	84	.5	2.7		171	.25	8,230	44	28	69	925	6.7
May 21-31	1,450	7.6	.16	12	4.2		88	28	8.4	120	.5	2.3		240	.33	2,890	63	39	70	472	6.8
June 1-12	1,780	9.6	.12	25	4.7		88	28	12	164	.6	7.2		325	.44	1,860	83	60	70	655	6.8
June 13-23	2,300	10	.12	30	4.9		108	32	12	201	.6	6.0		389	.53	2,420	94	68	71	768	6.9
June 24-30	1,480	8.2	.01	67	18		347	21	13	678	.4	8.5		1,150	1.56	4,600	241	224	76	2,250	7.1
July 3-9	1,810	14	.01	98	23		533	23	15	1,030	.5	12		1,740	2.37	8,500	339	320	77	3,300	7.1
July 10-14	2,000	12	.02	61	16		310	32	18	592	.6	13		1,040	1.41	5,520	217	191	76	2,020	7.0
July 16-31	1,520	10	.07	34	8.3		166	28	23	300	.5	8.7		1,565	.77	2,320	118	95	75	1,090	7.2
Aug. 1-7	1,770	11	.11	28	6.6		127	24	15	231	.5	13		806	.60	2,120	97	78	74	885	7.2
Aug. 8-20	1,430	12	.04	47	12		239	24	19	452	.3	13		910	1.24	3,110	168	148	76	1,600	7.2
Aug. 22-31	--	9.6	.05	54	13		272	27	20	515	.4	13		910	1.24	--	189	167	76	1,800	7.1
Sept. 1-10	--	9.4	.02	58	13		283	23	21	558	.4	9.6		973	1.32	3,940	198	180	76	1,870	6.9
Sept. 11-25	1,930	8.8	.01	56	13		283	24	16	558	.3	8.6		966	1.31	5,530	194	174	77	1,860	6.8
Sept. 24-30	1,440	6.8	.00	84	.17		406	11	15	800	.2	11		1,340	1.82	5,210	280	271	76	2,640	7.5
Time-weighted average	10,700	8.0	0.09	38	8.2		174	22	13	334	0.4	6.6		606	0.83	17,000	128	110	75	1,260	--

RED RIVER BASIN--Continued

OUACHITA RIVER AT MONROE, LA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	--	59	55	54	56	--	68	82	--	84	85
2	81	--	80	55	54	57	67	70	74	88	88	--
3	80	--	59	56	48	61	69	74	--	84	92	85
4	80	--	--	56	48	60	65	72	80	86	94	84
5	80	--	56	57	48	61	65	73	82	89	--	83
6	--	--	55	53	49	62	67	--	85	86	84	--
7	78	--	53	---	48	59	67	78	--	88	88	81
8	78	--	58	54	50	56	69	70	84	--	85	79
9	79	--	--	55	50	--	--	71	85	88	90	--
10	79	--	50	49	51	59	59	73	--	87	94	81
11	--	--	50	50	49	60	61	76	80	88	95	75
12	--	--	52	50	49	58	64	80	79	86	--	79
13	--	--	--	52	55	56	65	--	84	89	92	82
14	--	68	52	51	61	58	67	82	84	90	91	--
15	--	68	52	59	57	56	--	73	83	--	88	80
16	--	65	47	51	--	58	64	75	83	84	88	--
17	--	63	49	--	54	--	87	70	--	89	91	--
18	--	59	--	40	59	56	66	76	84	91	93	85
19	--	61	50	45	58	--	66	80	83	89	--	85
20	--	--	50	--	57	60	66	--	81	90	87	83
21	--	63	51	--	--	--	61	--	83	85	--	80
22	--	64	51	--	57	--	68	82	86	--	83	82
23	--	64	54	--	58	--	63	81	85	82	86	--
24	--	--	55	--	58	56	65	83	--	89	87	75
25	--	58	56	48	60	59	65	86	88	81	86	77
26	--	58	57	48	65	61	--	86	85	92	--	75
27	--	59	60	58	64	63	70	--	86	--	--	--
28	--	58	59	55	56	60	73	82	87	90	83	74
29	--	58	59	--	57	--	73	82	86	91	84	--
30	--	58	59	52	--	62	71	80	87	90	84	75
31	--	--	55	50	--	63	--	84	--	91	85	--
Average	--	--	54	52	55	59	66	77	83	88	88	80

RED RIVER BASIN--Continued
BOEUF RIVER AT GIRARD, LA.

LOCATION.--At gaging station on upstream side of pier on Illinois Central Railroad bridge and 0.5 mile east of Girard, Richland Parish.
DRAINAGE AREA.--1,226 square miles, arbitrarily determined.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1956.
REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 18, 1955.....	88	13	0.00	80	30	68		301	64	112		0.8		517	0.70	123	323	76	31	1.6	912	7.8
Nov. 15.....	72	15	.00	95	35	83		339	87	137		.0		628	.85	122	381	103	32	1.9	1,060	7.9
Dec. 5.....	170	14	.01	72	27	58		276	14	87		.8		471	.64	216	290	64	30	1.5	790	7.7
Jan. 3, 1956.....	72	14	.02	68	23	58		259	45	93		.5		434	.59	84.4	264	52	32	1.6	774	7.7
Feb. 10.....	1,240	6.2	.51	5.6	2.1	3.5	4.0	25	7.2	3.2		1.2		a46	.06	154	23	2	22	0.3	75.7	6.9
Mar. 6.....	194	7.8	.64	15	4.2	4.7	4.4	59	7.4	7.2		1.1		a 61	.11	42.4	54	6	15	.3	140	6.9
Apr. 2.....	153	6.2	.63	13	4.9	6.1	3.3	60	7.4	8.2		1.3		a 81	.11	33.5	53	3	19	.4	139	7.0
May 14.....	101	11	.02	42	13	27		152	32	40		2.5		a34	.34	68.4	157	32	27	.9	431	7.2
June 4.....	82	11	.01	50	17	35		192	41	50		.3		a298	.41	66.0	195	36	28	1.1	551	7.6
July 16.....	70	12	.01	50	22	52		204	48	79		.2		351	.32	72.0	216	45	34	1.1	655	8.0
Aug. 13.....	87	12	.00	51	26	67		220	57	99		.0		432	.39	78.1	234	54	38	1.9	757	8.2
Sept. 17.....	55	13	.01	56	29	72		246	61	106		.8		a 459	.52	68.2	238	56	38	1.9	819	7.8

a. Calculated from determined constituents.

RED RIVER BASIN--Continued

TENSAS RIVER AT TENDAL, LA.

LOCATION.--At gaging station near left bank on upstream side of bridge on U. S. Highway 80 at Tendal, Madison Parish, 200 feet upstream from Illinois Central Railroad Bridge and 3 miles east of Waverly.

DRAINAGE AREA, 99 square miles, arbitrarily determined.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.

REMARKS.--Records of discharge October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- ad- orp- tion ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nesium	Non-carbonate				
Oct. 18, 1955	5.5	12	0.03	46	21		26	286	4.4	13		0.8		264	0.36	3.92	201	0	22	0.8	476	7.9
Nov. 15	7.0	11	.02	45	22		29	289	5.0	17		1.2		272	.37	5.14	203	0	24	.9	483	7.9
Feb. 15, 1956	941	8.8	.35	13	4.0	2.9	5.1	54	10	1.2		2.3		75	.10	191	49	5	10	.2	122	6.9
Mar. 7	133	12	.27	29	7.7	5.6	4.5	120	14	4.2		.8		137	.19	49.2	104	6	10	.2	236	7.3
Apr. 3	324	7.8	.22	15	4.5	1.8	3.9	68	3.5	2.5		1.1		56	.10	63.9	56	0	6	.1	124	6.9
May 15	36	11	.03	43	13		11	193	15	6.5		1.2		196	.28	20.6	160	2	13	.4	350	7.7
June 5	23	11	.01	52	18		20	263	12	12		.8		255	.35	15.8	203	0	17	.6	460	7.8
July 16	19	17	.14	50	18		25	274	7.3	14		.8		267	.38	14.2	199	0	21	.8	468	7.8
Aug. 14	12	15	.01	41	16		22	240	5.6	9		1.0		228	.32	7.65	168	0	22	.7	407	7.6
Sept. 18	11	15	.02	49	21		34	311	5.3	15		.8		293	.40	8.70	208	0	26	1.0	513	8.0

RED RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN ARKANSAS

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃	Percent sodium carbonate	Sodium to calcium ratio	Specific conductance (micro-mhos at 25 C)
														Parts per million	Tons per acre-foot	Tons per day				

RED RIVER AT INDEX

Nov. 22, 1955	4,700							129	221	265		1.1					376	272		1,520	8.2
July 16, 1956	1,940							155	267	365		1.7					430	303		1,860	8.2

ROLLING FORK NEAR DE QUEEN

Jan. 16, 1956	8.6							17	3.0	14		0.5					21	7		88.1	7.0
July 13	1.4							26	12	74		.5					60	39		330	7.7

COSSATOT RIVER NEAR DE QUEEN

Jan. 16, 1956	21							24	1.0	3.5		0.8					18	0		113	7.4
July 13	28							26	1.0	3.0		.9					24	3		56.7	7.5
July 18	8.7							28	2.0	3.0		1.3					26	3		56.0	7.4

SALINE RIVER NEAR DYERKS

Nov. 21, 1955	9.9							22	1.0	5.5		1.6					17	0		49.2	7.4
July 18, 1956	.1							27	2.0	10		1.0					16	0		82.3	7.7

OUACHITA RIVER NEAR MOUNT, IDA

Nov. 7, 1955	28							51	2.0	3.0		1.1					46	4		111	8.0
June 19, 1956	40							40	2.0	2.5		.5					33	0		76.8	8.0

OUACHITA RIVER NEAR MALVERN

Nov. 7, 1955	2,640							40	2.0	2.5		1.0					36	3		81.9	7.5
June 20, 1956	101							36	13	2.5		.7					34	4		80.8	7.8

MUDDY FORK CREEK NEAR MUFFRESBORO

Nov. 21, 1955								29	4.0	3.5		0.9					23	0		66.5	7.1
July 19, 1956								26	2.0	3.5		2.4					19	0		61.6	7.6

RED RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
								Total	Non- carbonate				

GYPSUM CREEK NEAR OLUSTEE, JACKSON COUNTY

Jan. 5, 1956.....	5.16	680	171	--	108	0	1,400	2,400	2,310			7,140	7.9
Feb. 15.....	5.55	832	220	876	108	0	1,400	2,490	2,390			7,290	7.7
Mar. 15.....	5.03	848	205	--	100	0	1,300	2,460	2,380		7.6	7,280	7.6
Apr. 18.....	2.91	892	193	--	124	0	1,600	2,520	2,420			7,860	7.6
June 18.....	232	596	232	--	60	0	1,360	2,440	2,370			7,150	7.6
July 19.....	1.89	560	210	--	110	0	1,260	2,260	2,170			6,870	7.6
Sept. 6.....	.49	584	244	--	96	0	1,320	2,460	2,380			7,230	7.7

SALT FORK RED RIVER AT MANGUM, GREER COUNTY

Oct. 3, 1955.....	2,160	220	17	7.8	216	0	18	620	443	3	0.1	1,090	7.1
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TURKEY CREEK NEAR OLUSTEE, JACKSON COUNTY

Jan. 5, 1956.....	4.38	624	203	--	190	0	680	2,390	2,230	--	--	5,000	7.9
Feb. 15.....	3.69	576	210	--	138	0	670	2,300	2,190	--	--	4,890	7.8
Mar. 15.....	3.83	624	193	454	98	0	745	2,350	2,270	30	4.1	5,270	7.5
Apr. 18.....	1.90	640	205	368	102	0	770	2,440	2,360	25	3.2	5,330	7.9
June 18.....	2.21	596	198	310	68	0	625	2,300	2,240	23	2.8	4,690	7.6
July 19.....	12.8	68	9.8	17	126	0	28	210	106	15	.5	509	7.7
Sept. 6.....	.88	536	200	366	156	0	675	2,160	2,030	27	3.4	4,750	7.9

ALTUS LUGERT RESERVOIR NEAR LUGERT, KIOWA COUNTY

Jan. 5, 1956.....		126	38	95	132	0	140	470	362	31	1.9	1,310	7.8
Mar. 1.....		124	35	121	132	0	124	455	347	37	2.5	1,190	7.9
Apr. 17.....		142	29	104	144	0	138	475	357	32	2.1	1,340	7.9
Apr. 18.....		144	35	118	152	0	150	505	380	34	2.3	1,400	7.9
Apr. 25.....		132	39	88	148	0	138	490	368	28	1.7	1,330	6.8
June 1.....		152	40	106	140	0	153	545	430	30	2.0	1,440	8.0
July 2.....	263	155	42	119	142	0	155	560	444	32	2.2	1,450	7.9
July 18.....		154	33	97	130	0	155	520	414	29	1.9	1,390	8.0
Sept. 6.....		160	39	112	92	0	190	560	484	30	2.1	1,620	7.7

ELK CREEK NEAR HOBART, KIOWA COUNTY

Oct. 6, 1955.....	3,190	30	8.5	3.5	62	0	6.0	110	59	6	0.1	234	7.0
Oct. 7.....	1,154	60	15	12	138	0	14	210	97	11	.4	465	7.1
Jan. 4, 1956.....	5.90	142	96	126	352	0	132	750	462	27	2.0	1,780	8.2
Feb. 14.....	7.45	192	80	130	432	26	132	810	412	26	2.0	1,940	8.5
Mar. 14.....	3.66	184	117	162	410	0	159	940	604	27	2.3	2,070	8.2
Apr. 17.....	2.72	176	112	198	424	16	178	900	526	32	2.9	2,190	8.4
May 10.....	3.30	134	62	88	288	24	100	590	314	25	1.6	1,360	8.5

NORTH FORK RED RIVER NEAR HEADRICK, JACKSON COUNTY

Jan. 17, 1956.....	33.0	478	165		199	0	4,780	1,870	1,710			15,400	7.7
Feb. 2.....	11.4	485	175		137	0	5,310	1,930	1,820			16,800	7.8
Feb. 15.....	30.5	446	150		197	0	4,530	1,730	1,570			14,600	7.7
Mar. 12.....	9.85	525	182		215	0	5,070	2,060	1,880			16,600	7.9
July 11.....	13.4	655	157		147	0	4,470	2,280	2,160			15,100	7.7

DEEP RED RUN NEAR RANDLETT, COTTON COUNTY

Oct. 6, 1955.....	9,660	28	5.4	10	108	0	4.0	92	4	19	0.5	210	6.5
Mar. 12, 1956.....	1.39	112	60	431	500	0	680	525	115	64	8.2	3,190	7.9

LITTLE BEAVER CREEK NEAR DUNCAN, STEPHENS COUNTY

Oct. 31, 1955.....	0.50	134	52	27	256	0	47	550	340	10	0.5	1,050	7.5
Mar. 13, 1956.....	2.63	112	55	38	110	0	47	505	415	14	.7	1,040	7.8
Apr. 25.....	8.74	92	44	47	240	0	52	410	214	20	1.0	926	7.6

WASHITA RIVER NEAR FOSS, CUSTER COUNTY

Mar. 19, 1956.....	1.28	276	141	45	88	0	23	1,270	1,200	7	0.5	2,050	7.3
June 23.....	--	116	34	7.8	148	0	7.0	430	308	4	.2	803	7.6

RED RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA--Continued
Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
POND CREEK NEAR FORT COBB, CADDO COUNTY													
Oct. 19, 1955.....	27.9	109	29	37	204	0	21	390	223	17	0.8	832	7.4
Nov. 23.....	27.5	74	27	32	160	0	19	295	164	19	.8	719	7.9
Dec. 16.....	21.4	63	26	33	146	0	18	265	146	21	.8	665	7.9
Feb. 7, 1956.....	41.3	82	39	33	278	0	18	364	136	17	.8	783	7.9
Mar. 14.....	29.6	59	25	34	148	0	17	250	128	23	.9	628	7.6
Apr. 17.....	23.4	74	23	36	208	0	18	280	110	22	.8	678	7.7
May 10.....	18.7	56	27	35	126	0	17	250	146	23	1.0	611	7.7
July 19.....	8.90	91	23	30	184	0	21	320	169	17	.7	720	8.0

SUGAR CREEK NEAR GRACEMONT, CADDO COUNTY

Oct. 19, 1955.....	7.43	101	26	41	160	0	22	360	229	20	0.9	820	7.5
Nov. 23.....	5.77	88	27	34	184	0	22	330	179	18	.8	769	8.1
Dec. 16.....	3.20	92	29	34	198	0	23	350	188	17	.8	822	8.1
Feb. 7, 1956.....	15.2	98	23	29	252	0	16	340	134	16	.7	733	8.1
Mar. 14.....	9.37	85	31	34	208	0	17	340	170	18	.8	707	7.7
Apr. 17.....	5.89	91	18	32	238	0	22	300	105	19	.8	721	8.1
May 10.....	2.14	84	27	36	190	0	19	320	164	20	.9	719	8.0

LITTLE WASHITA RIVER NEAR MINNEKAH, GRADY COUNTY

Oct. 31, 1955.....	12.8	412	54	195	90	0	460	1,250	1,180	25	2.4	3,000	7.6
Mar. 12, 1956.....	11.2	394	49	165	202	0	300	1,160	994	24	2.1	2,580	7.9

FINN CREEK NEAR STORY, MCCLAIN COUNTY

Nov. 1, 1955.....	0.84	58	82	40	620	0	16	480	0	15	0.8	948	7.9
Jan. 4, 1956.....	1.22	64	83	37	466	16	18	400	18	17	.8	795	8.4
Feb. 15.....	1.63	24	80	39	164	0	15	490	356	15	.8	893	7.9
Mar. 30.....	.82	33	74	53	128	0	17	388	283	23	1.1	835	7.9
May 23.....	.63	424	45	32	424	0	14	325	0	18	.8	876	7.6
Aug. 22.....	---	40	54	34	410	0	14	324	0	19	.8	720	7.5

RUSH CREEK NEAR MAYSVILLE, GARVIN COUNTY

Oct. 6, 1955.....	47.8	46	16	17	144	0	48	180	62	17	0.6	450	7.6
Nov. 1.....	6.08	92	88	222	240	0	405	590	394	45	4.0	2,030	8.0
Jan. 4, 1956.....	9.10	88	83	156	240	0	350	560	364	38	2.9	1,890	7.8
Feb. 15.....	11.9	96	78	174	244	0	360	560	360	40	3.2	1,870	8.0
Mar. 30.....	6.31	108	88	190	312	0	330	630	374	40	3.3	1,930	7.4

WILDHORSE CREEK NEAR HOOVER, GARVIN COUNTY

Oct. 31, 1955.....	6.74	53	27	48	248	0	64	245	42	30	1.3	665	7.2
Jan. 4, 1956.....	6.91	52	63	81	320	0	120	390	128	31	1.8	1,080	8.0
Feb. 15.....	18.6	48	44	66	222	0	103	300	118	32	1.7	771	7.9
Mar. 30.....	8.56	33	55	74	240	0	105	308	112	34	1.8	865	7.7
May 23.....	2.90	50	46	73	300	0	105	315	69	34	1.8	896	7.9
July 19.....	.91	62	24	51	164	0	89	255	120	30	1.4	785	7.6
Aug. 22.....	--	78	40	75	204	0	173	360	193	31	1.7	1,010	7.4

HONEY CREEK NEAR DAVIS, MURRAY COUNTY

Nov. 1, 1955.....	4.30	54	14	7.6	220	0	8.0	192	115	8	0.2	369	7.7
May 23, 1956.....	1.40	61	19	6.1	274	0	11	232	8	4	.2	485	7.5
Aug. 22.....	.53	54	18	6.1	238	0	12	200	13	6	.2	390	7.3

LAWRENCE SPRINGS NEAR SULPHUR, MURRAY COUNTY

Dec. 26, 1955.....	2.65	33	39	13	280	0	13	244	14	10	0.4	456	7.9
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VENDOME SPRINGS NEAR SULPHUR, MURRAY COUNTY

Nov. 15, 1955.....	1.70	86	26	330	256	0	560	320	110	69	8.0	2,380	7.8
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RED RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				

ROCK CREEK NEAR DOUGHERTY, MURRAY COUNTY

Mar. 7, 1956.....	3.78	104	41	340	340	0	475	430	152	63	7.1	2,170	7.9
May 9.....	5.15	78	39	188	316	0	325	355	96	54	4.3	1,640	8.2
May 22.....	.41	86	40	273	280	0	488	380	150	61	6.1	1,160	7.6
June 15.....	5.04	74	33	245	162	0	412	320	187	61	5.7	1,850	7.7
July 19.....	1.89	86	38	328	236	0	580	370	176	66	7.4	2,310	7.9
Aug. 22.....	.54	72	54	479	240	0	800	400	204	72	10	3,040	7.4

OIL CREEK AT GODDARD RANCH, JOHNSTON COUNTY

Nov. 15, 1955.....	1.57	74	12	7.6	196	0	7.2	235	74	7	0.2	482	7.7
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BLUE CREEK AT CONNERVILLE, JOHNSTON COUNTY

Oct. 31, 1955.....	20.2	70	45	4.2	404	0	9.5	360	29	2	0.1	594	6.9
Jan. 4, 1956.....	15.3	74	40	2.7	428	0	4.0	350	0	2	.1	616	7.8
Feb. 14.....	18.0	18	41	4.0	242	0	2.4	214	16	4	.1	353	8.0
Mar. 29.....	15.4	56	29	6.1	250	0	3.3	260	55	5	.2	524	8.1
May 21.....	14.2	66	43	3.4	256	0	5.0	340	130	2	.1	601	7.7
July 18.....	14.2	67	49	2.4	416	0	5.0	370	29	1	.1	577	7.4
Aug. 21.....	14.7	51	51	2.6	364	0	6.0	335	36	2	.1	513	7.7
Aug. 28.....	13.2	43	43	2.4	360	0	5.8	300	5	2	.1	511	7.7
Sept. 24.....	11.8	40	46	2.8	354	0	3.6	290	0	2	.1	497	7.7

BLUE CREEK AT MILBURN, JOHNSTON COUNTY

Aug. 28, 1956.....	13.6	34	47	3.1	316	0	5.2	280	21	2	0.1	434	8.0
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BLUE RIVER NEAR FOLSOM, JOHNSTON COUNTY

Aug. 28, 1956.....	12.7	34	57	2.5	316	0	5.2	320	61	2	0.1	440	7.9
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BLUE RIVER NEAR BLUE, BRYAN COUNTY

Oct. 6, 1955.....	35.7	27	16	5.5	144	0	5.0	134	16	8	0.2	265	7.0
Dec. 13.....	24.3	59	40	11	338	0	8.0	310	33	7	.3	546	7.8
Jan. 11, 1956.....	23.7	56	39	7.6	330	0	9.4	300	30	5	.2	537	7.8
Mar. 9.....	29.1	56	33	11	296	0	8.2	274	32	8	.3	488	7.8
July 17.....	2.24	43	21	5.9	168	0	6.8	195	58	6	.2	391	7.2

LAKE MURRAY NEAR ARMORE, CARTER COUNTY

Nov. 5, 1955.....		34	17	24	171	0	24	154	14	25	0.8	375	7.7
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BYRD'S MILL SPRING NEAR ADA, PONTOTOC COUNTY

Nov. 29, 1955.....	10.3	58	39	4.7	364	0	5.4	305	6	3	0.1	548	7.7
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CHICKASAW CREEK NEAR STRINGTOWN, ATOKA COUNTY

Oct. 6, 1955.....	2.02	6.4	1.9	6.5	24	0	4.0	24	4	37	0.6	66.9	6.6
Oct. 12.....	.55	7.2	2.4	7.8	32	0	4.5	28	2	38	.6	90.5	6.6
Jan. 5, 1956.....	.02	13	3.8	7.2	60	0	4.0	48	0	24	.4	131	7.2
Feb. 14.....	.87	13	6.7	7.2	46	0	3.6	60	22	21	.4	127	7.0
Mar. 26.....	.94	6.4	3.4	6.7	28	0	7.0	30	7	33	.5	92.1	6.7
May 21.....	.09	7.6	5.1	6.0	23	0	8.0	40	21	25	.4	119	7.0
July 18.....	--	14	3.2	5.2	58	0	5.0	48	0	19	.3	120	6.8
Aug. 21.....	--	15	5.5	5.6	76	0	5.3	60	0	17	.3	146	6.5

MCGEE CREEK NEAR STRINGTOWN, ATOKA COUNTY

Mar. 1, 1956.....	11.7	6.4	1.9	4.1	20	0	8.2	24	8	27	0.4	88.0	6.8
Apr. 10.....	1.03	16	3.9	14	46	0	10	56	18	35	.8	155	6.7
May 8.....	5.00	14	1.7	5.6	37	0	9.0	42	12	22	.4	120	6.7
May 21.....	1.51	12	3.4	6.6	18	0	10	44	29	25	.4	131	6.1
May 25.....	1,430	6.0	4.1	2.7	0	0	3.8	32	32	16	.2	509	2.8
July 18.....	--	8.8	5.1	3.7	41	0	5.9	43	10	16	.2	109	6.6
Aug. 21.....	--	7.2	4.4	6.8	36	0	6.2	36	6	29	.5	104	6.4

RED RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA--Continued
Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Discharge (cfs)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Bicarbonate (HCO ₃)	Carbonate (CO ₃)	Chloride (Cl)	Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
								Total	Non- carbonate				
MUDDY BOGGY CREEK NEAR FARRIS, ATOKA COUNTY													
Dec. 14, 1955	1.58	22	11	20	84	0	22	100	31	30	0.9	260	7.3
Jan. 11, 1956	1.24	20	8.3	14	76	0	19	84	22	27	.7	236	7.4
Mar. 7	20.8	12	4.4	11	0	0	13	48	48	33	.7	168	4.5
May 10	39.2	10	7.3	6.7	0	0	9.0	55	55	21	.4	274	3.4
June 1	4,400	8.4	3.6	7.8	6	0	7.5	36	31	32	.6	137	6.3

BUCK CREEK NEAR MOYERS, PUSHMATAHA COUNTY

Jan. 5, 1956.....	0.69	6.4	4.9	15	42	0	17	36	2	47	1.1	150	6.9
Feb. 14.....	83	7.2	1.9	7.4	24	0	7.2	36	6	38	.6	84.8	6.7
Apr. 11.....	10.3	6.4	3.9	13	26	0	12	32	10	47	1.0	105	6.6
May 22.....	2.99	4.8	3.6	7.0	26	0	11	27	6	36	.6	90.6	6.8
July 18.....	.23	5.6	2.9	15	12	0	15	26	16	56	1.3	132	5.9
Aug. 21.....	2.70	5.0	2.6	17	36	0	13	23	0	62	1.5	116	6.3

RED RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN LOUISIANA

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
													Parts per million	Tons per acre-foot	Calcium, mg./l.	Non-carbonate					
BLACK BAYOU NEAR RODESSA																					
Nov. 18, 1955	0.26	13	0.98	4.4	2.0	5.5	1.8	23	1.4	10		0.5	51	0.07	0.04	19	0	36	0.5	79.1	6.0
June 7, 1956 .....	.32	13	1.1	3.9	1.7	5.4	1.6	16	1.4	9.5		1.8	47	.06	.04	17	4	38	.6	66.2	5.9
BLACK BAYOU NEAR LETON																					
Apr. 27, 1956	7.68	19	0.22	11	3.0		63	11	6.3	114		0.7	222	0.30	4.60	40	31	77	4.3	426	6.4
FLAT LICK BAYOU NEAR LETON																					
Oct. 24, 1955	0.09	15	0.59	527	137	4,460			7.4	8,240		0.9	13,400	18.2	3.26	1,880	1,880	84	45	22,000	3.9
Apr. 27, 1956	10.7	18	.03	82	24	696	2	2	8.5	1,280			2,110	2.87	61.0	303	302	83	17	3,980	5.3
BRUSHY CREEK NEAR HORTMAN																					
Apr. 26, 1956	0.48	14	0.18	16	6.7		16	81	4.4	22		1.3	121	0.16	0.16	67	1	35	0.9	213	6.9
CLARKE BAYOU NEAR HAUGHTON																					
Apr. 27, 1956	1.07	1.8	0.01	338	121	4,960	216	208	8,320				14,100		40.7	1,340	1,160	89	0.22	22,500	7.2
CANEY CREEK NEAR COTTON VALLEY																					
May 27, 1956	0.20	9.8	0.01	39	11	23	182	2.2	29			0.8	a 206		0.11	143	0	26	0.8	373	7.3
RAMBIN BAYOU NEAR FRIERSON																					
Apr. 4, 1956	6.66	16	0.21	26	16	60	88	69	83			0.4	314	0.43	5.65	131	59	50	2.3	548	7.3
BLACK LAKE BAYOU NEAR MINDEN																					
Apr. 27, 1956	11.0	18	0.47	2.0	1.2	3.1	1.5	8	4.6	4.5		1.0	40	0.05	1.19	10	3	36	0.4	43.0	5.6
GRAND BAYOU NEAR COUSHATTA																					
Dec. 12, 1955	1.81	18	0.35	4.4	1.2	8.2	3.2	15	4.5	14		0.2	61	0.08	0.30	16	4	47	0.9	84.3	6.2

a Residue on evaporation at 180°C.

RED RIVER BASIN - Continued
MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN LOUISIANA - Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956 - Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)			
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
BAYOU D'ARBORENE NEAR HOMER																						
Oct. 24, 1955	0.13	16	0.96	2.4	0.5	3.0	2.3	10	2.4	4.5		0.5		38	0.05	0.01	8	0	37	0.5	45.5	6.2
Apr. 27, 1956	8.08	14	.48	2.2	1.1	3.0	1.4	8	3.7	4.2		1.1		35	.05	.76	10	3	36	.4	41.5	5.1
BIG CREEK AT VIENNA																						
Dec. 7, 1955	23.1	17	0.32	2.3	1.3	3.9	1.8	10	6.3	4.5		0.8		43	0.06	2.68	11	3	39	0.5	52.1	8.3
MIDDLE FORK BAYOU D'ARBORENE NEAR COLQUITT																						
Oct. 24, 1955	0.01	11	0.46	4.9	1.4	7.4	2.3	24	2.8	10		0.5		53	0.07	0.00	18	0	43	0.8	81.6	6.6
Apr. 27, 1956	8.57	18	.32	8.1	2.4		23	12	-5.1	45		1.5		109	.15	2.52	30	20	62	1.8	189	6.4
BAYOU CHOUDRANT NEAR TREMONT																						
Oct. 19, 1955	4.34	15	0.29	2.0	0.8	2.9	1.8	12	1.7	3.5		0.5		34	0.05	0.40	8	0	37	0.4	37.5	6.5
Dec. 7, 1955	20.9	15	.38	3.1	.8	4.4	2.5	10	4.8	7.2		.5		44	.06	2.48	11	3	40	.6	54.6	6.2
BUSHLEY CREEK NEAR MANIFEST																						
Oct. 24, 1955	3.34	17	0.06	15	9.7		348	16	1.2	580		1.2		980	1.33	8.84	78	64	91	17	1,880	6.7
CYPRESS CREEK AT QUITMAN																						
Oct. 20, 1955	0.23	14	1.7	5.1	1.3		46	74	9.3	33		0.5		147	0.20	0.09	18	0	85	4.7	244	7.1
Jan. 18, 1956	4.79	14	1.1	3.9	1.5		21	44	7.7	12		1.2		84	.11	1.09	16	0	74	2.3	131	7.0
BAYOU FUNNY LOUIS NEAR TROUT																						
Nov. 22, 1955	0.3	12	0.06	13	7.3		450	46	2.1	710		0.0		1,220	1.66	0.99	62	25	94	25	2,290	6.9

MISSISSIPPI RIVER MAIN STEM
MISSISSIPPI RIVER NEAR ST. FRANCISVILLE, LA.

LOCATION.--At ferry on State Highway 10 crossing 2 miles southwest of St. Francisville, West Feliciana Parish.

RECORDS AVAILABLE.--Chemical analyses: August 1954 to September 1956.

EXTREMES, 1954-56.--Dissolved solids: Maximum, 320 ppm Oct. 11-20; minimum, 134 ppm Mar. 1-10.

Hardness: Maximum, 185 ppm Jan. 21-31; minimum, 85 ppm Mar. 1-10.

Specific conductance: Maximum, 683 micromhos Oct. 16, 1955; minimum, 205 micromhos Mar. 10.

Water temperatures: Maximum, 87°F Aug. 8, 11-13, 1955; minimum, 41°F Jan. 20.

EXTREMES, 1954-56.--Dissolved solids: Maximum, 320 ppm Oct. 11-20, 1955; minimum, 134 ppm Mar. 1-10, 1956.

Hardness: Maximum, 185 ppm Jan. 21-31, 1956; minimum, 85 ppm Mar. 1-10, 1956.

Specific conductance: Maximum, 683 micromhos Oct. 16, 1955; minimum, 173 micromhos Apr. 15, 1955.

Water temperatures: Maximum, 87°F July 12, Aug. 12, 1955; Aug. 8, 11-13, 1956; minimum, 41°F Jan. 20, 1956.

REMARKS.--Records of specific conductance of daily samples available in subdistrict office at Baton Rouge, La. No discharge records available.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent sodium	Soil adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate				
Oct. 1-10, 1955..		9.2	0.02	42	15		40	153	73	23	0.2	1.9		292	0.40	166	36	34	1.3	479	7.8
Oct. 11-20.....		8.0	0.02	43	13		50	137	78	52	.3	3.1		320	.44	162	50	40	1.7	523	8.1
Oct. 21-31.....		7.4	.04	39	11		32	119	66	30	.3	4.5		253	.34	143	46	33	1.2	413	8.0
Nov. 1-10.....		11	.00	44	12		31	136	65	31	.3	3.5		a265	.36	158	47	30	1.1	446	7.8
Nov. 11-20.....		10	.02	43	12		31	134	65	30	.4	3.5		a261	.35	156	46	30	1.1	435	8.0
Nov. 21-30.....		9.0	.02	44	13		29	133	68	30	.4	4.0		a262	.36	163	54	28	1.0	444	8.0
Dec. 1-10.....		6.0	.07	40	11		28	112	68	28	.5	4.2		250	.34	145	53	30	1.0	405	7.7
Dec. 11-20.....		7.4	.05	42	12		26	123	58	32	.5	3.5		251	.34	154	53	27	.9	407	7.9
Dec. 21-31.....		7.4	.06	42	11		25	130	51	30	.4	3.0		243	.33	150	44	27	.9	402	7.7
Jan. 1-10, 1956..		8.8	.06	47	14		25	162	47	31	.4	2.8		278	.38	174	41	24	.8	446	7.8
Jan. 11-20.....		8.0	.04	50	14		27	163	56	32	.4	3.0		296	.40	182	48	24	.9	473	7.7
Jan. 21-31.....		7.8	.05	51	14		28	168	57	33	.4	2.3		306	.38	195	47	25	.9	494	7.7
Feb. 1-5.....		10	.04	43	12		28	148	48	32	--	3.2		282	.36	157	36	28	1.0	424	8.1
Feb. 6-17.....		6.6	.09	28	7.8		13	84	30	18	.4	3.8		187	.23	102	33	21	.5	257	7.5
Feb. 18-28.....		10	.16	25	6.7		13	73	31	16	.4	4.2		185	.22	90	30	24	.6	237	7.3
Mar. 1-10.....		7.4	.13	24	6.1		13	70	30	15	.4	3.8		a134	.18	85	28	25	.6	239	7.8
Mar. 11-20.....		7.6	.12	26	6.8		10	74	32	12	.5	3.8		a135	.18	93	32	19	.5	254	7.8
Mar. 21-31.....		6.4	.06	27	6.9		11	75	36	12	.3	3.8		a140	.19	96	34	20	.3	281	7.8

a Calculated from determined constituents.

MISSISSIPPI RIVER MAIN STEM--Continued
MISSISSIPPI RIVER NEAR ST. FRANCISVILLE, LA.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium				Non-carbonate
Apr. 1-10, 1956..		11	0.07	30	6.5	13		83	37	14	0.4	3.3		158	0.21	101	33	22	0.6	261	7.8
Apr. 11-20		8.6	.10	31	8.0	18		86	47	18	.4	3.9		181	.25	111	40	26	.7	297	7.5
Apr. 21-30		9.0	.02	31	7.6	14		89	42	14	.3	3.4		166	.23	109	36	22	.6	279	7.5
May 2-10		9.4	.03	29	7.8	14		87	39	14	.3	3.2		a 160	.22	104	33	23	.6	266	7.5
May 11-20		9.0	.01	33	9.0	17		98	47	17	.3	3.2		a 184	.25	119	39	24	.7	312	7.4
May 21-31		7.4	.00	34	9.7	21		101	53	20	.2	3.5		a 199	.27	124	41	27	.8	339	7.3
June 1-10		11	.02	37	10	20		102	59	20	.3	4.0		a 211	.29	134	50	24	.7	357	8.0
June 11-20		9.4	.04	35	9.8	21		100	53	23	.3	4.0		a 204	.28	128	46	26	.8	343	7.9
June 21-30		7.8	.02	38	10	20		111	54	19	.3	4.5		a 209	.28	136	45	24	.7	351	8.0
July 1-10		11	.01	38	11	23		120	58	20	.4	3.2		234	.32	141	43	26	.8	374	7.8
July 11-20		11	.00	39	11	24		119	60	22	.4	3.2		240	.33	143	46	27	.9	384	8.1
July 21-31		11	.01	39	11	23		124	57	20	.5	3.2		235	.32	143	41	26	.8	378	7.9
Aug. 1-10		14	.05	38	11	26		120	64	19	.5	4.0		242	.33	140	42	29	1.0	382	8.1
Aug. 11-20		11	.02	38	11	25		115	67	18	.5	4.2		239	.33	140	46	28	.9	378	8.1
Aug. 21-31		8.6	.03	38	10	27		111	65	22	.5	3.5		240	.33	135	44	30	1.0	368	8.0
Sept. 1-10		11	.02	38	11	25		120	64	18	.4	2.5		240	.33	139	41	28	.9	381	8.2
Sept. 11-20		11	.01	39	12	26		132	67	16	.4	2.2		250	.34	147	39	28	.9	385	8.2
Sept. 21-30		6.4	.01	41	12	26		133	70	17	.4	1.5		250	.34	152	43	27	.9	404	8.1
Average		9.1	0.04	37	11	23		115	55	23	0.4	3.4		226	0.31	138	43	27	0.9	368	--

a Calculated from determined constituents.

MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER NEAR ST. FRANCISVILLE, LA.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	82	49	46	45	54	56	--	76	85	83	82
2	80	83	52	46	50	56	58	63	74	84	84	82
3	79	80	53	48	50	55	60	63	76	85	84	82
4	79	57	53	46	46	55	62	64	75	85	84	81
5	79	57	52	45	46	55	64	68	77	84	84	80
6	79	59	52	47	45	58	61	68	75	84	83	79
7	78	58	51	50	46	59	60	65	77	84	85	78
8	75	57	51	46	45	55	58	66	77	86	87	76
9	73	56	47	46	--	54	62	67	77	85	86	76
10	74	55	45	44	45	58	60	69	78	84	--	76
11	74	56	45	44	46	59	58	70	78	86	87	75
12	73	57	45	44	46	60	58	72	78	86	87	75
13	74	60	44	44	47	59	59	72	79	85	87	75
14	70	60	46	42	47	55	62	73	77	84	--	75
15	68	60	45	43	50	56	62	73	77	85	--	77
16	70	61	43	45	50	53	60	72	77	84	86	77
17	68	56	44	43	54	53	60	72	77	84	85	77
18	68	57	47	43	56	54	59	72	77	84	85	77
19	65	58	48	42	56	56	60	72	78	84	86	78
20	64	55	47	41	54	51	60	74	78	83	86	78
21	65	55	45	43	52	53	60	75	80	83	85	74
22	64	57	45	44	52	53	60	75	80	82	83	77
23	64	59	45	44	53	53	59	75	81	82	80	77
24	65	58	47	43	53	53	62	75	81	82	81	75
25	64	57	48	42	53	52	61	75	82	83	82	74
26	62	56	48	42	52	52	64	74	82	83	82	72
27	63	53	48	43	54	51	64	76	83	83	82	73
28	65	53	48	43	52	51	64	77	83	85	82	73
29	63	52	48	43	52	54	64	76	83	85	80	74
30	60	48	49	45	--	56	64	77	83	84	81	75
31	59	--	45	43	--	56	--	77	--	83	80	--
Average	70	57	48	44	50	55	61	72	79	84	84	77

LOWER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER DELTA

VERMILION RIVER AT BANCKER'S FERRY NEAR ABBEVILLE, LA.

LOCATION.--At Bancker's Ferry about 6 miles south of Abbeville, Vermilion Parish.

RECORDS AVAILABLE.--Chemical analyses: January 1949 to September 1956.

Water temperatures: January 1949 to September 1956.

EXTREMES, 1955-56.--Specific conductance: Maximum daily, 13,400 micromhos Aug. 31; minimum daily, 55.4 micromhos Feb. 4.

Water temperatures: Maximum, 89°F July 25, Aug. 14-15, 17-18; minimum, 50°F Dec. 16-17, Jan. 13.

EXTREMES, 1949-56.--Specific conductance: Maximum daily, 21,200 micromhos Sept. 18, 1954; minimum daily, 47.7 micromhos May 20, 1953.

Water temperatures: Maximum, 98°F Aug. 9, Sept. 3, 1951; minimum, 38°F Jan. 30, 1951.

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956

Day	October		November		December	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	359	73	1,410	--	887	222
2	662	--	1,530	--	2,350	732
3	590	--	930	--	203	42
4	575	--	791	--	309	74
5	592	--	905	242	110	20
6	566	--	1,510	418	114	--
7	712	188	421	97	123	--
8	359	--	209	41	179	--
9	395	--	215	--	185	--
10	379	--	240	--	211	--
11	369	--	227	46	219	--
12	330	--	238	--	280	61
13	313	55	227	--	211	--
14	377	--	246	--	254	--
15	329	--	274	60	217	--
16	327	--	258	--	192	30
17	372	--	284	--	204	--
18	493	105	311	--	197	--
19	423	--	316	70	212	--
20	423	--	253	--	256	50
21	429	88	320	--	297	--
22	573	--	315	--	222	46
23	575	--	328	71	351	--
24	686	--	319	--	289	--
25	637	--	295	--	473	118
26	786	--	1,010	--	657	172
27	790	--	1,190	--	336	--
28	777	--	1,200	312	266	--
29	838	--	633	--	224	--
30	987	262	657	159	225	--
31	922	--	--	--	311	74

MISSISSIPPI RIVER DELTA--Continued

VERMILION RIVER AT BANCKER'S FERRY NEAR ABBEVILLE, LA.--Continued

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956--Continued

Day	January		February		March	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	218	43	266	--	196	--
2	402	102	247	54	308	70
3	358	--	152	32	165	25
4	321	--	55.4	7.2	73.5	--
5	425	--	68.9	--	71.8	8.0
6	391	--	276	--	127	22
7	405	--	261	--	877	255
8	281	--	191	--	316	67
9	270	56	120	19	308	--
10	507	131	92.1	14	266	--
11	343	75	127	16	198	--
12	293	61	171	38	194	28
13	304	--	99.3	16	290	58
14	316	--	105	--	232	40
15	307	--	119	--	197	--
16	325	--	115	--	161	--
17	339	--	136	--	153	--
18	344	--	193	40	144	23
19	424	--	144	--	201	36
20	493	122	169	--	155	--
21	492	--	142	--	157	24
22	374	--	137	20	114	--
23	363	--	162	--	104	14
24	389	--	227	45	125	--
25	515	130	158	--	182	--
26	723	196	163	--	186	--
27	--	--	153	--	240	--
28	1,180	345	162	22	240	--
29	778	202	183	31	266	--
30	431	--	--	--	280	59
31	352	--	--	--	196	--

Day	April		May		June	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	198	34	329	66	186	33
2	199	--	281	--	519	101
3	180	--	316	--	423	--
4	177	--	200	30	1,010	270
5	168	--	234	--	669	156
6	152	20	284	--	436	--
7	199	--	434	--	379	--
8	217	--	367	--	431	--
9	167	--	422	--	447	88
10	252	52	481	113	400	--
11	168	23	332	--	418	84
12	169	--	236	37	418	--
13	169	--	223	--	439	--
14	285	--	256	--	335	58
15	290	61	233	--	385	--
16	311	--	401	74	347	--
17	177	--	377	--	259	34
18	174	--	658	147	304	--
19	238	43	473	--	349	--
20	157	21	403	--	521	113
21	149	19	352	45	639	155
22	164	--	349	--	556	--
23	196	--	294	42	509	--
24	223	42	294	--	329	--
25	207	--	309	--	303	--
26	203	--	330	--	319	--
27	247	40	318	--	282	--
28	212	--	312	--	275	54
29	208	--	201	--	343	--
30	237	--	139	--	329	--
31	--	--	149	17	--	--

LOWER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER DELTA.--Continued

VERMILION RIVER AT BANCER'S FERRY NEAR ABBEVILLE, LA.--Continued

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956--Continued

Day	July		August		September	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	325	68	6,400	1,970	13,000	4,310
2	306	--	4,580	1,350	10,600	3,390
3	282	--	3,520	1,010	5,780	1,750
4	296	--	2,570	--	5,580	--
5	316	--	2,580	--	4,400	--
6	359	77	2,520	--	3,450	1,000
7	331	--	2,580	740	1,990	542
8	362	--	2,690	--	867	209
9	361	--	2,600	760	1,270	--
10	287	57	3,390	980	1,990	--
11	324	--	6,260	1,940	4,420	1,340
12	381	83	9,400	--	6,630	2,090
13	1,600	440	10,900	3,490	8,080	--
14	3,450	1,020	11,000	--	8,600	--
15	3,780	--	11,500	--	8,790	--
16	3,860	--	11,300	--	9,970	3,170
17	4,370	1,370	11,300	--	9,970	--
18	5,230	1,440	10,500	--	9,150	--
19	6,430	--	8,570	2,670	7,470	--
20	6,860	2,100	7,840	--	7,990	--
21	7,630	2,375	3,240	--	6,660	--
22	8,920	--	2,490	695	9,490	--
23	9,850	--	4,010	--	10,900	3,470
24	10,200	3,320	4,500	1,350	3,470	1,000
25	11,200	--	6,390	1,990	4,170	--
26	11,300	--	8,650	--	7,880	--
27	10,700	--	10,300	--	5,030	--
28	10,000	3,200	12,700	--	7,680	--
29	7,480	2,325	13,000	--	8,860	--
30	6,530	--	13,100	--	9,150	2,920
31	6,550	2,020	13,400	4,460	--	--

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	85	69	58	59	56	63	67	78	80	85	86	85
2	85	69	57	60	56	65	69	76	80	86	85	85
3	84	67	60	61	53	66	69	76	80	86	85	84
4	84	64	63	59	55	66	70	75	80	86	86	84
5	85	65	61	58	51	66	72	75	80	86	86	84
6	85	66	58	60	51	68	72	76	81	87	85	85
7	84	62	56	60	52	70	72	76	81	87	86	84
8	79	60	58	58	53	66	71	77	82	87	87	82
9	76	58	55	56	56	64	71	78	82	86	87	82
10	78	56	53	56	56	66	68	79	83	85	86	81
11	79	55	54	54	53	67	65	80	82	85	87	81
12	78	59	55	52	52	68	65	81	83	85	87	81
13	79	62	51	50	55	65	67	81	82	86	87	81
14	76	63	51	56	56	65	68	81	81	86	89	82
15	79	64	51	52	58	65	70	82	82	85	89	82
16	75	66	50	53	58	63	69	81	82	87	88	82
17	74	64	50	51	60	62	69	80	82	87	89	81
18	71	64	52	54	64	63	68	81	81	88	88	81
19	71	65	53	51	67	63	68	81	80	88	88	82
20	71	64	52	51	67	60	68	82	81	88	88	82
21	71	64	53	52	67	59	69	82	81	87	86	79
22	70	64	55	52	65	59	70	83	81	85	84	83
23	70	65	56	53	66	58	69	84	82	85	84	83
24	71	64	56	53	67	60	68	84	83	86	84	80
25	70	65	59	53	68	60	68	84	83	89	84	80
26	69	62	60	52	64	61	69	84	86	86	83	79
27	70	62	60	--	66	62	70	85	86	86	83	78
28	71	61	61	55	65	65	72	83	87	86	84	78
29	70	57	62	58	63	65	74	83	87	86	83	78
30	69	57	62	58	--	66	75	82	86	86	84	79
31	68	--	60	56	--	69	--	80	--	86	85	--
Average	76	63	56	55	59	64	69	80	82	86	86	82

MISSISSIPPI RIVER DELTA--Continued

TICKFAW RIVER AT HOLDEN, LA.

LOCATION.--On U. S. Highway 190, half a mile west of Holden, Livingston Parish, and 4½ miles upstream from Big Branch. DRAINAGE AREA.--242 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to August 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1441.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 19, 1955	92	9.6	0.11	1.2	0.7	3.7	0.9	11	0.6	4.2		0.2	26	0.04	7.95	6	0	53	0.7	34.6	6.4
Nov. 19	98	11	.02	1.2	.7	3.5	1.0	13	.4	3.5		.2	28	.04	7.87	6	0	51	.6	31.1	6.4
Dec. 14	130	12	.14	2.0	.5	3.2	1.9	11	1.1	4.5		.2	31	.04	10.9	7	0	42	.5	33.5	6.4
Jan. 25, 1956	331	8.2	.18	1.1	.8	3.4	1.8	8	1.9	4.8		.5	27	.04	24.1	6	0	47	.6	32.4	5.9
Feb. 16	1,170	8.8	.21	1.2	.5	2.4	1.4	6	1.9	3.5		.7	24	.03	75.8	5	0	43	.5	34.6	5.6
Mar. 9	324	11	.11	1.8	.6	3.3	1.3	9	1.5	4.5		.9	29	.04	25.4	7	0	45	.5	34.2	6.0
Apr. 20	134	12	.07	1.4	.8	3.4	1.0	10	1.0	4.5		.4	30	.04	10.9	7	0	48	.6	34.0	6.3
May 10	138	11	.10	1.7	.8	3.3	1.0	10	.9	4.5		.4	29	.04	10.8	8	0	45	.5	34.1	6.5
June 7	112	11	.10	1.8	.9	3.5	.9	12	.7	4.2		.2	29	.04	8.77	8	0	45	.5	33.2	6.4
July 5	101	11	.07	1.9	.9	3.4	1.2	11	.6	4.0		.0	27	.04	8.73	6	0	49	.6	32.8	6.5
Aug. 6	164	11	.06	1.7	.7	4.3	1.1	12	.5	4.2		.9	29	.04	8.89	6	0	46	.8	31.3	6.4
Aug. 30	96	10	.10	1.0	.7	4.1	.9	11	.5	4.0		.3	27	.04	7.94	6	0	57	.8	31.8	6.6

MISSISSIPPI RIVER DELTA--Continued
BAYOU LA FOURCHE AT RACELAND, LA.

LOCATION.--At bridge on U. S. Highway 90 at Raceland, LaFourche Parish.

DRAINAGE AREA.--Indeterminate.

RECORDS AVAILABLE.--Chemical analyses: March to August 1956.

REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, March to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Mar. 21, 1956...		7.8		36	8.3	9.9	3.3	115	32	14		1.7	170	0.23		125	31	14	0.4	299	7.1
Mar. 24				--	--	--	--	102	--	17		--	--	--	--	115	32	--	--	300	7.1
Mar. 31				--	--	--	--	102	--	16		--	--	--	--	116	32	--	--	284	7.1
Apr. 7				--	--	--	--	92	--	14		--	--	--	--	108	32	--	--	274	7.2
Apr. 14				--	--	--	--	101	--	16		--	--	--	--	115	32	--	--	301	7.1
Apr. 21	6.4	0.02		37	9.7	17	--	107	49	18		5.6	196	.28		131	43	22	.7	347	6.9
Apr. 25				--	--	--	--	101	--	16		--	--	--	--	119	36	--	--	302	7.2
July 4				--	--	--	--	136	--	20		--	--	--	--	150	38	--	--	373	7.0
July 6				--	--	--	--	114	--	18		--	--	--	--	122	38	--	--	314	7.1
July 13				--	--	--	--	114	--	14		--	--	--	--	117	22	--	--	286	7.1
July 20				--	--	--	--	139	--	26		--	--	--	--	154	46	--	--	403	7.0
July 27				--	--	--	--	132	--	24		--	--	--	--	151	46	--	--	389	7.2
Aug. 3	7.2			42	11	24	--	132	52	23		2.0	229	.31		150	57	25	.8	389	7.2
Aug. 8				--	--	--	--	129	--	--		--	--	--	--	141	36	--	--	367	7.0

MISSISSIPPI RIVER DELTA.--Continued
OLD INTRACOASTAL CANAL AT LOCKPORT, LA.

LOCATION.--At State Highway 1 at Lockport, LaFourche Parish.
DRAINAGE AREA.--Indeterminate.
RECORDS AVAILABLE.--Chemical analyses: March to August 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, March to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nesium				Non-carbonate	
Mar. 21, 1956..		2.4		41	14	37	4.6	118	54	68		0.7		280	0.44		161	64	33	1.3	509	7.3
Mar. 24.....		--		--	--	--	--	126	--	62		--		--	--	--	140	52	--	--	486	7.2
Mar. 31.....		--		--	--	--	--	98	--	80		--		--	--	--	142	38	--	--	527	7.3
Apr. 7.....		--		--	--	--	--	119	--	36		--		--	--	--	124	44	--	--	356	7.5
Apr. 14.....		4.6	0.18	40	16	85	--	119	46	145		1.8		398	.54		166	68	53	2.9	751	6.9
Apr. 21.....		--		--	--	--	--	128	--	11		--		--	--	--	158	53	--	--	659	7.4
Apr. 25.....		--		--	--	--	--	100	--	22		--		--	--	--	124	42	--	--	338	7.2
July 4.....		--		--	--	--	--	111	--	52		--		--	--	--	116	25	--	--	390	7.0
July 7.....		--		--	--	--	--	112	--	50		--		--	--	--	115	23	--	--	382	7.1
July 14.....		--		--	--	--	--	110	--	75		--		--	--	--	113	23	--	--	444	7.2
July 21.....		--		--	--	--	--	114	--	74		--		--	--	--	104	10	--	--	432	7.0
July 28.....		--		--	--	--	--	115	--	72		--		--	--	--	114	20	--	--	442	7.0
Aug. 4.....		8.8		26	8.7	45	--	92	24	68		3.5		229	.31		101	25	49	2.0	419	7.2
Aug. 8.....		--		--	--	--	--	88	--	70		--		--	--	--	101	29	--	--	418	7.7

MISSISSIPPI RIVER DELTA.--Continued

OLD INTRACOASTAL CANAL NEAR BOURG, LA.

LOCATION.--At State Highway 316 at Bayou Blue, approximately 1½ miles north of Bourg, Terrebonne Parish.
 DRAINAGE AREA.--Indeterminate.
 RECORDS AVAILABLE.--Chemical analyses: March to August 1956.
 REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, March to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Mar. 21, 1956..		7.8		29	8.6	38	4.2	97	17	70	0.3	1.3		224	0.30		108	28	42	1.6	419	7.3
Mar. 24.....		--		--	--	--	--	102	--	77	--	--		--	--		110	26	--	--	447	7.2
Mar. 31.....		--		--	--	--	--	101	--	77	--	--		--	--		112	29	--	--	468	7.0
Apr. 7.....		--		--	--	--	--	99	--	64	--	--		--	--		114	33	--	--	424	7.3
Apr. 14.....		--		--	--	--	--	98	--	64	--	--		--	--		114	34	--	--	425	7.3
Apr. 25.....		7.8	0.08	33	99.6	45	--	108	24	74	--	2.4		249	.34		122	34	44	1.8	464	6.8
July 4.....		--		--	--	--	--	94	--	80	--	--		--	--		105	28	--	--	454	6.8
July 7.....		--		--	--	--	--	96	--	89	--	--		--	--		109	20	--	--	435	6.7
July 14.....		--		--	--	--	--	98	--	84	--	--		--	--		105	30	--	--	461	6.7
July 21.....		--		--	--	--	--	96	--	80	--	--		--	--		108	30	--	--	461	6.8
July 28.....		--		--	--	--	--	101	--	72	--	--		--	--		113	32	--	--	456	7.0
Aug. 4.....		6.7		30	8.6	53	--	101	33	76	--	2.0		260	.35		113	28	51	2.2	459	7.7
Aug. 8.....		--		--	--	--	--	99	--	78	--	--		--	--		113	32	--	--	461	7.5

MISSISSIPPI RIVER DELTA--Continued
OLD INTRACOASTAL CANAL AT GAYOSO, LA.

LOCATION --Approximately 3 miles east of Lockport, at Bayou Portuguese crossing Gayoso, LaFourche Parish.
DRAINAGE AREA --Indeterminate.
RECORDS AVAILABLE --Chemical analyses: March to August 1956.
REMARKS --No discharge records available for this station.

Chemical analyses, in parts per million, March to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Parts per million	Dissolved solids (calculated)		Hardness as CaCO ₃	Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Calcium	Tons per acre-foot	Non-carbonate				
Mar. 21, 1956 ...		7.0		36	11	20	3.7	122	38	29	0.2	0.6	206	0.28		135	24	0.7	378	7.3
Mar. 24		--		--	--	--	--	106	--	13	--	--	--	--	--	119	--	--	291	7.2
Mar. 30		--		--	--	--	--	121	--	43	--	--	--	--	--	131	--	--	456	7.2
Apr. 1		--		--	--	--	--	107	--	44	--	--	--	--	--	123	--	--	219	7.2
Apr. 14		--		--	--	--	--	108	--	43	--	--	--	--	--	130	--	--	430	7.3
Apr. 20		--		--	--	--	--	119	--	46	--	--	--	--	--	130	--	--	431	7.3
Apr. 25		8.6	0.21	42	14	36	--	135	27	67	--	8.2	289	.37	--	162	32	1.2	501	6.6
July 4		--		--	--	--	--	123	--	38	--	--	--	--	--	141	--	--	408	6.9
July 7		--		--	--	--	--	103	--	44	--	--	--	--	--	116	--	--	370	6.9
July 14		--		--	--	--	--	119	--	28	--	--	--	--	--	127	--	--	362	7.1
July 21		--		--	--	--	--	101	--	51	--	--	--	--	--	118	--	--	398	6.9
July 28		--		--	--	--	--	127	--	25	--	--	--	--	--	153	--	--	402	7.9
Aug. 4	6.2	--		40	11	28	--	129	51	32	--	2.0	233	.32	--	145	29	1.0	405	7.3
Aug. 8	--	--		--	--	--	--	110	--	47	--	--	--	--	--	122	--	--	404	7.2

MISSISSIPPI RIVER DELTA.--Continued
BAYOU LA FOURCHE AT VALENTINE, LA.

LOCATION.--At bridge on State Highway 1, at Valentine, LaFourche Parish.
DRAINAGE AREA.--Indeterminate.
RECORDS AVAILABLE.--Chemical analyses: March to August 1956.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, October 1955 to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./l.	Non-carbonate				
Mar. 21, 1956....		6.6		39	10	19	4.2	120	38	31		0.6		207	0.26		138	40	22	0.7	371	7.3
Mar. 24.....		--		--	--	--	--	120	--	36		--		--	--		138	46	--	--	308	7.2
Mar. 31.....		--		--	--	--	--	114	--	30		--		--	--		122	37	--	--	345	7.2
Apr. 7.....		--		--	--	--	--	102	--	38		--		--	--		122	38	--	--	370	7.2
Apr. 14.....		--		--	--	--	--	106	--	58		--		--	--		136	49	--	--	452	7.3
Apr. 21.....		5.8	0.02	38	12	36	--	118	44	54		2.6		250	.36		143	46	35	1.3	459	7.1
Apr. 25.....		--		--	--	--	--	100	--	26		--		--	--		128	46	--	--	352	7.3
July 4.....		--		--	--	--	--	122	--	36		--		--	--		136	36	--	--	402	7.0
July 7.....		--		--	--	--	--	118	--	40		--		--	--		127	30	--	--	383	7.1
July 14.....		--		--	--	--	--	114	--	42		--		--	--		121	28	--	--	380	7.0
July 21.....		--		--	--	--	--	108	--	46		--		--	--		122	34	--	--	392	7.0
July 28.....		--		--	--	--	--	129	--	28		--		--	--		145	40	--	--	392	7.2
Aug. 4.....	7.4	--		--	10	35	--	118	40	46		2.0		233	.32		128	32	37	1.3	425	7.0
Aug. 8.....	--	--		--	--	--	--	101	--	50		--		--	--		114	31	--	--	394	7.1

MISSISSIPPI RIVER DELTA--Continued
 MISCELLANEOUS ANALYSES OF STREAMS IN MISSISSIPPI RIVER DELTA IN LOUISIANA
 Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃	Non-carbonate	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
													Parts per million	Tons per acre-foot	Calcium, magnesium			

TCHEFUNCTA RIVER NEAR FOLSOM

Nov. 14, 1955....	76	9.6	0.02	1.0	0.7	2.8	1.0	9	0.6	3.2		0.5	28	0.04	5.75	5	0	48	27.2	6.4
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TANGIPAHOA RIVER AT ROBERT

Oct. 19, 1955...	351	14	0.10	1.8	0.9	4.6	1.5	17	1.2	4.2		0.2	39	0.05	40.0	8	0	50	44.8	6.6
Nov. 15	492	13	.03	1.6	.6	4.5	1.4	15	1.2	3.5		.2	36	.05	47.8	6	0	54	39.7	6.8

BAYOU LA FOURCHE AT NAPOLEONVILLE

Nov. 21, 1955...		5.6	0.00	47	11	37		146	69	34		4.6	281	0.38		162	43	33	1.3	479	7.6
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BAYOU LA FOURCHE AT THIBODAX

Nov. 21, 1955....		5.6	0.02	48	13	36		157	68	35		2.8	283	0.40		174	45	31	1.2	487	7.5
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BAYOU LA FOURCHE AT LOCKPORT

Nov. 21, 1956....		8.6		36	8.4	9.3	3.2	117	32	14		0.6	1170	0.23		125	29	14	0.4	297	7.3
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ATCHEAFALAYA RIVER AT KROTZ SPRINGS

Oct. 1-3, 1955....	7.4	8.8	0.00	63	16	95		173	96	132		1.2	505	0.69	10.1	223	81	48	2.7	874	7.7
Oct. 4-7	8.2	7.8	.04	42	9.4	41		127	55	49		1.5	272	.37	6.02	143	39	38	1.5	473	7.5

BAYOU des GLAISES DIVERSION CHANNEL AT MOREAUVILLE

Nov. 14, 1955....	14	17	0.01	64	27	59		320	55	55		1.8	440	0.60	16.6	270	8	32	1.6	750	7.6
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a Calculated from determined constituents.

MISSISSIPPI RIVER DELTA--Continued
 MISCELLANEOUS ANALYSES OF STREAMS IN MISSISSIPPI RIVER DELTA IN LOUISIANA--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued																					
Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)		
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
BAYOU TECHE AT ARNAUDVILLE																					
Nov. 16, 1955....	170	21	0.09	21	7.7	19	113	7.0	18		0.8		154	0.21	70.7	84	0	33	244	7.5	
BAYOU CARENCO NEAR SUNSET																					
Nov. 15, 1955....	1.0	6.4	0.02	279	80	4,240	37	6.1	7,240				111,900	16.2	32.1	1,020	994	90	58	19,100	6.6
WAX LAKE OUTLET NEAR FRANKLIN																					
Mar. 20, 1956....		5.6		26	6.0	15	3.0	72	30	24	2.1		147	0.20		90	31	26	0.7	263	7.3
ATCHAFALAYA RIVER AT BERWICK																					
Mar. 20, 1956....		6.0		26	6.1	15		70	30	26	2.1		148	0.20		90	33	26	0.7	265	7.4
BAYOU BOEUF NEAR MORGAN CITY																					
Mar. 20, 1956...		8.4		37	10	49	5.3	115	19	89	0.3		276	0.38		133	39	43	1.8	512	7.4
BAYOU TERREBONNE NEAR HOUMA																					
Mar. 20, 1956....		15		60	18	18	4.0	114	132	24	1.3		328	0.45		224	130	15	0.5	543	6.9
a Calculated from determined constituents.																					

^a Calculated from determined constituents.

MERMENTAU RIVER BASIN

MERMENTAU RIVER AT LAKE ARTHUR, LA.

LOCATION.--At bridge on State Highway 14, about half a mile east of Lake Arthur, Jefferson Davis Parish.

RECORDS AVAILABLE.--Chemical analyses: January 1949 to September 1956.

Water temperatures: January 1949 to September 1952.

EXTREMES, 1955-56.--Specific conductance: Maximum daily, 542 micromhos Aug. 4; minimum daily, 76.4 micromhos Feb. 26.

EXTREMES, 1949-56.--Specific conductance: Maximum daily, 6,330 micromhos June 30, 1952; minimum daily, 30.8 micromhos Aug. 10, 1951.

Specific conductance (micromhos at 25°C) and chloride, in parts per milliou,
water year October 1955 to September 1956

Day	October		November		December	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	182	--	194	--	357	--
2	186	25	200	--	365	90
3	186	--	226	37	318	--
4	--	--	179	--	314	--
5	--	--	190	--	178	--
6	--	--	170	--	192	42
7	--	--	179	--	182	--
8	--	--	175	--	182	--
9	226	33	175	26	152	30
10	196	--	195	--	160	--
11	204	--	171	26	171	--
12	207	31	--	--	153	--
13	191	--	142	21	154	32
14	195	--	149	--	154	--
15	202	--	159	--	214	48
16	194	--	156	--	155	--
17	191	25	138	--	162	--
18	205	--	134	--	183	--
19	196	--	137	--	207	--
20	195	--	146	--	194	--
21	197	--	147	--	175	--
22	205	30	147	--	177	--
23	203	--	147	--	190	--
24	193	--	150	22	232	50
25	193	--	342	--	184	--
26	182	25	365	82	182	--
27	193	--	354	--	184	--
28	194	--	353	--	187	--
29	185	--	355	--	187	36
30	193	--	353	--	185	--
31	198	--	--	--	161	--

WESTERN GULF OF MEXICO BASINS

MERMENTAU RIVER BASIN--Continued

MERMENTAU RIVER AT LAKE ARTHUR, LA.--Continued

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956--Continued

Day	January		February		March	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	170	--	118	--	82.0	11
2	162	35	128	26	122	18
3	167	--	124	--	118	--
4	218	--	122	--	134	--
5	220	50	120	--	115	--
6	--	--	120	--	115	--
7	--	--	125	--	--	--
8	354	91	120	--	114	--
9	346	--	120	--	171	29
10	350	--	100	17	140	21
11	359	92	108	18	140	22
12	346	--	105	--	140	--
13	347	--	104	--	137	--
14	346	--	--	--	136	--
15	348	--	77.4	11	141	--
16	346	--	78.8	--	139	--
17	346	--	81.0	--	137	26
18	345	89	81.1	--	155	30
19	353	--	81.9	--	85.2	16
20	345	--	81.7	--	83.5	--
21	--	--	90.1	14	95.7	--
22	344	--	94.9	--	97.9	--
23	343	--	98.5	--	102	--
24	347	89	77.9	11	94.6	--
25	121	--	78.1	--	94.6	--
26	116	23	76.4	--	112	20
27	118	--	82.0	--	86.0	14
28	121	--	84.0	--	86.7	--
29	118	--	86.2	--	86.3	--
30	119	--	--	--	87.2	--
31	127	--	--	--	109	--
Day	April		May		June	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	86.7	--	101	16	152	19
2	84.7	14	102	--	136	--
3	91.0	--	106	--	116	--
4	103	--	102	--	147	--
5	109	--	102	--	155	--
6	104	--	102	--	136	--
7	101	--	108	--	174	24
8	99.1	--	111	21	--	--
9	97.6	--	108	--	129	--
10	111	20	110	--	129	21
11	112	20	110	--	133	--
12	104	--	110	--	143	24
13	90.0	15	117	18	131	--
14	97.9	--	108	--	141	--
15	92.7	--	119	--	130	--
16	91.0	--	114	--	130	--
17	90.2	--	123	20	140	--
18	92.0	--	119	--	150	23
19	--	--	108	--	142	--
20	94.6	--	107	--	98.2	20
21	97.4	16	109	--	144	--
22	119	--	108	18	139	--
23	116	--	134	--	166	24
24	100	--	124	--	151	--
25	--	--	147	28	148	--
26	105	--	142	--	137	--
27	106	--	142	--	137	21
28	107	18	143	--	142	--
29	--	--	136	--	137	--
30	103	--	136	--	--	--
31	--	--	152	--	--	--

MERMENTAU RIVER BASIN--Continued

MERMENTAU RIVER AT LAKE ARTHUR, LA.--Continued

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956--Continued

Day	July		August		September	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	180	27	540	--	371	69
2	183	--	540	--	--	--
3	186	--	540	--	--	--
4	158	--	542	129	--	--
5	183	--	487	--	--	--
6	175	--	468	--	418	--
7	178	--	455	--	418	--
8	154	25	463	--	425	--
9	339	74	476	108	423	72
10	307	--	464	--	427	--
11	309	--	475	--	463	--
12	304	--	473	--	430	--
13	304	66	504	109	413	--
14	304	--	457	--	411	72
15	307	--	465	--	411	--
16	306	--	453	--	415	--
17	306	68	456	--	442	--
18	456	108	455	105	459	--
19	468	--	474	--	483	89
20	468	--	471	--	440	--
21	466	--	390	--	439	--
22	475	--	--	--	435	--
23	466	--	392	--	436	77
24	456	104	389	--	443	--
25	496	--	360	--	432	--
26	502	--	350	75	442	--
27	514	121	352	--	442	--
28	502	--	361	--	459	84
29	537	--	366	--	435	--
30	541	125	369	79	436	--
31	522	--	--	--	--	--

MERMENTAU RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN MERMENTAU RIVER BASIN IN LOUISIANA
Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Per- cent so- dium ad- sorp- tion ratio	Specific conductance (micro-mhos at 25° C)	pH		
													Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
BAYOU des CANNES NEAR EUNICE																					
Nov. 30, 1955,	38	12	0.76	8.2	2.8	14	40	5.3	16		1.5		81	0.11	8.3	32	0	48	1.1	138	6.5
Dec. 19	6.5	15	.80	10	3.9	20	51	5.6	26		0.5		107	.15	1.9	41	0	52	1.4	184	6.8
BAYOU NEZPIQUE NEAR BASILE																					
Nov. 30, 1955,	142	7.4	0.51	4.2	1.1	14	19	8.2	14		1.0		59	0.08	23	15	0	66	1.5	102	6.3

CALCASIEU RIVER BASIN

WHISKEY CHITTO CREEK NEAR OBERLIN, LA.

LOCATION --At gaging station near left bank on downstream side of bridge on State Highway 26, 1 mile downstream from Tenmile Creek, 8 miles upstream from Tenmile Creek and 10 miles northwest of Oberlin.

DRAINAGE AREA--10 square miles.

RECORDS AVAILABLE--Chemical analyses: October 1955 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃	Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)		
														Parts per million	Tons per acre-foot				Calcium, magnesium	Non-carbonate
Oct. 28 1955	178	20	0.06	2.2	0.8	6.8	1.6	20	0.9	6.5		0.2		49	0.07	9	0	58	1.0	55.5
Dec. 1	222	21	.09	2.8	.7	5.5	1.3	18	1.2	5.5		.5		48	.07	10	0	51	.8	47.3
Dec. 20	1,200	8.4	.31	1.7	.4	2.9	1.8	8	2.3	4.0		.2		28	.04	6	0	43	.5	32.5
Jan. 25 1956	2,700	5.2	.17	1.9	.5	2.0	1.7	4	2.3	2.8		.9		18	.02	4	1	40	.4	28.1
Apr. 19	325	23	.11	2.0	1.0	5.1	1.2	15	1.1	5.5		.4		46	.06	9	0	51	.7	47.5
May 18	214	23	.12	2.2	1.3	5.9	1.3	20	.9	5.8		.2		51	.07	11	0	51	.8	53.4
July 11	157	30	.08	2.8	1.0	6.3	1.4	21	.9	6.0		.2		59	.08	25	11	51	.8	57.0
Aug. 8	133	28	.06	3.0	.6	6.9	1.6	21	.9	5.8		.0		57	.08	20	10	55	.9	69.8
Sept. 7	192	17	.11	2.1	.8	4.8	1.5	16	1.0	4.8		.3		40	.05	8	0	50	.7	44.6

CALCASIEU RIVER BASIN--Continued

BUNDICK CREEK NEAR DRY CREEK, LA.

LOCATION.--At gaging station at bridge on State Highway 113, 1 mile northeast of town of Dry Creek and 8 miles upstream from mouth.
DRAINAGE AREA.--238 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to September 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- dium adsorp- tion ratio	Specific conductance (micro-mhos at 25°C)	pH	
													Parts per mil- lion	Tons per acre- foot	Tons per day	Hardness as CaCO ₃					
																Calcium, mag- nesium	Non-carbon- ate				
Oct. 27, 1955	86	36	0.32	3.5	1.3	12	35	1.6	7.2	0.0			79	0.11	18	14	0	65	1.4	81.4	7.2
Nov. 28	132	26	.39	4.0	1.0	12	30	1.9	8.8	.5			70	.10	25	14	0	64	1.4	82.8	6.4
Dec. 20	319	27	.22	3.3	.9	13	30	1.9	9.0				70	.10	60	12	0	69	1.6	83.7	6.4
Jan. 26, 1956	1,580	4.8	.26	1.0	.5	2.8	1.6	4	2.6	4.0	.7		20	.03	102	5	1	46	.6	32.4	5.4
Feb. 21	320	20	.22	2.9	3.6	5.6	1.3	15	1.8	6.8	.8		47	.06	41	11	0	49	.7	54.5	5.9
Mar. 21	240	19	.29	2.0	1.7	5.6	1.2	18	1.8	6.2	.7		47	.06	30	12	0	47	.7	56.9	6.1
Apr. 18	132	28	.18	2.8	1.0	8.0	1.3	22	1.5	7.0	.6		61	.08	22	11	0	58	1.0	68.7	5.8
May 17	86	36	.21	3.8	1.1	12	33	1.9	7.8	.4			79	.11	18	14	0	65	1.4	84.6	6.4
June 13	184	24	.16	3.6	1.2	18	37	10	8.2	1.1			84	.11	42	14	0	74	2.1	118	6.2
Sept. 6	84	18	.29	1.9	.9	--	18	1.5	4.8	.6			45	.06	10	8	0	55	.9	54.6	6.4

CALCASIEU RIVER BASIN--Continued

CALCASIEU RIVER AT MOSS BLUFF, LA.

LOCATION --At bridge on U. S. Highway 171 at Moss Bluff, Calcasieu Parish, 5 miles north-east of Lake Charles.

RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1956 (discontinued).

Water temperatures: October 1951 to September 1956 (discontinued).

EXTREMES, 1955-56.--Specific conductance: Top samples - Maximum daily, 15,600 micromhos Sept. 24; minimum daily, 38.0 micromhos Feb. 8. Bottom samples - Maximum daily, 33,200 micromhos Aug. 29; minimum daily, 41.1 micromhos Feb. 18.

Water temperatures: Maximum, 89°F Aug. 14; minimum, 46°F Dec. 16.

EXTREMES, 1951-56.--Specific conductance: Top samples - Maximum daily, 22,700 micromhos Sept. 19, 1954; minimum daily, 20.7 micromhos May 24, 1955. Bottom samples - Maximum daily, 36,200 micromhos Sept. 18, 1954; minimum daily, 25.5 micromhos Aug. 8, 9, 1955.

Water temperatures: Maximum, 89°F Aug. 14, 1956; minimum, 43°F Dec. 24, 1953.

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956

Day	October				November				December			
	Conductance		Chloride		Conductance		Chloride		Conductance		Chloride	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
1	823	14,600	192	5,000	5,000	26,700	--	--	4,240	28,800	--	--
2	798	12,400	--	--	5,930	27,400	1,860	10,300	4,800	28,300	1,460	10,500
3	813	14,800	--	--	3,720	24,800	--	--	4,430	10,900	--	--
4	1,050	17,200	--	--	4,180	26,200	--	--	2,490	4,890	730	1,480
5	1,520	18,100	--	--	4,500	26,300	--	--	1,560	1,710	--	--
6	2,800	18,400	820	6,510	5,120	26,700	--	--	780	898	212	248
7	2,530	17,300	--	--	4,270	26,700	--	--	361	490	--	--
8	673	1,350	174	390	3,810	26,800	--	--	193	332	--	--
9	507	538	--	--	3,360	28,300	--	--	161	212	--	--
10	545	605	--	--	4,640	28,800	--	--	142	156	32	35
11	859	13,100	--	--	4,440	29,000	--	--	158	189	--	--
12	817	16,400	--	--	3,730	25,400	--	--	154	188	--	--
13	845	15,500	--	--	3,650	26,200	--	--	184	15,600	44	5,350
14	706	14,500	--	--	3,090	27,900	--	--	466	28,600	--	--
15	1,450	15,100	--	--	3,620	28,300	1,090	10,800	801	19,900	--	--
16	1,150	17,200	310	6,070	4,700	24,700	--	--	2,450	24,100	--	8,730
17	720	15,700	186	5,450	3,740	25,200	--	--	997	22,600	745	--
18	1,130	17,600	--	--	4,360	24,200	--	--	1,180	26,200	--	--
19	1,670	17,700	--	--	4,850	27,300	--	--	801	25,400	220	9,170
20	1,480	18,400	--	--	4,720	27,300	--	--	737	24,500	--	--
21	1,570	19,900	--	--	4,580	27,600	1,380	10,100	490	24,800	128	9,170
22	1,320	20,800	--	--	3,930	27,200	--	--	733	16,100	--	--
23	1,580	21,500	--	--	2,850	25,400	--	--	456	5,470	--	--
24	1,580	22,500	448	8,230	3,620	29,300	--	--	370	11,800	--	--
25	1,590	22,300	--	--	3,310	29,300	970	10,800	428	9,210	110	2,920
26	2,080	23,500	--	--	3,560	29,300	--	--	352	4,550	89	1,380
27	2,770	24,900	--	--	3,510	28,000	--	--	314	2,010	--	--
28	3,400	25,700	--	--	3,130	26,800	--	--	358	1,990	--	--
29	3,150	25,300	--	--	3,860	17,400	--	--	588	15,400	--	--
30	3,330	26,100	--	--	3,570	28,300	--	--	636	22,300	--	--
31	4,550	25,500	1,400	9,510	--	--	--	--	763	22,200	--	--

CALCASIEU RIVER BASIN--Continued

CALCASIEU RIVER AT MOSS BLUFF, LA.--Continued

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956--Continued

Day	January				February				March			
	Conductance		Chloride		Conductance		Chloride		Conductance		Chloride	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
1	1,400	23,300	388	8,480	84.6	93.4	--	--	65.8	71.6	--	--
2	1,170	24,000	--	--	115	115	26	26	79.2	66.5	14	11
3	1,270	22,200	--	--	90.3	90.3	--	--	66.9	78.8	--	--
4	1,300	21,100	--	--	82.2	80.0	--	--	67.9	69.2	--	--
5	1,080	21,500	--	--	66.0	57.6	--	--	81.7	81.9	--	--
6	1,990	18,000	--	--	47.6	--	--	--	80.7	79.0	--	--
7	909	22,900	--	--	41.2	--	--	--	93.1	91.6	--	--
8	613	23,000	--	--	38.0	--	6.5	--	86.5	103	16	21
9	942	25,000	256	9,220	52.0	--	--	--	63.7	64.3	--	--
10	2,730	25,300	817	9,320	53.0	--	--	--	52.9	54.4	8.8	8.5
11	1,230	24,600	--	--	48.7	--	--	--	53.0	90.6	8.5	17
12	1,830	25,300	338	9,070	48.9	--	--	--	60.1	59.0	--	--
13	2,210	23,900	--	--	44.0	--	7.5	--	65.8	61.5	--	--
14	--	--	--	--	47.8	--	--	--	63.5	63.2	--	--
15	2,080	26,400	--	--	44.2	--	--	--	58.8	53.3	--	--
16	1,720	26,600	--	--	40.5	--	6.2	--	57.8	57.7	--	--
17	2,240	26,900	--	--	77.6	62.9	16	--	55.0	52.9	8.2	8.0
18	2,320	28,300	--	--	42.1	41.1	6.8	--	49.4	47.2	--	--
19	2,620	26,200	--	--	44.4	56.2	--	--	51.5	--	--	--
20	2,820	28,700	820	10,800	43.2	44.5	--	--	47.9	45.2	--	--
21	4,030	29,000	1,220	11,000	42.9	58.3	6.5	10	44.3	52.6	--	--
22	2,840	30,000	--	--	40.8	41.6	--	--	41.9	43.1	--	--
23	3,840	22,800	--	--	53.1	62.4	--	--	43.6	43.7	--	--
24	3,770	12,100	--	--	48.5	51.2	--	--	48.1	49.4	--	--
25	1,770	2,950	500	860	63.4	71.9	10	14	59.1	50.9	--	--
26	1,230	1,380	335	380	53.3	58.3	--	--	62.5	50.2	--	--
27	324	514	--	--	58.6	65.4	--	--	47.3	47.4	--	--
28	194	259	--	--	58.6	57.9	--	--	48.5	65.2	7.8	13
29	924	129	--	--	60.7	64.2	--	--	47.0	57.5	--	--
30	96.0	101	--	--	--	--	--	--	49.0	48.7	--	--
31	71.7	72.7	14	14	--	--	--	--	51.9	51.3	--	--
	April				May				June			
	Conductance		Chloride		Conductance		Chloride		Conductance		Chloride	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
1	58.5	57.6	--	--	555	12,500	139	4,070	2,020	12,500	--	--
2	60.3	60.8	--	--	881	10,600	--	--	1,440	13,700	382	4,540
3	80.5	81.5	--	--	506	9,460	--	--	1,910	16,700	--	--
4	71.6	68.1	--	--	363	5,340	--	--	1,860	18,200	--	--
5	78.6	74.1	--	--	208	5,160	--	--	1,910	17,900	--	--
6	81.5	79.1	--	--	437	5,330	--	--	2,350	18,700	--	--
7	73.0	74.4	--	--	437	4,980	--	--	2,880	18,900	--	--
8	77.9	102	--	--	469	1,930	117	538	2,820	18,900	810	6,460
9	80.4	97.1	12	17	496	1,980	--	--	2,780	18,400	795	6,460
10	55.7	55.1	--	--	1,310	5,760	362	1,780	2,740	17,200	--	--
11	50.8	48.0	7.5	7.8	1,790	7,300	--	--	3,320	16,100	--	--
12	57.6	52.2	--	--	1,450	5,610	--	--	3,530	18,100	--	--
13	58.2	50.6	--	--	6,910	2,100	--	--	4,440	19,500	1,350	6,960
14	56.2	72.6	--	--	2,200	6,830	615	2,140	5,130	21,200	--	--
15	56.2	55.4	--	--	1,920	5,700	--	--	5,850	22,600	--	--
16	57.0	62.6	--	--	952	2,850	--	--	5,020	23,600	--	--
17	72.2	62.8	--	--	583	3,880	148	1,040	5,270	23,600	1,620	8,680
18	60.5	61.8	--	--	876	4,520	--	--	4,470	22,100	--	--
19	62.9	61.5	--	--	1,410	4,260	--	--	4,340	21,500	--	--
20	61.0	86.5	9.8	16	1,170	4,930	--	--	3,870	16,600	--	--
21	66.5	72.0	--	--	1,580	6,410	--	--	3,410	18,700	1,010	6,630
22	185	263	--	--	1,700	5,790	--	--	3,390	16,000	--	--
23	245	4,640	59	1,430	1,650	6,630	--	--	3,390	13,900	--	--
24	766	10,500	--	--	2,170	6,480	--	--	2,660	12,800	--	--
25	740	11,500	--	--	1,980	8,540	--	--	2,400	15,500	--	--
26	711	13,200	--	--	2,410	9,780	--	--	3,300	19,200	960	6,980
27	854	14,800	--	--	3,180	10,300	--	--	1,920	19,600	--	--
28	649	15,000	166	4,960	3,880	12,300	--	--	1,660	17,900	455	6,290
29	1,380	10,900	--	--	4,400	12,700	--	--	2,310	18,700	--	--
30	823	13,200	--	--	3,250	13,300	1,410	4,110	2,520	17,900	--	--
31	--	--	--	--	--	12,100	--	--	--	--	--	--

CALCASIEU RIVER BASIN--Continued

CALCASIEU RIVER AT MOSS BLUFF, LA.--Continued

Specific conductance (micromhos at 25°C) and chloride, in parts per million,
water year October 1955 to September 1956--Continued

Day	July				August				September			
	Conductance		Chloride		Conductance		Chloride		Conductance		Chloride	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
1	2,580	19,500	725	6,810	6,870	31,400	--	--	11,300	30,200	3,740	11,400
2	3,060	19,100	--	--	6,960	31,200	2,170	11,800	8,240	30,500	--	--
3	2,930	18,600	--	--	8,560	30,600	--	--	6,960	29,600	--	--
4	2,710	16,900	--	--	9,300	29,200	--	--	6,670	31,000	--	--
5	2,930	17,300	--	--	9,130	29,300	--	--	5,580	30,000	--	--
6	2,750	16,100	--	--	8,860	27,500	--	--	5,770	30,300	--	--
7	3,020	16,800	880	5,800	9,610	28,200	3,070	10,500	5,870	30,300	--	--
8	4,210	18,400	--	--	10,700	28,900	--	--	4,850	30,300	1,460	11,400
9	4,560	18,100	1,360	6,290	8,850	29,600	--	--	4,880	33,100	--	--
10	4,330	17,700	--	--	8,730	29,600	2,820	11,200	5,830	31,500	--	--
11	4,530	19,200	--	--	9,400	30,600	--	--	7,700	32,300	2,480	12,300
12	4,730	19,600	1,450	6,830	9,100	31,200	--	--	8,050	32,100	--	--
13	6,570	20,700	--	--	8,340	31,800	2,620	12,000	8,880	31,900	--	--
14	6,530	21,100	--	--	7,980	32,400	--	--	10,200	31,900	3,340	12,100
15	6,590	21,200	--	--	8,340	31,800	--	--	10,500	31,600	--	--
16	6,450	20,800	--	--	10,200	31,800	--	--	11,000	31,300	--	--
17	6,310	20,800	--	--	11,000	31,800	--	--	11,300	31,200	--	--
18	6,140	20,600	1,880	7,170	8,760	31,400	--	--	10,400	30,600	--	--
19	6,690	19,600	--	--	10,700	31,000	--	--	10,500	30,400	--	--
20	6,740	19,000	--	--	11,500	30,900	3,790	11,700	11,800	30,600	--	--
21	7,060	15,500	--	--	9,940	30,400	--	--	11,400	30,000	--	--
22	6,820	18,800	--	--	11,000	30,500	--	--	11,800	30,300	--	--
23	6,550	20,100	2,000	7,110	10,500	31,600	--	--	12,700	30,500	4,240	11,500
24	6,460	21,700	--	--	11,000	31,300	--	--	15,600	30,800	--	--
25	6,600	22,500	--	--	10,400	31,600	3,390	11,900	14,900	30,000	--	--
26	6,480	23,300	--	--	9,250	31,600	--	--	14,900	30,500	5,000	11,600
27	6,370	24,200	--	--	8,630	32,200	--	--	12,700	30,300	--	--
28	7,380	25,500	2,310	9,370	9,650	32,900	--	--	13,400	30,700	--	--
29	6,240	27,200	--	--	8,650	33,200	2,750	12,700	11,700	29,800	--	--
30	7,260	29,700	--	11,200	10,300	33,100	--	--	11,600	30,600	--	--
31	6,530	31,300	2,010	--	10,700	31,900	--	--	--	--	--	--

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	68	55	57	57	63	68	72	80	85	85	82
2	81	69	58	60	59	65	69	72	77	85	85	81
3	82	57	62	61	55	64	70	72	76	85	85	84
4	81	63	58	57	53	64	69	74	78	84	84	82
5	82	64	59	58	50	66	72	75	79	86	86	82
6	83	65	58	61	53	68	71	75	79	86	83	82
7	82	64	59	61	52	69	70	76	80	85	85	80
8	77	62	60	56	55	64	70	77	81	86	85	78
9	75	60	55	54	54	62	69	77	81	85	87	79
10	75	59	54	55	54	64	65	77	78	86	86	78
11	75	61	53	53	54	65	64	77	81	85	88	77
12	77	66	53	53	54	65	63	78	80	85	88	78
13	77	69	52	52	56	63	65	78	79	85	88	81
14	72	70	53	--	57	62	66	79	78	86	89	81
15	73	71	53	54	60	60	68	80	82	86	87	81
16	73	72	46	54	62	58	66	76	83	85	86	82
17	71	63	52	52	63	58	67	77	80	85	87	82
18	71	63	57	53	64	59	67	77	80	86	87	80
19	69	65	56	50	66	60	67	77	80	86	86	82
20	70	63	53	50	65	57	68	80	81	86	87	81
21	69	62	53	52	64	58	68	80	80	85	81	79
22	69	65	54	53	63	57	67	80	83	84	80	81
23	70	64	57	54	63	58	67	81	83	84	81	81
24	70	68	61	55	65	59	67	81	83	83	81	79
25	68	62	62	54	65	59	67	81	83	85	82	77
26	67	60	62	52	62	62	68	81	83	85	83	76
27	69	61	61	55	65	64	69	81	84	85	83	79
28	72	58	62	57	62	66	72	80	84	83	80	78
29	67	56	62	59	62	65	73	80	83	83	82	82
30	65	54	61	57	--	65	73	80	84	85	84	77
31	65	--	57	57	--	67	--	80	--	85	83	--
Average	74	63	57	55	59	62	68	78	81	85	85	80

CALCASIEU RIVER BASIN--Continued
MISCELLANEOUS ANALYSIS OF A STREAM IN CALCASIEU RIVER BASIN IN LOUISIANA

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)			
													Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
HICKORY BRANCH NEAR KERNAN																					
Nov. 29, 1955.....	16	6.6	0.15	2.2	0.6	5.2	5.0	18	3.0	4.8		1.2	38	0.05	1.6	8	0	44	0.8	56.1	6.7
Dec. 20.....	7.2	20	.16	1.4	.6	6.4	1.7	10	1.4	9.0		0.2	46	.16	0.89	6	0	63	1.1	50.2	6.0

SABINE RIVER BASIN

SABINE RIVER NEAR TATUM, TEX.

LOCATION.--At gaging station at bridge on State Highway 43, 5 miles upstream from Potter Creek, 5.2 miles northeast of Tatum, Rusk County, 7 miles downstream from Cherokee Bayou, and at mile 339.

DRAINAGE AREA.--3,586 square miles.

RECORDS AVAILABLE.--Chemical analyses: February 1952 to September 1956.

Water temperatures: February 1952 to September 1956.

EXTREMES, 1953-56.--Dissolved solids: Maximum, 936 ppm Aug. 21-31; minimum, 126 ppm May 1-7, 10-16.

Hardness: Maximum, 105 ppm Aug. 21-31; minimum, 39 ppm May 1-7, 10-16.

Specific conductance: Maximum daily, 1,850 microhos Aug. 31; minimum daily, 148 microhos May 3.

Water temperatures: Maximum, 98 F Aug. 13; minimum, 42 F Feb. 10.

EXTREMES, 1952-56.--Dissolved solids: Maximum, 936 ppm Aug. 21-31, 1956; minimum, 82 ppm May 10-20, 1953.

Hardness: Maximum, 106 ppm Sept. 1-10, 1954; minimum, 29 ppm Sept. 9-10, 12-18, 1953.

Specific conductance: Maximum daily, 1,850 microhos Oct. 23, 1954, Aug. 31, 1956; minimum daily, 123 microhos May 10, 11, 1953.

Water temperatures: Maximum, 98 F Aug. 13, 1956; minimum, 42 F Feb. 10, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium				Non-carbonate	
Oct. 1-7, 1955 . . .	256	17		13	4.6		93	31	15	150		1.0	a 309	0.42	214	51	26	80	5.7	584	7.3
Oct. 8-20 . . .	113	17		16	5.4	130	40	15	210			.4	a 414	.56	126	62	29	82	7.2	789	7.1
Oct. 21-31 . . .	70.0	16		15	5.7	127	52	15	198			1.2	a 403	.55	76.2	61	18	82	7.1	749	7.1
Nov. 1-14 . . .	67.3	16		17	6.0	137	62	15	211			1.1	a 446	.61	81.0	68	17	81	7.2	821	7.1
Nov. 15-18 . . .	81.0	14		25	8.2	273	65	15	440			1.1	859	1.07	188	97	44	86	12	1,350	7.1
Nov. 19-30 . . .	101	15		16	5.6	141	58	15	217			.8	a 454	.62	124	62	14	83	7.8	828	7.0
Dec. 1-8 . . .	259	15		19	6.0	141	39	18	232			1.8	459	.62	321	72	40	81	7.2	885	7.2
Dec. 9-18 . . .	185	17		16	4.7	94	30	17	156			1.0	a 328	.45	164	59	34	78	5.3	612	6.8
Dec. 19-31 . . .	187	16		15	5.5	115	31	20	187			1.2	a 375	.51	189	61	36	80	6.4	719	7.0
Jan. 1-10, 1956 . . .	179	15		13	5.0	107	31	18	171			1.5	374	.51	181	53	28	81	6.4	659	6.9
Jan. 11-23 . . .	362	14		13	4.8	103	31	19	163			.6	365	.50	357	52	26	81	6.2	634	6.9
Jan. 24-31 . . .	621	16		10	4.4	58	16	23	93			1.4	248	.34	416	44	31	74	3.8	396	6.7
Feb. 1-10 . . .																					
Feb. 11-20 . . .	2,194	14		10	4.4	59	13	25	96			1.2	a 216	.29	280	44	33	75	3.9	411	6.4
Feb. 21-29 . . .	2,337	14		13	4.8	51	16	31	83			1.0	a 206	.28	300	53	40	68	3.0	377	6.9
Mar. 1-10 . . .	1,248	16		18	5.8	58	28	37	94			1.8	a 244	.33	322	68	45	85	3.1	441	6.5
Mar. 11-20 . . .	1,575	18		16	6.4	69	33	34	111			1.8	a 274	.37	425	71	44	68	3.5	502	7.4
Mar. 21-31 . . .	462	18		16	6.7	80	24	31	134			1.0	a 299	.41	373	67	48	72	4.2	563	6.8
	485	17		15	6.3	79	25	29	131			.8	a 290	.39	360	63	43	73	4.3	546	7.1

a. Calculated from determined constituents.

SABINE RIVER BASIN--Continued
SABINE RIVER NEAR TATUM, TEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180° C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Apr. 1-10, 1956..	385	12		20	7.9	106		42	37	170		1.2		393	0.53	409	83	48	74	5.1	693	7.7
Apr. 11-20.....	277	15		18	7.0	117		29	32	192		.9		412	.56	308	75	51	77	5.9	748	6.9
Apr. 21-30.....	7.8			18	7.0	143		36	28	230		1.2		472	.64	260	74	44	81	7.2	863	7.3
May 1-7, 10-16..	4,697	11		11	2.7	28		33	15	40		1.8		a126	.17	1,600	39	12	61	2.0	230	7.2
May 8-9, 17-20..	1,875	15		17	4.5	50		49	21	75		1.7		a208	.28	1,050	60	20	65	2.8	380	7.3
May 21-31.....	196	18		20	6.3	98		58	20	155		1.0		a347	.47	184	76	28	74	4.9	651	7.3
June 1-10.....	110	20		20	7.5	130		60	24	205		1.5		a438	.60	130	81	32	78	6.3	825	7.5
June 11-20.....	89.2	15		22	7.7	160		60	23	255		.5		a513	.70	124	86	37	80	7.5	1,010	7.6
June 21-30.....	57.2	13		21	8.1	178		72	24	275		.5		a555	.75	85.7	86	27	82	8.3	1,060	7.4
July 1-10.....	40.9	12		24	9.0	213		85	24	330		1.2		667	.91	73.7	98	28	83	9.4	1,260	7.6
July 11-20.....	28.7	6.8		24	8.8	196		123	24	280		1.0		a601	.82	46.6	96	0	82	8.7	1,130	7.5
July 21-31.....	22.6	6.4		21	8.4	186		105	23	270		1.2		568	.77	34.7	87	1	82	8.7	1,090	7.3
Aug. 1-10.....	21.0	13		21	7.6	174		132	14	240		1.3		a536	.73	30.4	83	0	82	8.3	1,030	7.9
Aug. 11-20.....	15.7	12		24	9.0	248		123	15	368		1.9		763	1.04	32.3	98	0	85	11	1,420	7.9
Aug. 21-31.....	14.2	8.8		26	10	315		120	19	475		1.1		936	1.27	35.9	105	6	87	13	1,750	7.8
Sept. 1-10.....	17.2	7.8		25	8.7	314		138	21	498		.8		919	1.25	42.7	99	0	87	14	1,730	8.2
Sept. 11-20.....	14.4	6.6		21	7.8	275		155	21	378		1.0		811	1.10	31.5	85	0	88	13	1,520	8.0
Sept. 21-30.....	11.6	5.8		20	7.8	250		157	24	335		.8		746	1.01	23.4	83	0	87	12	1,390	8.0
Weighted average	516	14		13	4.4	60		30	23	95		1.4		229	0.31	319	50	26	72	3.7	420	--

a Calculated from determined constituents.

a Calculated from determined constituents.

SABINE RIVER BASIN--Continued

SABINE RIVER NEAR TATUM, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	64	50	53	54	60	--	--	84	90	85	88
2	84	67	52	59	50	60	69	68	--	92	85	86
3	82	60	52	58	47	63	69	69	83	91	90	86
4	82	60	52	55	46	67	71	70	83	90	90	88
5	82	64	--	51	46	69	70	76	84	91	92	86
6	80	64	54	53	45	69	--	74	85	90	92	89
7	80	60	54	54	47	63	70	74	85	92	94	81
8	78	60	57	50	--	65	70	74	83	92	88	86
9	74	58	52	46	45	62	--	74	85	85	90	86
10	76	55	51	--	42	64	60	76	86	90	94	75
11	78	54	51	53	50	--	62	76	86	90	92	85
12	78	62	45	47	50	59	62	--	86	90	92	85
13	78	65	43	46	50	--	63	80	84	90	98	87
14	72	67	43	49	52	56	66	77	85	90	90	87
15	72	65	43	48	52	56	66	76	83	90	--	87
16	72	65	43	46	55	54	65	78	86	86	94	87
17	70	55	45	45	58	60	66	78	86	90	87	78
18	70	55	46	43	57	60	68	78	86	90	93	83
19	70	60	46	44	57	59	65	80	86	--	93	--
20	69	60	46	43	60	57	--	80	86	90	85	82
21	69	50	47	43	57	55	66	80	90	90	79	82
22	69	55	48	45	59	54	66	82	85	87	79	82
23	67	55	54	47	58	57	65	85	86	87	76	80
24	65	55	54	45	58	62	70	83	84	92	84	80
25	65	55	55	45	57	62	70	83	--	94	84	80
26	65	60	56	46	--	65	70	84	92	--	84	73
27	65	50	57	48	61	65	--	84	93	87	84	82
28	65	50	57	51	60	67	70	85	88	92	86	73
29	67	50	56	--	60	67	70	85	85	92	84	74
30	65	50	56	54	--	68	72	85	90	87	87	75
31	60	--	55	52	--	68	--	83	--	87	84	--
Average	73	59	51	49	53	62	67	79	83	90	88	83

SABINE RIVER BASIN--Continued

BAYOU SAN PATRICIO NEAR NOBLE, LA.

LOCATION.--At gaging station near right bank on downstream side of bridge on U. S. Highway 171, 1.6 miles downstream from Kansas City Southern Railway bridge and 2.5 miles northwest of Noble.

DRAINAGE AREA.--154 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1955 to May 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 18, 1955	6.2	30	0.85	3.2	0.7	5.3	2.7	20	4.2	4.0		0.2		61	0.08	1.0	11	0	44	0.7	55.0	6.5
Nov. 30	.6	15	.06	13	6.1	52	59	59	2.3	84	.2	.2		202	.29	.35	57	9	66	3.0	380	7.3
Jan. 5, 1956	.9	14	.09	11	5.0	95	40	59	7.0	152	.2	.2		304	.43	.77	48	15	81	6.0	577	6.6
Feb. 29	19	15	.72	15	4.6	53	26	26	18	84				199	.27	1.0	43	22	73	3.5	360	6.5
Mar. 27	28	14	.65	10	6.0	46	30	30	24	70	.9	.9		186	.25	1.4	50	23	67	2.8	338	6.5
Apr. 25	12	16	.78	11	5.3	85	30	36	16	137	.7	.7		287	.39	9.3	49	23	53	5.3	542	6.3
May 23	5.2	15	.92	9.1	3.7	39	38	38	11	56		1.3		135	.21	2.2	38	7	69	2.1	273	6.0

SABINE RIVER BASIN--Continued
SABINE RIVER NEAR RULIFF, TEX.

LOCATION.--At gaging station at bridge on State Highway 235, 2.4 miles north of Ruliff, Newton County, 4.2 miles upstream from Kansas City Southern Railway bridge, 4.5 miles downstream from Cypress Creek and at mile 40.

DRAINAGE AREA.--9,440 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1956.

Water temperatures: October 1947 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 193 ppm July 11-20; minimum, 63 ppm Feb. 6-16.

Hardness: Maximum, 44 ppm June 1-10; minimum, 16 ppm Jan. 23-31, Feb. 6-16.

Specific conductance: Maximum daily, 393 micromhos July 1; minimum daily, 61.1 micromhos Apr. 8.

Water temperatures: Maximum, 88°F on many days during July and August; minimum, 48°F Feb. 6, 7.

EXTREMES, 1945-46, 1947-56.--Dissolved solids: Maximum, 411 ppm Dec. 26-27, 1948; minimum, 35 ppm June 5-11, 1950.

Hardness: Maximum, 65 ppm Dec. 21-22, 1954; minimum, 8 ppm May 20-24, 1953.

Specific conductance: Maximum daily, 774 micromhos Dec. 26, 1948; minimum daily, 32.9 micromhos May 22, 1953.

Water temperatures (1947-56): Maximum, 95°F Aug. 12, 1953; minimum, 34°F Jan. 28, 1948.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium magnesium	Non-carbonate				
Oct. 1-9, 1955....	1,838	17		6.5	2.1	30		28	6.7	41		3.2		134	0.18	665	25	2	72	2.6	201	7.0
Oct. 10-20.....	1,275	18	8.7	8.7	3.0	38	35	35	8.8	54		2.2		157	.21	540	34	5	71	2.8	258	7.0
Oct. 21-31.....	908	21	7.7	2.8	33	39	36	36	7.1	45		1.5		140	.19	343	31	1	70	2.6	226	7.2
Nov. 1-10.....	900	23	7.0	2.6	29	33	36	6.0	39			1.0		132	.18	321	28	0	69	2.4	204	7.0
Nov. 11-20.....	958	22	6.4	2.4	27	33	37	5.7	37			.8		128	.17	328	26	0	70	2.3	191	7.0
Nov. 21-30.....	1,016	23	6.6	2.3	28	32	32	5.4	39			.7		129	.18	354	26	0	70	2.4	196	6.7
Dec. 1-10.....	2,592	14	5.4	1.6	28	20	20	5.3	38			.5		111	.15	777	20	4	74	2.5	172	6.6
Dec. 11-20.....	1,801	15	6.4	2.4	35	27	27	7.7	51			.8		144	.20	700	26	4	75	3.0	235	6.8
Dec. 21-31.....	1,546	16	8.2	2.6	38	27	27	8.5	59			.5		155	.21	647	31	9	73	3.0	261	7.0
Jan. 1-13, 1956..	1,157	19	8.6	3.0	43	31	31	8.8	66			1.0		176	.24	550	34	8	74	3.2	291	7.1
Jan. 14-22.....	1,308	18	7.4	2.6	39	31	31	8.1	58			.3		158	.21	558	29	4	75	3.2	260	6.9
Jan. 23-31.....	7,490	8.8	4.2	1.3	17	12	12	7.1	24			.5		a 89	.09	1,400	16	6	69	1.8	122	6.3
Feb. 1-5.....	5,284	12	5.6	2.0	27	15	10	41				.5		a 95	.14	1,500	22	10	73	2.5	185	6.8
Feb. 6-16.....	19,400	8.8	4.0	1.4	14	8	9.9					.5		a 93	.09	3,300	16	10	65	1.5	110	6.3
Feb. 17-29.....	9,728	12	7.0	2.6	24	14	16	36				.8		a 105	.14	2,760	28	16	65	1.9	184	6.6
Mar. 1-12.....	5,620	15	7.4	3.4	25	18	19	38				.5		a 118	.16	1,790	35	20	61	1.8	210	6.5
Mar. 13-20.....	5,968	13	7.6	2.8	20	19	15	30				1.2		a 99	.13	1,580	30	13	59	1.9	174	6.4
Mar. 21-31.....	5,457	14	7.3	3.4	22	20	17	33				.5		a 107	.13	1,580	32	16	60	1.7	185	6.4

a Calculated from determined constituents.

SABINE RIVER BASIN--Continued

SABINE RIVER NEAR RULIFF, TEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate					
Apr. 1-5, 1956 ..	3,170	17		9.8	3.8		38	26	32	47		1.0		164	0.22	1,400	40	18	67	2.6	252	6.6
Apr. 6-14, 16-17.	3,020	9.2		4.6	1.6		14	13	9.7	19		1.5		a 66	.09	1,510	16	8	63	2.4	212	6.1
Apr. 15, 18-30...	3,493	16		8.0	3.4		26	27	16	29		1.0		a 124	.17	1,370	34	12	64	2.1	248	6.5
May 1-14.....	1,600	17		8.6	1.6		34	31	16	36		1.5		a 143	.09	1,350	36	10	67	2.5	248	7.2
May 15-31.....	7,096	14		4.6	3.2		16	15	9.5	21		1.2		a 69	.09	2,180	18	6	66	1.8	219	6.8
June 1-10	1,659	19		11	3.9		27	38	15	36		1.6		a 127	.17	2,430	41	10	59	1.8	219	6.9
June 11-20	1,598	17		8.6	3.0		30	48	12	40		1.0		152	.21	681	44	8	60	2.0	240	7.7
June 21-30	1,270	17		12	3.1		26	39	8.2	35		1.0		127	.17	548	34	2	63	2.0	193	7.3
July 1-10	950	20		11	3.5		32	51	7.9	43		1.0		153	.21	525	42	0	62	2.1	232	7.7
July 11-20	607	22		11	3.6		43	50	9.7	60		1.5		177	.24	454	42	1	69	2.9	298	7.0
July 21-31.....	521	21		9.0	3.0		34	49	6.8	43		1.0		193	.26	316	42	0	72	3.3	332	7.3
Aug. 1-10	411	22		9.4	3.1		31	48	5.8	40		1.5		151	.21	212	35	0	68	2.5	236	7.1
Aug. 11-20	358	22		8.4	3.2		34	48	5.9	44		1.5		146	.20	162	36	0	65	2.2	228	7.6
Aug. 21-31	325	22		9.0	3.3		40	50	6.1	52		1.2		150	.20	145	34	0	69	2.6	238	7.5
Sept. 1-10	387	21		9.0	3.3		38	43	10	52		1.2		163	.22	143	36	0	70	2.9	265	7.4
Sept. 11-20	313	21		7.0	2.8		36	44	5.6	46		1.8		170	.23	178	36	1	70	2.8	273	7.4
Sept. 21-30	278	21		7.6	2.9		37	47	5.3	48		1.8		152	.21	128	29	0	73	2.9	246	7.4
Weighted average	3,421	13		6.8	2.4		23	21	12	33		0.9		103	0.14	951	27	10	65	1.9	176	--

Calculated from determined constituents.

a Calculated from determined constituents.

SABINE RIVER BASIN--Continued

SABINE RIVER NEAR RULIFF, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
 /Once-daily measurement, usually at 8 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	72	54	60	58	62	68	80	78	86	87	86
2	86	70	54	60	58	63	70	80	80	86	87	86
3	86	68	60	60	56	64	--	77	81	86	87	84
4	85	68	62	60	73	65	72	78	81	86	88	84
5	86	68	63	60	49	66	72	78	82	86	88	84
6	86	68	64	60	48	68	70	76	82	86	88	83
7	86	64	64	62	48	66	68	74	82	86	88	80
8	83	61	62	--	54	64	68	76	82	--	86	80
9	84	--	59	60	53	62	68	76	83	88	88	--
10	84	61	58	58	52	64	66	78	83	87	88	82
11	82	62	56	57	52	64	68	78	83	87	88	84
12	80	62	54	56	52	64	64	78	83	88	88	84
13	80	68	52	54	52	64	64	79	82	87	88	84
14	79	70	50	--	55	64	64	80	80	86	88	84
15	78	72	49	--	58	63	65	80	80	87	88	84
16	75	70	50	53	59;	62	66	80	80	87	88	84
17	72	68	52	54	61	60	67	80	80	88	87	84
18	72	68	56	52	64	59	67	80	80	88	87	84
19	70	68	56	50	68	58	67	80	80	88	86	84
20	70	66	58	50	68	58	67	80	80	88	86	83
21	68	66	58	50	68	58	68	80	82	88	86	80
22	70	66	60	52	64	58	68	80	83	87	85	--
23	72	64	60	--	62	58	68	80	84	87	84	80
24	70	63	64	--	64	58	68	80	84	--	84	80
25	68	62	64	54	66	58	71	80	84	87	83	78
26	69	62	66	54	64	58	72	80	84	86	82	74
27	69	63	67	60	64	58	77	80	86	85	80	72
28	70	60	64	60	64	58	77	80	86	87	80	74
29	69	55	64	60	64	68	80	80	86	88	82	76
30	67	54	64	--	--	68	80	80	86	88	84	79
31	--	--	60	--	--	68	--	80	--	--	84	--
Average	77	65	59	--	59	62	69	79	82	87	86	81

SABINE RIVER BASIN--Continued

COW BAYOU NEAR MAURICEVILLE, TEX.

LOCATION.--At gaging station at bridge on State highway 235, half a mile upstream from Kansas City Southern Railway bridge, and 3 miles southwest of Mauriceville, Orange County.

DRAINAGE AREA.--127 square miles.

RECORDS AVAILABLE.--Chemical analyses: March 1952 to December 1955.

Water temperatures: March 1952 to September 1954.

EXTREMES, 1952-55.--Dissolved solids: Maximum, 1,030 ppm July 29-31, 1953; minimum, 23 ppm Apr. 23-30, 1952.

Hardness: Maximum, 186 ppm Nov. 1-9, 1953; minimum, 8 ppm Nov. 15-17, 1954, Jan. 14-24, 1955.

Specific conductance: Maximum daily, 2,190 micromhos Aug. 24, 1953; minimum daily, 22.0 micromhos Apr. 24, 1952.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, October to December 1955

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, non-carbonate	Non-carbonate				
Oct. 1-10, 1955...	0.27	8.0		4.5	1.9	30		18	3.6	46		0.8		104	0.14	0.08	19	4	77	3.0	199	6.7
Oct. 11-14 .....	.10	14		14	5.5	63		41	8.5	107		.8		233	.32	.06	57	23	71	3.6	441	7.0
Oct. 17-31	0	22		26	12	122		74	15	215		1.2		a 461	.63	--	115	54	70	4.9	809	7.3
Nov. 1-10	0	25		29	14	136		83	18	240		.5		a 520	.71	--	130	62	69	5.2	932	7.2
Nov. 11-12, 22-26	0	16		18	8.7	91		56	12	157		.8		332	.45	--	82	36	71	4.4	620	7.4
Nov. 27-30	0	5.6			5.0	2.3	30	18	5.8	47		.5		105	.14	--	22	7	75	2.8	201	6.8
Dec. 1-2, 11-17	10.7	6.8		3.2	1.7	9.6	2.7	4	8.3	17		.5		52	.07	1.50	15	12	53	1.1	84.9	5.9
Dec. 3-10, 20-21	42.7	4.6		5.2	1.7	34	6	5.4	5.8	58		.5		113	.15	13.0	20	15	78	3.3	220	6.0
Dec. 18-19	209	2.7		1.8	1.1	5.3	2.5	6	4.7	8.5		.5		30	.04	16.9	9	4	49	.8	56.8	6.2
Dec. 22-31	26.3	5.9		3.6	1.7	12		8	4.5	21		.8		54	.07	3.83	16	9	61	1.3	96.1	6.0

a Residue on evaporation at 180°C.

SABINE RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN SABINE RIVER BASIN IN LOUISIANA
Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium in total hardness	Specific conductance (micro-mhos at 25°C)
													Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate		

BUSINECK BAYOU AT LONGSTREET

Oct. 17, 1955	0.045	14	0.19	23	8.3	39	122	3.7	51	0.8			2,202	0.27	92	0	48	364
Dec. 9	.06	22	.33	28	11	39	136	2.3	62	.2			2,246	.53	116	5	42	414
Dec. 9																		7.2

BAYOU CASTOR AT LONGSTREET

Oct. 17, 1955	0.16	32	0.73	7.5	2.5	16	46	2.0	16	1.0			101	0.14	29	0	54	141
Dec. 9	.31	24	.70	8.6	3.3	17	57	1.5	16	.5			100	.14	35	0	51	154
Apr. 4, 1956	2.98	20	.58	16	8.5	43	60	30	62	.6			211	.29	75	26	56	359
Apr. 4, 1956																		7.0

BAYOU GRAND CANE NEAR LOGANSPOUT

Apr. 3, 1956	6.24	10	0.32	18	11	54	49	57	76	0.5			251	0.34	90	50	56	450
Apr. 3, 1956																		7.3

BAYOU SAN MIGUEL NEAR ZWOLLE

June 20, 1956	0.0	7.0	0.06	11	6.1	21	76	3.8	21	1.2			109	0.15	53	0	46	205
June 20, 1956																		7.4

a. Residue on evaporation at 180°C.

NECHES RIVER BASIN

ANGELINA RIVER NEAR LUFKIN, TEX.

LOCATION (revised) --At gaging station at bridge on U. S. Highway 59, 200 feet upstream from Procella Creek, 1½ miles downstream from Bayou Loco, 1.5 miles upstream from Southern Pacific Railroad bridge, and 8 miles north of Lufkin, Angelina County.

DRAINAGE AREA --1,630 square miles.

RECORDS AVAILABLE --Chemical analyses: October 1954 to September 1956.

Water temperatures: October 1954 to September 1956.

EXTREMES, 1955-56 --Dissolved solids: Maximum, 333 ppm Oct. 11-20; minimum, 80 ppm May 4-8, 11-14.

Sardness: Maximum, 62 ppm Aug. 11-20; minimum, 22 ppm May 4-8, 11-14.

Specific conductance: Maximum daily, 735 micromhos Oct. 2; minimum daily, 102 micromhos May 5.

Water temperatures: Maximum, 86°F July 9; minimum, 40°F Jan. 19, 20, 24.

EXTREMES, 1954-56 --Dissolved solids: Maximum, 412 ppm Nov. 4-18, 26-30, 1954; minimum, 53 ppm May 24-29, 1955.

Sardness: Maximum, 76 ppm Nov. 4-18, 26-30, 1954; minimum, 18 ppm May 24-29, 1955.

Specific conductance: Maximum, 867 Oct. 11, 1954; minimum, 40°F Jan. 24, 1955, Jan. 19, 20, 24, 1956.

Water temperatures: Maximum, 86°F Oct. 11, 1954; minimum, 40°F Jan. 24, 1955, Jan. 19, 20, 24, 1956.

REMARKS --Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180° C)		Hardness as CaCO ₃		Per- cent sodium adsorption ratio	So- dium adsorption (micro- mhos at 25° C)	pH		
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
Oct. 1-10, 1955.....	90.5	15	0.27	12	4.4	81	30	10	135	1.0				287	0.39	70.1	49	24	78	5.1	524	6.8
Oct. 11-20	54.1	16	.28	12	5.0	92	24	12	154	.5				333	.45	48.6	50	30	80	5.6	581	7.0
Oct. 21-31	25.8	14	.49	9.6	4.4	72	33	9.3	115	.6				238	.36	18.7	42	15	79	4.9	455	7.0
Nov. 1-10	22.7	16	--	9.6	4.4	62	34	9.4	99	.4				236	.32	14.5	42	14	76	4.2	405	6.9
Nov. 11-20	32.5	15	--	8.1	4.7	64	33	9.0	103	.6				238	.32	20.9	42	15	77	4.3	425	7.0
Nov. 21-30	42.6	15	--	9.3	4.3	64	32	9.1	102	.4				232	.32	26.7	41	15	77	4.3	408	7.2
Dec. 1-10	118	14	--	8.5	4.6	66	27	10	107	1.3				249	.34	79.3	40	18	78	4.6	436	6.9
Dec. 11-20	121	16	--	10	4.9	74	16	17	124	1.4				295	.40	96.4	46	33	78	4.7	508	6.6
Dec. 21-31	94.7	16	--	10	4.9	86	16	16	143	1.2				306	.42	78.2	46	33	80	5.5	543	6.4
Jan. 1-10, 1956.....	93.5	13	14	11	3.4	82	38	15	123	.2				272	.37	68.7	42	11	81	5.5	476	6.6
Jan. 11-17	86.6	14	76	11	4.1	77	20	14	128	.4				279	.38	65.2	44	28	79	5.1	499	7.0
Jan. 18-28	289	14	26	9.0	3.3	58	14	17	94	.5				233	.30	174	36	25	78	4.2	379	6.8
Jan. 29-31, Feb. 1-3	334	15	.07	12	5.0	80	9	25	136	.2				307	.42	277	51	44	77	4.9	530	6.3
Feb. 4-10	724	14	31	8.8	3.9	55	10	23	88	.6				228	.31	446	38	30	76	3.9	367	6.5
Feb. 11-20	1,229	13	31	8.1	4.1	39	8	22	65	.2				187	.25	621	37	30	69	2.8	284	6.4
Feb. 21-29	744	14	28	9.3	4.8	46	12	28	74	.2				210	.29	422	43	33	70	3.1	333	6.5
Mar. 1-10	364	16	14	10	5.8	54	15	28	88	.5				239	.33	235	49	36	71	3.3	388	6.5
Mar. 11-20	432	15	21	9.6	5.6	49	18	25	80	.2				220	.30	251	47	32	69	3.1	363	7.0
Mar. 21-31	461	14	18	11	6.1	49	16	30	82	.2				229	.31	265	53	39	67	3.0	378	6.8

Apr. 1-6, 16-20, 1956	419	15	31	11	5.4	51	21	25	83	.8	223	30	252	50	33	69	3.1	367	6.5
Apr. 7-15	1,272	13	42	16.3	3.0	25	14	19	36	1.1	a111	.15	381	28	17	66	2.1	185	6.1
Apr. 21-30, May 1-3	1,296	16	40	10	5.2	50	28	19	80	1.2	a118	.30	174	47	24	70	3.2	363	6.8
May 4-8, 11-14	4,572	13	73	3.7	3.1	16	19	17	16	1.5	a80	.11	988	22	6	61	1.5	123	6.4
May 9-10, 15-20	4,162	14	97	7.1	4.2	24	28	15	33	1.7	a114	.16	1,280	35	12	60	1.7	192	6.5
May 21-31	264	20	85	9.9	5.4	47	31	16	75	2.9	220	.30	157	47	22	69	3.0	344	7.0
June 1-10	130	20	78	9.7	5.3	52	30	14	83	2.4	227	.31	79.7	46	21	71	3.3	362	7.0
June 11-20	88.6	18	66	10	5.6	54	34	15	85	1.6	236	.32	56.5	48	20	71	3.4	378	7.0
June 21-30	89.1	19	38	11	4.4	51	34	12	82	1.0	221	.30	53.2	46	18	71	3.3	358	7.2
July 1-10	34.1	17	17	11	5.7	60	40	11	98	.8	240	.33	22.1	52	19	72	3.6	413	6.9
July 11-20	22.4	15	.06	11	5.9	61	44	12	96	.5	232	.32	14.0	52	16	72	3.7	413	6.8
July 21-31	13.1	14	.06	12	6.4	66	46	12	105	.5	252	.34	8.91	56	18	72	3.8	452	7.3
Aug. 1-10	8.05	13	10	12	6.6	69	50	11	110	.8	264	.36	5.74	58	17	72	3.9	475	7.4
Aug. 11-20	4.98	11	13	13	7.1	73	51	11	119	.5	286	.39	3.85	62	20	72	4.1	510	7.4
Aug. 21-31	5.79	12	.04	12	7.1	75	54	13	117	.8	284	.39	4.44	60	16	73	4.2	510	7.3
Sept. 1-10	6.64	12	.19	11	6.1	60	50	16	88	.5	a219	.30	3.93	52	11	71	3.6	417	7.6
Sept. 11-20	3.70	11	.12	9.2	5.6	54	50	14	77	.2	a196	.27	1.96	46	5	72	3.5	376	7.8
Sept. 21-30	1.82	7.4	.10	11	6.0	62	53	12	93	.8	223	.30	1.10	53	10	72	3.7	392	7.6
Weighted average	413	14	--	7.2	4.1	34	20	19	51	1.1	153	0.21	171	35	18	68	2.5	249	--

a Calculated from determined constituents.

WESTERN GULF OF MEXICO BASINS
NECHES RIVER BASIN--Continued
ANGELINA RIVER NEAR LUFKIN, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	63	46	54	53	57	69	70	77	85	84	80
2	80	66	47	49	52	--	70	68	77	84	82	83
3	79	60	56	52	49	62	69	68	76	84	82	81
4	79	55	52	50	47	62	67	68	75	85	--	--
5	79	56	--	49	45	63	65	68	76	85	84	79
6	80	60	52	50	44	65	65	72	78	85	85	79
7	76	56	51	50	44	56	62	72	79	85	85	78
8	73	55	51	49	50	56	61	73	79	85	84	76
9	69	51	57	45	49	--	62	75	80	86	84	76
10	70	51	46	44	48	--	56	75	80	84	84	73
11	72	54	46	44	46	--	50	75	80	82	--	72
12	79	59	44	43	42	60	56	76	80	84	84	72
13	72	62	43	43	50	56	61	76	--	83	84	73
14	69	66	44	43	56	--	65	78	77	84	85	77
15	69	68	44	44	56	55	65	76	77	84	83	77
16	69	66	44	43	57	50	62	77	78	84	84	77
17	71	57	43	--	64	52	63	71	78	84	83	77
18	63	56	46	--	60	54	63	73	80	84	84	76
19	62	58	48	40	--	55	63	73	82	84	84	78
20	61	55	48	40	61	51	64	74	80	85	83	78
21	62	53	49	44	57	54	--	74	80	82	79	76
22	64	56	49	47	56	54	64	75	81	83	75	76
23	64	61	51	46	61	56	64	75	82	83	75	76
24	64	57	54	40	63	56	65	77	84	84	78	76
25	65	55	--	--	61	60	65	77	84	84	78	75
26	80	57	--	46	64	61	66	76	85	84	78	68
27	81	58	50	51	--	64	69	77	85	84	--	66
28	66	58	53	55	58	63	71	79	85	82	76	66
29	58	48	56	54	56	63	72	80	83	83	80	69
30	80	48	54	52	--	63	72	78	83	84	81	70
31	62	--	54	52	--	64	--	80	--	84	81	--
Average	69	58	49	47	54	58	64	74	80	84	82	75

NECHES RIVER BASIN--Continued
NECHES RIVER AT EVADALE, TEX.

LOCATION.--At gaging station at bridge on U. S. Highway 96, 200 feet upstream from Gulf, Colorado and Santa Fe Railway bridge at Evadale, Jasper County, 600 feet downstream from Mill Creek, 15 miles upstream from Village Creek and at mile 55.

RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1956.

WATER TEMPERATURES.--October 1947 to August 1956

EXTRIMES, 1947-56.--Dissolved solids: Maximum, 199 ppm Nov. 21-30; minimum, 82 ppm Feb. 11-21.

EXTRIMES, 1947-56.--Dissolved solids: Maximum, 23 ppm Jan. 24-31, Feb. 11-21.

Specific conductance: Maximum, 54 ppm Sept. 1-10; minimum, 350 microhos Nov. 18; minimum daily, 114 microhos Jan. 26.

Specific temperatures: Maximum, 92°F Aug. 8-11; minimum, 43°F Jan. 20.

EXTRIMES, 1947-56.--Dissolved solids: Maximum, 218 ppm Dec. 11-20, 1948; minimum, 36 ppm May 5-12, 26-27, 1953.

Hardness: Maximum, 70 ppm Nov. 1-10, 1947; minimum, 16 ppm Sept. 22-25, 27, 1950.

Specific conductance: Maximum daily, 415 microhos Nov. 29, 1952; minimum daily, 49.3 microhos May 9, 1953.

Water temperatures: Maximum, 94°F June 29, 1953; minimum, 37°F Jan. 30-31, 1948, Jan. 31, 1949.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Thermograph records for Sept. 1-30 doubtful, element of thermograph not completely submerged. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (microhmhos at 25°C)		
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate				
Oct. 1-10, 1955..	627	17	19	9.2	3.6	33	33	38	13	44	0.4	2.8		142	0.19	240	38	7	65	2.3	243
Oct. 11-20.....	506	19	19	10	3.2	31	31	42	11	41	.4	.8		137	.19	187	39	4	63	2.1	233
Oct. 21-31.....	516	17	20	10	3.3	34	34	41	12	47	.4	.5		144	.20	201	39	6	66	2.4	257
Nov. 1-10.....	607	20	11	11	3.2	42	42	44	14	55	.5	2.5		170	.26	310	40	4	70	2.9	283
Nov. 11-20.....	541	19	11	11	3.2	45	45	47	15	57	.5	1.0		196	.27	286	40	2	71	3.1	293
Nov. 21-30.....	498	19	11	11	3.1	46	46	48	14	60	.5	1.0		199	.27	268	40	0	72	3.2	299
Dec. 1-10.....	623	15	15	8.6	2.8	35	35	35	12	47	.7	.8		139	.19	234	33	4	70	2.7	242
Dec. 11-20.....	408	17	17	9.8	3.3	37	37	47	12	46	.7	.8		150	.20	165	38	0	68	2.6	253
Dec. 21-31.....	498	17	17	9.4	3.0	43	43	48	13	52	.7	.8		163	.22	219	36	0	72	3.1	278
Jan. 1-10, 1956..	477	17	17	10	3.0	43	43	48	16	52	.5	1.2		167	.23	215	38	0	71	3.0	280
Jan. 11-23.....	577	16	16	9.6	3.2	39	39	43	16	48	.6	.9		154	.21	240	37	2	69	2.8	270
Jan. 24-31.....	930	12	12	6.4	1.7	20	20	21	9.1	26	.5	1.0		87	.12	218	23	6	65	1.8	148
Feb. 1-10.....	2,847	14	14	7.8	2.3	28	28	24	14	38	.6	1.2		118	.16	907	29	10	68	2.3	204
Feb. 11-21.....	7,018	12	12	6.4	1.7	17	17	18	14	22	.7	.8		82	.11	1,550	23	12	61	1.5	138
Feb. 22-29.....	3,088	13	13	7.0	2.6	22	22	18	19	28	.7	.5		101	.14	842	28	15	63	1.8	170
Mar. 1-10.....	3,055	14	14	8.8	2.9	28	28	18	23	38	.5	1.2		125	.17	1,030	34	19	64	2.1	208
Mar. 11-20.....	1,649	15	15	9.8	3.0	26	26	22	20	38	.5	.8		124	.17	552	37	19	61	1.9	212
Mar. 21-31.....	2,225	14	14	10	3.2	29	29	23	23	40	.4	.9		132	.18	793	38	19	62	2.0	223

a Residue on evaporation at 180°C.

NECHES RIVER BASIN--Continued
NECHES RIVER AT EVADALE, TEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nesium	Non-carbonate				
Apr. 1-14, 1956...	3,739	15		11	3.5	30		27	25	41	0.4	0.9		140	0.19	1,410	42	20	61	2.0	246	6.9
Apr. 15-22	4,781	12		8.2	2.8	21		22	20	26	0.6	2.1		104	.14	1,340	32	14	59	1.6	176	6.8
Apr. 23-30	1,318	14		8.4	2.7	21		25	19	24	.5	1.3		103	.14	367	32	12	58	1.6	169	7.1
May 1-10	1,780	13		8.4	3.2	22		26	20	26	.3	1.5		107	.15	514	34	12	58	1.6	176	6.8
May 11-20	5,617	13		8.6	3.0	26		28	20	32	.4	1.2		118	.16	1,790	34	11	63	2.0	195	6.7
May 21-31	5,348	11		6.2	2.6	20		22	12	26	.4	1.0		90	.13	1,300	26	8	62	1.7	153	6.9
June 1-10	1,352	15		8.2	3.5	19		34	12	25	.4	.8		101	.14	369	35	7	55	1.4	174	7.1
June 11-20	1,358	13		9.2	3.6	21		36	12	28	.4	.8		105	.14	389	38	8	54	1.5	179	7.0
June 21-30	1,650	15		11	3.8	21		41	11	29	.4	1.0		112	.15	197	42	8	52	1.4	195	7.6
July 1-10	992	17		11	4.0	29		45	14	37	.5	1.0		136	.18	364	44	7	58	1.9	233	6.8
July 11-20	810	16		11	4.0	30		48	13	38	.5	.8		137	.19	300	44	4	59	1.9	241	7.0
July 21-31	857	15		11	3.8	30		47	12	38	.5	1.0		134	.18	310	42	4	61	2.0	235	7.0
Aug. 1-10	534	18		11	4.6	34		54	14	42	.5	1.2		152	.21	219	46	2	62	2.2	260	7.6
Aug. 11-20	636	17		11	4.5	38		59	13	46	.5	1.0		160	.22	275	46	0	64	2.5	279	7.4
Aug. 21-31	490	18		12	4.9	43		66	14	52	.5	.8		177	.24	234	51	0	65	2.6	313	7.6
Sept. 1-10	212	24		13	5.0	41		76	10	50	.5	.8		188	.26	108	54	0	62	2.4	296	7.4
Sept. 11-20	204	23		13	4.5	31		71	9.6	34	.5	.8		160	.22	88.1	50	0	58	1.9	247	7.4
Sept. 21-30	166	22		13	4.4	39		74	10	44	.5	.8		170	.23	76.2	50	0	63	2.4	286	7.4
Weighted average	1,608	14		8.6	2.9	26		28	17	33	0.5	1.1		117	0.16	508	34	10	63	2.0	198	---

a Residue on evaporation at 180°C.

NECHES RIVER BASIN--Continued

NECHES RIVER AT EVADALE, TEX.--Continued

Temperature ($^{\circ}\text{F}$) of water, October 1955 to August 1956

/Recorder with continuous thermograph attachment/

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
1.....	84	82	65	62	50	49	55	52	56	54	64	62	68	67	78	76	83	(a)	(a)	86	84			
2.....	85	83	67	64	51	49	55	53	56	54	64	62	70	68	77	75	82	(a)	(a)	86	83			
3.....	84	80	65	63	55	51	56	55	54	50	66	64	70	70	76	73	83	(a)	(a)	88	83			
4.....	84	82	63	60	56	55	55	52	50	48	66	65	71	69	76	74	83	81	89	87	90	85	81	
5.....	84	81	60	59	56	56	55	52	48	46	66	65	71	71	77	75	84	81	90	88	89	86	82	
6.....																								
7.....	84	81	62	60	56	55	57	54	47	45	68	66	72	70	79	77	86	82	91	88	89	84		
8.....	83	77	61	60	56	54	57	56	47	46	68	67	72	70	80	78	88	83	90	88	90	85	80	
9.....	77	74	61	58	56	54	56	53	49	48	67	64	70	69	81	79	89	84	90	88	92	86	86	
10.....	74	72	58	56	54	50	49	50	49	44	62	69	68	65	81	79	88	86	89	87	92	87		
11.....	75	72	56	54	50	48	51	48	50	49	62	62	68	65	81	79	88	85	87	86	92	87		
12.....	76	73	58	54	50	48	51	47	49	48	65	62	65	63	81	79	87	85	87	86	92	87		
13.....	77	74	61	57	49	45	50	47	49	48	68	64	65	63	81	79	86	85	87	86	91	87		
14.....	76	74	65	61	47	44	48	46	50	48	64	62	65	63	81	81	85	84	87	85	90	87		
15.....	74	70	66	65	48	45	49	45	52	50	62	61	66	65	82	81	84	82	88	86	89	87		
16.....	73	67	69	67	49	48	51	46	54	52	61	60	68	66	82	81	85	83	88	86	90	87		
17.....																								
18.....	73	68	68	65	46	44	51	48	55	54	60	58	68	66	81	79	85	85	88	86	91	87		
19.....	71	68	65	61	48	46	50	47	56	55	60	58	66	64	80	79	85	84	89	86	89	86		
20.....	69	64	61	60	51	40	48	57	56	62	60	68	66	79	78	84	84	90	87	89	87			
21.....	68	63	61	60	52	51	46	44	58	57	62	60	67	65	80	79	84	83	90	87	89			
22.....	68	63	60	57	53	52	46	43	60	58	62	60	70	67	80	79	85	83	90	87	89			
23.....																								
24.....	69	64	59	56	53	53	47	46	60	58	60	60	70	68	80	79	86	84	89	87	85			
25.....	69	65	61	59	55	53	48	47	58	58	60	59	69	68	80	79	86	85	86	82	86			
26.....	69	65	63	61	57	54	48	48	58	58	60	59	68	68	80	79	88	84	85	83	86	81		
27.....	69	66	62	60	57	48	48	48	59	58	62	60	69	68	80	80	88	85	85	83	84	80		
28.....	66	62	60	58	61	59	50	48	62	59	63	61	69	69	81	80	88	85	86	84	83	79		
29.....																								
30.....	66	61	58	56	62	60	50	50	64	62	63	61	71	69	81	80	89	85	84	84	82	80		
31.....	66	62	57	55	62	61	53	50	66	64	65	63	73	71	81	80	90	85	84	83	81	79		
Average.....	81	77	64	61	53	51	50	48	55	53	65	64	76	73	81	81	90	86	85	82	81	79		
	86	83	55	51	59	59	60	57	64	62	65	63	77	76	81	81	89	87	86	84	81	79		
	83	81	52	50	59	58	58	58	--	--	66	64	74	73	81	81	89	87	85	83	80			
	82	80	--	--	58	55	58	54	--	--	67	63	--	--	83	81	81	(a)	87	85	86	82		

No pen trace June 30 to July 3.

TRINITY RIVER BASIN--Continued
TRINITY RIVER NEAR ROSSER, TEX.

LOCATION --At gaging station at bridge on State Highway 34, 2.5 miles south of Rosser, Kaufman County, 8.5 miles downstream from East Fork and at mile 451.
DRAINAGE AREA --8 162 square miles

RECORDS AVAILABLE --Chemical analyses: October 1954 to September 1956.

Water temperatures: October 1954 to September 1956.

EXTREMES, 1955-56 --Dissolved solids: Maximum, 1,800 ppm Aug. 21-31; minimum, 279 ppm May 1-10.

Hardness: Maximum, 296 ppm Sept. 11-20; minimum, 132 ppm Apr. 15-16, 18.

Specific conductance: Maximum, 2,890 microhos Sept. 26; minimum daily, 344 microhos May 4.

Water temperatures: Maximum, 87°F July 9, Aug. 15-16, 19; minimum, 34°F Jan. 20.

EXTREMES, 1954-56 --Dissolved solids: Maximum, 1,800 ppm Aug. 21-31, 1956; minimum, 279 ppm May 1-10, 1956.

Hardness: Maximum, 296 ppm Sept. 11-20, 1956; minimum, 120 ppm Sept. 20-21, 26-27, 29, 1955.

Specific conductance: Maximum daily, 2,890 microhos Sept. 26, 1956; minimum daily, 344 microhos May 4, 1956.

Water temperatures: Maximum, 97°F July 1, 1955; minimum, 34°F Jan. 20, 1956.

REMARKS --Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo- ton (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- lution	So- lution ratio	Specific conduct- ance (micro- hos at 25°C)	pH
														Parts mil- lion	Tons per acre- foot	Tons per day	Calcium mag- nesium	Non- carbon- ate				
Oct. 1-10, 1955.	250	20		50	5.0	170		128	152	143		64		667	0.91	450	146	41	72	6.1	1,100	7.8
Oct. 11-17	145	23		56	5.9	206		96	211	172		88		809	1.10	317	164	86	73	7.0	1,290	7.4
Oct. 18-31	124	23		52	6.9	258		164	202	220		78		921	1.25	308	158	24	78	8.9	1,520	7.6
Nov. 1-10	124	22		55	7.8	272		121	263	220		95		995	1.35	333	169	70	78	9.1	1,640	7.2
Nov. 11-20	128	23		52	7.7	272		169	207	232		90		967	1.32	337	162	24	79	9.3	1,640	7.5
Nov. 21-30	142	22		56	8.2	282		177	249	215		96		1,020	1.39	391	172	27	78	9.3	1,730	7.1
Dec. 1-10	228	18		52	7.4	261		164	229	200		89		937	1.27	572	180	26	78	9.0	1,800	6.6
Dec. 11-20	150	20		53	8.0	276		148	287	205		94		996	1.35	403	165	44	78	9.3	1,740	6.4
Dec. 21-31	150	21		51	8.1	265		173	205	215		98		948	1.29	384	161	19	78	9.1	1,690	7.0
Jan. 1-10, 1956.	150	21		52	8.1	297		233	214	222		102		1,030	1.40	417	163	0	80	10	1,630	7.2
Jan. 11-20	161	19		54	8.1	304		273	196	228		92		1,030	1.40	448	163	0	80	10	1,640	7.1
Jan. 21-31	230	16		56	6.7	288		260	258	180		17		930	1.26	578	167	0	78	9.0	1,550	7.2
Feb. 1-8	252	16		56	5.8	223		156	186	180		91		844	1.15	574	164	36	75	7.6	1,380	6.7
Feb. 9-17	407	13		60	4.8	165		132	171	120		46		686	.93	754	163	18	47	5.2	1,110	6.6
Feb. 18-30	571	12		56	4.3	90		161	190	120		49		456	.62	700	153	18	56	3.2	730	8.1
Feb. 21-29	226	17		64	5.7	196		161	199	152		69		823	1.12	502	182	50	70	6.3	1,320	6.8
Mar. 1-10	166	20		62	9.2	217		159	209	175		85		894	1.22	401	192	62	71	6.8	1,410	7.3
Mar. 11-20	158	22		61	9.8	256		174	229	212		85		81	1.00	431	192	50	74	8.0	1,600	6.9
Mar. 21-31	160	23		58	9.6	295		263	208	218		79		1,010	1.37	436	184	0	77	9.1	1,650	7.1

a Residue on evaporation at 180°C.

TRINITY RIVER BASIN--Continued

TRINITY RIVER NEAR ROSSER, TEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate					
Apr. 1-14, 1955...	148	24		58	7.7	270		190	220	222		83		978	1.33	391	117	22	77	8.8	1,600	7.4
Apr. 15-16, 18...	693	15		47	3.7	83		146	86	76		22		415	1.56	777	132	12	60	3.5	715	8.1
Apr. 17, 19-30...	172	20		60	6.5	226		180	213	172		71		888	1.17	398	177	30	74	7.4	1,440	7.1
May 1-10, 1956...	3,637	13		57	3.3	36		161	57	26		7.7		279	.38	2,740	156	24	33	1.3	470	8.0
May 11-20, 1956...	491	15		65	4.3	88		204	94	67		13		446	.61	591	179	12	52	2.9	755	8.1
May 21-31, 1956...	163	23		63	5.8	202		230	156	175		30		768	1.04	338	182	0	71	6.5	1,320	7.4
June 1-4, 1956...	403	23		58	5.2	224		198	196	175		50		842	1.15	916	166	4	75	7.6	1,350	7.9
June 5-16, 1956...	324	17		55	4.7	133		171	118	108		36		568	1.77	497	156	16	65	4.6	822	7.7
June 17-30, 1956...	128	21		60	6.5	259		214	190	230		52		947	1.29	327	176	0	76	8.5	1,530	7.3
July 1-10, 1956...	125	35		64	7.3	281		221	183	258		49		976	1.33	329	164	0	79	9.5	1,610	8.1
July 11-20, 1956...	126	23		68	12	309		228	177	335		53		1,090	1.48	371	214	27	76	8.2	1,940	8.0
July 21-31, 1956...	125	23		77	12	371		220	316	352		51		1,310	1.84	442	242	61	77	10	2,180	7.8
Aug. 1-10, 1956...	114	29		71	12	370		224	241	395		48		1,250	1.74	394	296	43	78	11	2,110	8.0
Aug. 11-20, 1956...	117	27		80	13	412		232	308	422		53		1,430	1.94	452	253	63	78	11	2,370	7.9
Aug. 21-31, 1956...	119	29		88	15	522		229	512	455		67		1,800	2.45	578	281	94	80	14	2,470	7.5
Sept. 1-10, 1956...	125	26		88	14	413		200	291	465		63		1,460	1.99	493	276	112	76	11	2,410	7.9
Sept. 11-20, 1956...	116	26		92	16	460		228	323	515		57		1,600	2.18	501	296	109	77	12	2,650	7.5
Sept. 21-30, 1956...	115	24		90	17	494		276	343	530		47		1,680	2.28	522	294	68	79	13	2,780	7.2
Weighted average	280	18		59	6.0	168		179	151	142		42		678	0.92	513	172	25	68	5.6	1,120	--

Residue on evaporation at 180°C.

a Residue on evaporation at 180°C.

TRINITY RIVER BASIN--Continued

TRINITY RIVER NEAR ROSSER, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

/Once-daily measurement usually between 7 a. m. and 8 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	62	42	44	46		69	--	79	85	86	81
2	82	65	43	44	--		70	--	77	84	86	81
3	79	59	49	45	--		67	68	79	84	85	82
4	80	58	48	44	35		66	68	75	84	86	83
5	79	56	47	44	37		68	71	74	86	85	82
6	80	59	45	45	37		67	67	77	86	86	81
7	75	56	46	45	38		64	74	79	86	84	80
8	72	54	45	43	43		65	75	82	86	85	71
9	67	50	44	41	42		65	76	83	87	85	76
10	69	49	43	42	43		61	76	82	85	86	78
11	73	52	41	41	42		60	76	84	84	86	76
12	74	55	40	41	43		61	76	83	83	86	77
13	70	59	40	42	50		65	77	83	84	86	78
14	68	63	42	39	51		68	77	83	84	86	79
15	66	64	42	40	51		67	75	83	84	87	80
16	67	61	40	40	49		64	74	83	83	87	80
17	66	54	39	39	52		65	--	84	84	86	80
18	63	55	40	37	50		64	77	--	83	86	79
19	62	52	41	--	--		63	77	84	84	87	79
20	63	52	43	34	--		63	78	85	84	83	80
21	65	55	44	37	--		64	80	84	83	81	77
22	65	56	44	37	--		63	79	84	84	79	78
23	65	55	45	38	--		65	80	85	85	78	77
24	64	51	49	40	--		67	--	86	85	79	78
25	61	50	49	39	--		69	79	--	84	79	77
26	60	49	48	41	--		72	79	86	85	79	75
27	61	50	49	46	--		74	80	86	85	79	72
28	63	47	49	50	--		74	80	86	86	--	73
29	60	44	52	52	--		74	81	86	86	82	74
30	59	43	48	47	--		70	80	86	86	83	73
31	57	--	44	45	--		--	82	--	84	82	--
Average	68	54	45	42	--		66	76	82	85	84	78

TRINITY RIVER BASIN--Continued
CEDAR CREEK NEAR MABANK, TEX.

LOCATION.--At gaging station at bridge on State Farm Highway 85, 2 miles downstream from Lucy's Fork and 5½ miles southwest of Mabank, Kaufman County. DRAINAGE AREA, 234 square miles. RECORDS AVAILABLE.--Chemical analyses: April to September 1956. REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, April to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Bo- ron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Per- cent so- ladsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH		
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
Apr. 24-30, May 1, 1956	15.9	8.2		26	6.9	36		90	27	47	0.5	1.8		197	0.27	8.46	93	19	45	1.6	363	7.4
May 2-6.....	2,442	13		13	4.4	12		54	16	10	.4	2.2		98	.13	646	53	8	32	1.7	163	6.8
May 7-14.....	a 12.9	15		24	5.6	21		81	29	20	.4	2.5		158	.21	5.50	83	17	35	1.0	267	7.5
May 15-23.....	0	18		30	6.1	30		98	39	28	.6	2.1		202	.27	0	99	19	40	1.3	342	7.6
June 1-10.....	a 10.2	10		24	2.8	25		78	34	16	.7	2.5		153	.21	4.21	71	7	44	1.3	259	7.2
June 11-15.....	b 0	13		28	4.6	27		101	39	15	.7	2.1		179	.24	0	90	39	1.2	292	7.8	

a Includes day of less than 0.05 cubic feet per second discharge.

b No flow June 8 to September 30.

TRINITY RIVER BASIN--Continued
RICHLAND CREEK NEAR FAIRFIELD, TEX.

LOCATION.--At bridge on State Farm Highway 488, 4 miles upstream from mouth, 4 miles downstream from Chambers Creek and 16 miles north of Fairfield, Freestone County.
RECORDS AVAILABLE.--Chemical analyses: April to September 1956.
Water temperatures: April to September 1956.
EXTREMES, April to September 1956.--Dissolved solids: Maximum, 13,500 ppm Aug. 11-31; minimum, 189 ppm May 2 (6 p.m.), 3-6.
Hardness: Maximum, 345 ppm June 1-4; minimum, 108 ppm May 2 (7 a.m.).
Specific conductance: Maximum daily, 22,000 micromhos Aug. 22; minimum daily, 274 micromhos May 4.
Water temperatures: Maximum, 95°F July 5.
REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. No discharge records available.

Chemical analyses, in parts per million, April to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Apr. 24-30																						
May 1, 1956		5.8		78	26	2,580		513	33	3,870	0.6	--		6,850	9.32		302	0	95	65	11,600	8.2
May 2 (7 a.m.)		13		37	4.0	308		142	10	460	4	2.5		905	1.23		108	0	86	13	1,720	7.9
May 2 (6 p.m.), 3-6		13		39	2.9	24		123	27	20	4	3.0		189	26		109	8	32	1.0	1,322	7.4
May 7-9		16		52	3.9	56		161	33	72	4	2.2		316	43		146	14	46	2.1	552	7.5
May 10-11		18		66	6.8	150		197	21	235	4	3.2		597	81		192	31	63	4.7	1,160	7.9
May 12-16		16		89	11	514		251	74	778	6	3.8		1,610	2.19		287	62	81	14	2,920	7.9
May 17-31		4.4		87	20	1,400		286	70	2,150	6	--		3,870	5.26		299	64	91	35	6,920	8.0
June 1-4		7.7		96	25	2,480		395	61	3,790	7	--		6,650	9.04		343	20	94	58	11,300	8.0
June 5		13		59	4.9	82		191	74	76	8	1.4		4,408	.55		166	10	52	2.8	671	7.8
June 6-7		14		47	3.0	56		128	55	60	8	2.5		8,304	.41		130	25	48	2.1	516	8.2
June 8-10		13		55	3.7	167		147	63	230	8	2.0		8,615	.84		151	30	71	5.9	1,070	7.7
June 11-20		12		67	7.5	603		205	67	900	7	1.2		1,780	2.39		198	30	87	19	3,190	7.8
June 21-25		9.8		75	17	1,980		337	55	3,000	7	--		5,300	7.21		256	0	94	54	9,040	8.2
June 26-30, July 1-17		7.9		67	26	3,040		368	40	4,640	9	--		8,000	10.9		275	0	96	80	13,200	8.2
July 18-31		6.6		41	31	3,880		645	27	5,860	1.1	--		10,100	13.7		231	0	97	111	16,600	8.4
Aug. 1-10		4.3		40	42	4,870		651	24	7,380	1.1	--		12,600	17.1		272	0	97	129	20,200	8.3
Aug. 11-31		3.6		39	42	5,220		659	30	7,870	1.2	--		13,500	18.4		270	0	98	138	21,700	8.6
Sept. 1-3		--		--	--	--		612	--	7,550	--	--		--	--		322	0	--	--	20,700	--
Sept. 4-8		15		51	4.7	380		166	70	540	1.0	1.2		1,140	1.55		147	11	85	14	2,070	8.0

a Residue on evaporation at 180°C.

b Includes equivalent of 13 parts per million of carbonate (CO₃).

c Includes equivalent of 39 parts per million of carbonate (CO₃).

d Includes equivalent of 52 parts per million of carbonate (CO₃).

WESTERN GULF OF MEXICO BASINS
TRINITY RIVER BASIN--Continued
RICHLAND CREEK NEAR FAIRFIELD, TEX.--Continued

Temperature (°F) of water, April to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							--	71	72	91	88	88
2							--	67	85	85	90	85
3							--	70	72	84	91	87
4							--	71	70	92	87	83
5							--	76	76	95	90	--
6							--	76	80	90	89	--
7							--	77	78	93	91	--
8							--	78	84	86	89	75
9							--	81	86	85	90	--
10							--	84	87	88	87	--
11							--	77	88	89	91	--
12							--	84	89	--	87	--
13							--	86	85	88	--	--
14							--	85	87	88	91	--
15							--	80	80	--	92	--
16							--	83	88	90	94	--
17							--	83	89	84	94	--
18							--	86	87	90	93	--
19							--	85	89	88	83	--
20							--	86	87	--	85	--
21							--	85	89	91	84	--
22							--	85	86	88	83	--
23							--	87	85	92	83	--
24							73	84	92	89	87	--
25							76	87	90	89	84	--
26							80	84	93	90	80	--
27							78	86	94	91	80	--
28							79	87	87	86	82	--
29							72	84	90	89	88	--
30							75	87	83	87	85	--
31							--	82	--	--	88	--
Average							--	81	85	89	88	--

TRINITY RIVER BASIN -Continued
TRINITY RIVER AT ROMAYOR, TEX.

LOCATION.--At gaging station at bridge on State Highway 105, 1.9 miles south of Romayor, Liberty County, 2.0 miles downstream from Gulf, Colorado and Santa Fe Railway bridge, 4.1 miles downstream from Big Creek, and at mile 94.

RECORDS AVAILABLE.--192 square miles.

RECORDS AVAILABLE.--Chemical analyses: October 1945 to November 1949, February 1950 to September 1951, April 1953 to September 1956.

EXTREMES. 1955-56 Discharge: Maximum, 1,199 cfs; minimum, 1,607 cfs.

Hardness: Maximum, 180 ppm Sept. 11-21; minimum, 135 ppm Apr. 13-16.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 215 ppm Aug. 16-31; minimum, 135 ppm Apr. 13-16.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

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Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

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Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Water temperatures: Maximum, 95°F July 19-20; minimum, 38°F Nov. 7, 1953; minimum, 82 ppm July 31, 1954.

Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 135 ppm Nov. 7, 1953.

Specific conductance: Maximum, 1,220 microhms/cm, Apr. 13-16.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (microhms at 25°C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-7, 1955 ..	1,119	20		60	7.8	293		174	102	398		10		977	1.33	2,950	181	38	78	9.5	1,720	7.9
Oct. 8-10,	742	18		34	4.2	145		127	44	186	6.6	6.6		500	.68	1,000	103	0	75	6.2	900	7.9
Oct. 11-15,	695	17		36	3.6	83		124	36	103	3.4	3.4		343	.47	644	106	4	63	3.5	608	7.9
Oct. 16-20,	488	22		49	3.8	159		141	70	205		9.7		588	.80	775	139	24	71	5.9	1,040	7.8
Oct. 21-31,	296	13		52	6.1	172		145	90	218	11			633	.86	506	154	35	71	6.0	1,110	7.7
Nov. 1-11,	262	13		52	6.4	141		151	63	192	5.2			a583	.79	412	156	32	66	4.9	1,010	6.7
Nov. 12-20,	274	4.4		57	6.6	195		160	82	265	4.5			a728	.99	539	170	39	71	6.5	1,270	7.4
Nov. 21-30,	287	3.8		58	6.8	180		171	73	245	3.0			a689	.94	534	172	32	70	6.0	1,210	7.6
Dec. 1-10,	447	4.2		62	7.1	250		157	89	355		6.5		851	1.16	1,030	184	56	75	8.0	1,550	8.0
Dec. 11-20,	422	12		63	8.0	309		177	104	425	11			1,020	1.39	1,160	190	45	78	9.7	1,830	7.7
Dec. 21-31,	358	15		63	7.9	332		167	110	458	16			1,080	1.47	1,040	189	52	79	10	1,910	7.4
Jan. 1-10, 1956.	344	11		57	7.0	308		179	100	415	7.0			993	1.35	922	171	24	80	10	1,810	7.9
Jan. 11-21,	464	12		54	6.0	250		160	100	325	11			837	1.14	1,050	158	27	77	8.7	1,500	7.7
Jan. 22-31,	1,248	10		44	5.1	204		114	78	278	8.5			684	.93	2,300	131	38	77	7.7	1,280	7.4
Feb. 1-6,	1,462	16		44	6.7	264		110	78	372	18			a902	1.23	3,560	137	47	81	9.8	1,530	7.8
Feb. 7-10,	6,320	11		33	3.4	86		109	42	106		.2		336	.46	5,730	96	6	66	3.8	597	6.5
Feb. 11-20,	4,320	11		33	3.1	90		40	62	62	6.0			251	.34	3,060	96	22	54	2.3	443	7.5
Feb. 21-29,	1,607	14		40	4.7	79		99	60	100		9.3		356	.48	1,540	120	39	59	3.1	624	7.5

a Residue on evaporation at 180°C.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

TRINITY RIVER BASIN--Continued
TRINITY RIVER AT ROMAYOR, TEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nestum	Non-carbonate				
Mar. 1-3, 1956...	1,138	17		50	6.3	170		104	80	238		19		a 646	0.88	1,980	150	65	71	6.0	1,140	7.8
Mar. 4-9	1,322	15		37	3.3	57		102	33	75		6.0		a 306	42	1,090	105	22	54	2.4	493	7.8
Mar. 10-30	736	17		48	6.3	87		130	49	123		4.5		a 420	57	835	146	40	56	3.1	717	8.1
Mar. 21-31	922	13		43	6.2	106		104	54	156		4.2		a 464	63	1,160	133	48	64	4.0	802	7.9
Apr. 1-5, 25-30.	678	15		46	8.4	163		120	72	232		3.8		599	81	1,100	150	51	70	5.8	1,100	7.5
Apr. 6-12, 17-24	2,833	15		29	5.5	66		76	39	93		4.1		289	39	2,210	95	32	60	2.9	532	7.3
Apr. 13-16	2,750	11		18	2.9	31		48	23	41		3.8		155	21	1,150	58	18	53	1.7	280	7.2
May 1-3	645	17		57	9.0	297		177	84	420		6.8		971	1.32	1,690	178	33	78	9.7	1,780	7.9
May 4, 6-7	8,077	17		38	5.2	104		102	54	139		6.8		414	1.56	9,030	116	32	66	4.2	761	7.9
May 5, 8-18	9,909	21		39	3.7	122		122	31	42		3.4		237	32	6,340	113	13	42	1.5	410	7.8
May 19-31	1,105	16		52	5.4	70		151	47	91		2.6		358	49	1,070	151	28	50	2.5	641	7.8
June 1-12	769	14		60	6.0	87		182	52	113		1.2		422	57	876	174	25	52	2.9	762	8.0
June 13-16	1,191	10		68	8.7	300		217	106	400		6.7		1,010	1.37	3,250	206	28	76	9.1	1,810	8.8
June 17-30	660	17		37	3.3	59		117	40	68		3.2		286	39	510	107	11	55	2.5	505	8.1
July 1-10	234	17		54	5.0	94		178	56	109		1.2		3425	58	269	155	9	57	3.3	737	8.0
July 11-20	207	18		62	5.5	124		204	52	160		1.2		a 527	72	295	177	10	60	4.1	933	8.2
July 21-31	165	18		58	6.2	155		184	60	208		1.5		597	81	266	170	19	67	5.2	1,060	7.9
Aug. 1-15	136	21		66	8.4	172		217	57	238		1.8		671	91	246	200	22	65	5.3	1,200	8.2
Aug. 16-31	120	22		73	8.2	211		238	66	290		1.2		788	1.07	255	215	21	68	6.3	1,470	8.2
Sept. 1-10	207	19		66	10	327		228	105	438		2.2		1,080	1.47	604	206	18	78	9.9	1,940	8.2
Sept. 11-21	157	16		54	9.7	378		207	119	498		1.5		1,180	1.60	500	175	6	82	12	2,120	8.2
Sept. 22-30	128	16		57	7.8	231		184	82	310		1.0		795	1.08	275	173	22	74	7.6	1,450	8.2
Weighted average	1,211	16		41	4.8	98		119	49	129		5.0		405	0.55	1,320	122	24	64	3.9	720	--

a Residue on evaporation at 180°C.

TRINITY RIVER BASIN--Continued

TRINITY RIVER AT ROMAYOR, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	65	48	60	58	60	70	78	--	88	88	86
2	86	65	44	58	60	65	70	75	86	90	90	82
3	84	65	50	58	50	65	70	75	--	90	90	86
4	85	64	60	58	40	65	72	78	84	90	90	86
5	85	64	58	--	48	70	75	75	86	90	86	88
6	85	68	58	56	44	70	72	74	84	90	90	86
7	80	65	58	56	50	65	72	75	86	90	90	86
8	75	62	58	56	50	65	--	75	88	88	92	84
9	75	58	54	--	50	65	68	76	88	90	90	82
10	75	58	54	58	48	60	65	75	88	90	92	84
11	76	62	52	55	50	--	65	76	86	90	92	84
12	76	--	48	54	50	62	65	76	86	90	--	82
13	75	68	48	42	50	60	68	76	86	90	--	84
14	74	68	52	50	52	60	68	80	86	90	--	84
15	74	70	50	50	52	58	68	80	86	90	--	84
16	74	68	50	50	52	58	70	80	85	90	--	82
17	72	68	50	48	50	60	72	82	--	93	--	84
18	74	58	--	38	50	60	70	82	80	93	--	85
19	70	60	50	44	60	62	72	85	86	95	90	86
20	74	58	54	46	62	62	70	85	86	95	92	85
21	76	58	58	--	62	60	70	85	86	--	84	84
22	75	60	55	50	65	58	70	85	86	88	86	84
23	75	62	56	50	65	60	70	85	86	88	86	84
24	72	60	66	52	65	60	70	87	88	90	90	84
25	70	58	67	--	62	62	72	86	88	90	86	86
26	70	58	65	--	62	68	75	85	88	90	86	86
27	72	58	65	50	62	68	75	85	88	88	82	86
28	72	50	62	60	65	68	--	85	90	92	86	84
29	65	46	62	60	62	68	78	84	88	90	84	84
30	65	48	60	60	--	70	78	84	88	92	86	82
31	65	--	58	58	--	70	--	86	--	90	86	--
Average	75	61	56	53	55	64	71	80	86	90	--	84

TRINITY RIVER BASIN--Continued
TRINITY RIVER NEAR MOSS BLUFF, TEX.

LOCATION.--At Devers Pumping Plant Number One, one mile west of Moss Bluff, Liberty County.
RECORDS AVAILABLE.--Chemical analyses: Short periods during summers of 1946 to 1949, daily records October 1949 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 3,930 ppm Aug. 26-31; minimum, 129 ppm Apr. 14-16.

Hardness: Maximum, 790 ppm Aug. 26-31; minimum, 48 ppm Apr. 14-16.
Specific conductance: Maximum daily, 6,980 micromhos Aug. 26-31; minimum daily, 238 micromhos Apr. 15.

EXTRIMES, 1949-56.--Dissolved solids: Maximum, 3,930 ppm Aug. 26-31; minimum, 110 ppm Oct. 4-10, 1949.
Hardness: Maximum, 790 ppm Aug. 26-31, 1956; minimum, 40 ppm Apr. 14-16, 1956.

Specific conductance: Maximum daily, 7,630 micromhos Aug. 26-31, 1952; minimum daily, 127 micromhos Oct. 7, 1949.

REMARKS. Values reported for dissolved solids concentrations less than 1,000 ppm are residues in evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents and observed. Records of specific conductance of daily samples available in district office at Austin, Tex. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-15, 1955.	16			41	4.3	127	150	150	44	161	2.6			499	0.68		121	0	70	5.0	867	7.6
Oct. 16-31	18			46	4.4	123	152	152	40	165	3.2			489	.68		133	8	87	4.6	877	8.0
Nov. 1-15	12			52	5.6	121	179	179	41	160	2.2			489	.67		152	6	63	4.3	877	7.6
Nov. 16-30	7.0			60	6.2	172	180	180	70	232	3.2			647	.88		175	28	88	5.7	1,160	7.7
Dec. 1-15	4.2			61	6.4	219	152	152	66	325	4.0			4761	1.03		178	54	73	7.1	1,410	7.7
Dec. 16-31	8.8			64	7.6	269	183	183	95	370	6.8			911	1.24		192	42	75	8.4	1,670	7.6
Jan. 1-17, 1956.	14			139	8.9	319	189	189	99	440	9.5			1,050	1.43		194	38	78	10	1,890	7.6
Jan. 18-31	11			41	5.3	177	130	130	72	228	8.9			629	.86		124	18	76	6.9	1,100	7.5
Feb. 1-5, 9-14..	12			28	3.3	93	72	72	41	127	6.5			4346	.47		84	25	71	4.4	632	7.2
Feb. 6-8	14			39	5.7	240	104	104	52	352	9.2			823	1.12		121	36	81	9.5	1,380	7.3
Feb. 15-29	13			102	4.1	73	102	102	48	97	6.6			4332	.45		118	34	57	2.9	589	7.4
Mar. 1-15	16			38	4.5	76	108	108	43	99	8.2			370	.50		114	25	59	3.1	600	7.5
Mar. 16-31	10			44	5.9	84	119	119	48	119	2.5			390	.53		134	37	58	3.2	677	7.5
Apr. 1-13	9.0			38	4.3	85	100	100	41	121	2.4			422	.57		112	30	62	3.5	659	7.4
Apr. 14-16	9.0			16	1.8	26	48	48	20	30	2.1			4129	.18		48	9	54	1.6	243	7.0
Apr. 17-30	14			54	4.7	77	95	95	41	105	4.5			330	.45		104	28	62	3.3	551	6.9
May 1-6	17			34	6.6	183	152	152	71	255	2.1			676	.92		161	36	71	6.3	1,200	7.7
May 7-19	16			43	3.7	44	136	136	31	51	1.7			274	.37		122	11	44	1.7	455	7.7
May 20-31	17			50	4.4	65	148	148	43	82	1.5			348	.47		142	20	50	2.4	591	8.0
June 1-21	16			61	5.4	106	184	184	52	139	1.8			487	.66		173	22	57	3.5	877	7.8
June 22-30	20			44	3.7	87	142	142	51	101	3.5			394	.54		125	8	60	3.4	665	7.9

a Calculated from determined constituents.

July 1-4, 7-8, 1956	19	54	4.8	219	145	72	308	2.0	a750	1.02	154	35	76	7.7	1,340	8.0
July 6	17	99	86	867	194	227	1,480	3.5	2,870	3.90	600	441	76	15	5,020	8.2
July 11, 14, 17-18	17	79	41	457	198	131	750	1.8	1,570	2.14	368	203	73	10	2,830	7.9
July 21, 25-26...	19	72	27	337	196	96	540	1.2	1,190	1.62	290	130	72	8.6	2,160	8.1
Aug. 1-10	21	88	58	610	213	164	1,020	1.5	2,070	2.82	458	284	74	12	3,730	7.9
Aug. 11-25	20	92	67	707	214	182	1,190	1.5	2,360	3.21	506	330	75	14	4,270	7.8
Aug. 26-31	16	124	117	1,200	282	303	2,080	-	3,530	3.34	790	632	77	19	6,900	7.7
Sept. 1-6, 8-16	18	92	56	658	236	163	1,000	2.0	2,180	2.36	460	268	76	13	3,540	8.0
Sept. 17, 21, 24...	9.8	77	22	282	241	72	440	2.0	1,020	1.39	282	85	68	7.3	1,580	8.1
Sept. 17-20, 22-23, 25-30....	17	99	63	784	239	101	1,280	1.5	2,560	3.48	506	310	77	15	4,580	7.9

a Calculated from determined constituents.

TRINITY RIVER BASIN--Continued
OLD RIVER NEAR COVE, TEX.

LOCATION.--At Barber Hill Pumping Plant, 5 miles northeast of Cove, Chambers County.
RECORDS AVAILABLE.--Chemical analyses: Short periods during summers of 1946 to 1949, daily records October 1949 to September 1956.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 7,850 ppm Sept. 21-30; minimum, 271 ppm Feb. 1-14.
Hardness: Maximum, 1,610 ppm Sept. 21-30; minimum, 91 ppm Feb. 1-14.
Specific conductance: Maximum daily, 15,100 micromhos Sept. 17; minimum daily, 400 micromhos Feb. 20.
EXTRIMES, 1949-55.--Dissolved solids: Maximum, 9,140 ppm Aug. 31, 1954; minimum, 156 ppm Jan. 26-31, Apr. 21-30, 1952.
Hardness: Maximum, 1,780 ppm Aug. 31, 1954; minimum, 55 ppm Jan. 25-26, 1955.
Specific conductance: Maximum daily, 15,100 micromhos Sept. 17, 1956; minimum daily, 223 micromhos Dec. 21, 1953.
REMARKS.--Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents. Records of specific conductance of daily samples available in district office at Austin, Tex. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)		Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Dissolved solids			Hardness as CaCO ₃		Per- cent so- lids	So- dium ad- sorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
						Parts per mil- lion	Tons per acre- foot							Tons per day	Calcium, magnesium	Non-carbon- ate						
																	Bo- ron (B)					
Oct. 1-12, 1955 ..	15			36	4.4	72	111	19	107	1.1				340	0.46	107	16	59	3.0	564	7.6	
Oct. 13-31	16			46	6.3	95	137	30	144	1.3				447	.61	142	30	59	3.4	748	7.8	
Nov. 1-9, 28-30 ..	14			58	17	227	157	65	362	1.2				848	1.15	214	86	70	6.7	1,500	7.6	
Nov. 10-27	14			76	30	365	173	100	610	.5				1,280	1.74	313	171	72	8.9	2,290	7.8	
Dec. 1-6, 12-15, 19-31	13			49	13	150	123	57	240	1.2				618	.84	175	74	65	4.9	1,080	7.8	
Dec. 7-9, 11, 16-18 ..	10			79	25	311	151	94	535	1.1				1,130	1.54	300	176	69	7.8	2,090	7.9	
Jan. 1-23, 1956 ..	11			52	12	148	142	56	232	.7				617	.84	180	64	64	4.8	1,090	8.0	
Jan. 24-31	11			39	6.5	93	107	43	136	.6				412	.56	123	36	62	3.6	702	7.8	
Feb. 1-14	15			28	5.1	52	83	33	72	1.0				271	.37	91	23	56	2.4	446	7.6	
Feb. 15-29	17			32	4.9	50	103	26	68	1.0				275	.37	100	16	52	2.2	446	7.6	
Mar. 1-15	18			37	5.7	55	124	24	76	1.2				301	.41	116	14	51	2.2	497	7.7	
Mar. 16-31	15			45	6.2	68	144	29	96	2.0				352	.48	138	20	52	2.5	606	7.5	
Apr. 1-7,	12			46	7.6	67	153	23	100	1.2				353	.48	146	21	50	2.4	624	7.8	
Apr. 8-17	18			51	11	142	149	43	222	1.5				589	.80	172	50	64	3.0	1,030	8.1	
Apr. 18-30	21			32	4.6	69	104	30	92	2.8				332	.45	99	14	60	4.7	542	7.7	
May 1-10, 15-26 ..	19			37	4.6	77	121	30	73	2.5				302	.41	111	12	53	2.4	506	7.9	
May 11-14, 27-31 ..	18			44	7.6	113	135	45	162	2.5				485	.66	142	31	64	4.1	843	8.1	
June 1, 6-22, 28-29 ..	16			52	6.0	92	162	44	123	1.2				427	.58	154	21	56	3.2	749	8.2	
June 2-4,	16			67	36	423	162	108	700	2.2				1,430	1.94	315	182	74	10	2,660	8.0	
June 5, 23-27	13			71	11	175	162	62	280	2.8				1,430	.92	187	54	67	5.6	1,220	7.9	
June 30, July 1-5 ..	16			80	6.8	511	137	133	770	2.8				1,590	2.16	228	115	83	15	2,880	7.9	

July 6-14, 1956..	14	122	116	1,310	151	327	2,250	--	4,210	5.73	782	658	79	20	7,230	7.7
July 15-20, 22-31	18	138	165	1,690	163	420	2,920	--	5,430	7.38	1,020	890	78	23	9,160	7.9
July 21	--	--	--	--	a 189	--	680	--	--	--	324	168	--	--	2,570	8.5
Aug. 1-14	16	139	177	1,710	175	370	3,020	--	5,520	7.51	1,080	932	78	23	9,530	7.9
Aug. 15	--	--	--	--	b 247	--	600	--	--	--	312	109	--	--	2,360	8.6
Aug. 16-31	16	126	160	1,520	192	376	2,650	1.5	4,940	6.72	972	815	77	21	8,480	8.0
Sept. 1-17	15	175	241	2,080	180	427	3,820	--	6,860	9.33	1,430	1,280	76	24	11,700	8.0
Sept. 21-30	18	214	261	2,380	185	568	4,280	--	7,850	10.7	1,610	1,460	76	26	12,900	8.0

a Includes equivalent of 8 parts per million of carbonate (CO₃).

b Includes equivalent of 16 parts per million of carbonate (CO₃).

TRINITY RIVER BASIN--Continued
TRINITY RIVER AT ANAHUAC, TEX.

LOCATION.--At Lone Star Pumping Plant in Anahuac, Chambers County.

RECORDS AVAILABLE.--Chemical analyses: Short periods during summers of 1946 to 1949, daily records December 1949 to September 1956

EXTREMES, 1955-56.--Dissolved solids: Maximum, 18,400 ppm Aug. 1-31; minimum, 375 ppm May 7-23.

Hardness: Maximum, 3,420 ppm Aug. 1-31; minimum, 92 ppm Apr. 9-16, 17, 19.

Specific conductance: Maximum daily, 33,700 micromhos Sept. 26; minimum daily, 454 micromhos Feb. 15.

EXTREMES, 1949-56.--Dissolved solids: Maximum, 18,400 ppm Aug. 1-31, 1956; minimum, 140 ppm Apr. 12-19, 1955.

Hardness: Maximum, 3,550 ppm Oct. 21-31, 1952; minimum, 45 ppm Apr. 12-19, 1955.

Specific conductance: Maximum daily, 33,700 micromhos Sept. 26, 1956; minimum daily, 199 micromhos Apr. 15, 1955.

REMARKS.--Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents. Records of specific conductance of daily samples available in district office at Austin, Tex. No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate		
Oct. 1, 5-7, 12-19, 1955	18			67	35	511		155	129	820		3.0		1,660	2.26	310	183	78	2,980
Oct. 2, 4, 11, 1955	17			56	16	291		161	73	445		3.3		984	1.34	206	74	75	8.8
Oct. 8-11, 1955								143		2,780						975	857	--	8,800
Oct. 20-27, 1955								147		1,950						680	560	--	6,410
Oct. 28-31, 1955								148		3,840						1,350	1,230	--	11,700
Nov. 1, 3-6, 9, 12-13, 15-16, 18-20, 22-23, 27-29, 1955	10			180	336	3,140		166	766	5,480		--		9,990	13.59	1,830	1,690	79	16,100
Nov. 2, 7-8, 10-11, 14, 17, 21, 24-26, 30, 1955	13			132	169	1,830		165	459	3,120		--		5,800	7.89	1,020	890	80	9,970
Dec. 1, 21, 1955								132		5,400						1,830	1,720	--	15,700
Dec. 2-3, 10-18, 31, 1955	6.4			84	63	760		152	175	1,280		3.5		2,450	3.33	468	338	78	4,410
Dec. 4-9, 1955	11			44	20	238		118	62	388		1.5		866	1.18	192	96	73	1,520
Dec. 19-20, 22-31, 1955	5.2			104	112	1,390		148	330	2,320		--		4,330	5.89	720	598	81	7,420
Jan. 1-3, 6-12, 1956	12			117	75	975		186	254	1,630		4.0		3,160	4.30	600	448	78	5,650
Jan. 4-5, 13-16, 18-21, 1956	13			138	134	1,600		178	405	2,700		--		5,080	6.91	895	749	80	8,790
Jan. 17, 1956								164		5,950						1,970	1,840	--	17,300
Jan. 22-31, 1956	8.4			43	12	190		112	52	300		2.7		688	.94	157	65	73	1,240
Feb. 1-2, 1956								100	--	800		--				340	308	--	2,890
Feb. 3-14, 27-29, 1956	10			38	9.5	131		93	43	210		2.2		540	.73	135	39	68	831
Feb. 15-26, 1956	9.6			35	6.2	53		96	37	124		3.4		376	.51	113	34	61	644

TRINITY RIVER BASIN--Continued

TRINITY BAY AT MOUTH OF TRINITY RIVER NEAR ANAHUAC, TEX.

LOCATION.--At four sampling stations in Trinity Bay opposite mouth of Trinity River, near Anahuac, Chambers County. Station 2-- In Anahuac Channel immediately below delta. Station 3-- In Anahuac Channel about 1½ miles southwest of Station 2. Station 6-- In Anahuac Channel at south end. Station 7-- In Trinity Bay about 1½ miles west of Station 6.

RECORDS AVAILABLE.--Chemical analyses: Bi-weekly October 1950 to September 1956.

Specific conductance (micromhos at 25°C) and chloride, in parts per million, water year October 1955 to September 1956

Date of collection	Station 2		Station 3		Station 6		Station 7	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
Oct. 5, 1955.....	8,770	2,800	9,540	3,100	21,500	7,750	22,000	7,700
Oct. 12.....	12,300	4,090	17,700	6,220	25,800	9,550	25,600	9,550
Oct. 19.....	15,600	5,330	17,300	6,040	26,000	9,650	25,600	9,550
Oct. 26.....	18,800	6,710	20,700	7,500	24,300	8,970	24,600	9,070
Nov. 2.....	15,300	5,150	--	--	18,600	6,510	--	--
Nov. 9.....	19,700	6,960	19,200	6,660	18,100	6,270	17,600	6,070
Nov. 16.....	14,600	4,810	15,300	5,130	16,000	5,430	16,000	5,460
Nov. 23.....	25,900	9,600	27,200	10,200	30,000	11,260	30,100	11,300
Nov. 30.....	14,200	4,740	15,000	5,130	16,100	5,360	16,200	5,360
Dec. 7.....	14,100	4,740	18,500	6,460	27,700	10,300	27,500	10,200
Dec. 14.....	7,740	2,450	8,270	2,650	14,800	5,100	15,000	5,100
Dec. 21.....	18,700	6,610	20,500	7,300	26,000	9,550	26,100	9,550
Jan. 4, 1956.....	10,000	3,250	11,200	3,670	18,100	6,410	18,300	6,460
Jan. 11.....	8,750	2,750	8,980	2,850	20,700	7,650	20,600	7,450
Jan. 18.....	24,800	9,220	23,700	8,680	26,500	9,990	26,400	9,990
Jan. 25.....	1,550	370	1,420	345	4,800	1,400	4,650	1,340
Feb. 1.....	15,700	5,450	23,000	8,480	28,300	10,900	28,500	10,800
Feb. 8.....	1,080	265	1,050	240	1,070	255	1,080	255
Feb. 15.....	549	113	558	117	498	97	561	114
Feb. 22.....	558	90	848	185	13,800	4,710	15,200	5,180
Feb. 29.....	994	218	--	--	962	210	973	215
Mar. 7.....	2,050	520	6,680	2,050	18,800	6,660	19,000	6,710
Mar. 14.....	11,600	3,870	10,900	3,590	13,400	4,510	13,400	4,540
Mar. 21.....	9,970	3,250	11,500	3,790	14,100	4,810	14,100	4,810
Mar. 28.....	13,300	4,510	15,500	5,350	22,300	8,040	22,300	8,040
Apr. 2.....	23,100	8,430	24,300	8,920	24,800	9,120	24,800	9,120
Apr. 4.....	4,710	1,380	17,300	6,090	21,000	7,650	20,900	7,500
Apr. 6.....	4,530	1,320	4,920	1,440	22,400	8,180	22,800	8,180
Apr. 9.....	581	112	813	188	666	138	670	139

	637	124	639	126	637	126	639	126	637	126	637	126	639	126
Apr. 11, 1956	.....	124	639	126	637	126	639	126	637	126	637	126	639	126
Apr. 13	.....	116	658	139	13,900	13,900	13,900	13,900	13,900	13,900	13,900	13,900	13,900	13,900
Apr. 16	.....	138	643	138	13,657	13,657	13,657	13,657	13,657	13,657	13,657	13,657	13,657	13,657
Apr. 20	.....	378	6,540	2,080	10,400	10,400	10,400	10,400	10,400	10,400	10,400	10,400	10,400	10,400
Apr. 23	.....	4,910	15,200	5,130	15,200	15,200	15,200	15,200	15,200	15,200	15,200	15,200	15,200	15,200
Apr. 25	.....	5,970	19,800	6,810	21,200	21,200	21,200	21,200	21,200	21,200	21,200	21,200	21,200	21,200
Apr. 27	.....	17,000	58,820	19,800	6,460	6,460	6,460	6,460	6,460	6,460	6,460	6,460	6,460	6,460
Apr. 30	.....	20,300	21,800	7,650	24,800	24,800	24,800	24,800	24,800	24,800	24,800	24,800	24,800	24,800
May 2	.....	4,670	5,190	1,520	14,600	14,600	14,600	14,600	14,600	14,600	14,600	14,600	14,600	14,600
May 4	.....	2,520	15,500	5,180	17,100	17,100	17,100	17,100	17,100	17,100	17,100	17,100	17,100	17,100
May 7	.....	933	922	160	16,700	16,700	16,700	16,700	16,700	16,700	16,700	16,700	16,700	16,700
May 9	.....	810	748	143	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660	4,660
May 11	.....	634	595	82	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
May 14	.....	480	480	58	2,540	2,540	2,540	2,540	2,540	2,540	2,540	2,540	2,540	2,540
May 16	.....	477	477	59	477	477	477	477	477	477	477	477	477	477
May 18	.....	619	630	103	630	630	637	637	637	637	637	637	637	637
May 21	.....	700	738	131	720	720	722	722	722	722	722	722	722	722
May 23	.....	757	800	151	3,760	3,760	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050
May 25	.....	1,920	3,200	880	6,530	6,530	1,970	1,970	1,970	1,970	1,970	1,970	1,970	1,970
May 28	.....	7,660	7,730	2,400	11,900	11,900	11,900	11,900	11,900	11,900	11,900	11,900	11,900	11,900
May 30	.....	7,240	6,730	2,060	12,800	12,800	4,160	4,160	4,160	4,160	4,160	4,160	4,160	4,160
June 1	.....	2,330	5,850	1,720	13,500	13,500	4,540	4,540	4,540	4,540	4,540	4,540	4,540	4,540
June 4	.....	12,300	15,000	5,060	16,500	16,500	5,770	5,770	5,770	5,770	5,770	5,770	5,770	5,770
June 6	.....	12,300	13,000	4,380	16,100	16,100	5,760	5,760	5,760	5,760	5,760	5,760	5,760	5,760
June 8	.....	13,000	14,000	4,760	17,000	17,000	5,760	5,760	5,760	5,760	5,760	5,760	5,760	5,760
June 11	.....	4,980	12,000	3,760	15,600	15,600	5,330	5,330	5,330	5,330	5,330	5,330	5,330	5,330
June 13	.....	14,000	14,600	4,960	16,500	16,500	5,720	5,720	5,720	5,720	5,720	5,720	5,720	5,720
June 15	.....	3,510	3,370	980	14,000	14,000	4,760	4,760	4,760	4,760	4,760	4,760	4,760	4,760
June 18	.....	13,900	16,900	5,850	19,600	19,600	6,980	6,980	6,980	6,980	6,980	6,980	6,980	6,980
June 20	.....	14,100	16,500	5,870	19,300	19,300	6,760	6,760	6,760	6,760	6,760	6,760	6,760	6,760
June 22	.....	6,220	19,000	6,810	20,200	20,200	7,370	7,370	7,370	7,370	7,370	7,370	7,370	7,370
June 25	.....	17,200	16,300	5,200	20,000	20,000	7,270	7,270	7,270	7,270	7,270	7,270	7,270	7,270
June 28	.....	6,740	12,700	3,360	18,300	18,300	6,510	6,510	6,510	6,510	6,510	6,510	6,510	6,510
June 29	.....	7,690	15,700	5,600	19,000	19,000	6,880	6,880	6,880	6,880	6,880	6,880	6,880	6,880
July 2	.....	18,800	19,600	7,030	20,600	20,600	7,470	7,470	7,470	7,470	7,470	7,470	7,470	7,470
July 4	.....	18,500	19,800	7,170	19,500	19,500	7,010	7,010	7,010	7,010	7,010	7,010	7,010	7,010
July 6	.....	19,900	20,200	7,370	20,400	20,400	7,370	7,370	7,370	7,370	7,370	7,370	7,370	7,370

TRINITY RIVER BASIN--Continued
 TRINITY BAY AT MOUTH OF TRINITY RIVER NEAR ANAHUAC, TEX.--Continued
 Specific conductance (micromhos at 25°C) and chloride, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Station 2		Station 3		Station 6		Station 7	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
July 9, 1956	21,800	8,090	24,300	9,070	25,800	9,800	25,900	9,800
July 11	22,800	8,430	24,300	8,820	25,800	9,700	25,500	9,550
July 13	23,400	8,480	24,600	9,120	26,000	10,100	26,800	10,000
July 16	24,100	8,870	24,800	9,120	24,900	9,320	24,700	9,200
July 18	24,300	8,870	24,400	8,920	24,700	9,070	24,800	9,120
July 20	24,800	9,120	24,400	8,970	24,100	8,820	24,000	8,820
July 23	26,700	9,990	26,900	10,100	26,600	9,900	26,800	9,990
July 25	26,200	9,850	26,300	9,800	26,600	9,940	26,800	9,990
July 27	26,900	9,600	27,300	9,850	27,300	9,940	27,300	9,990
July 30	27,300	9,940	27,700	10,100	27,900	10,300	27,900	10,200
Aug. 1	27,700	10,200	27,500	10,100	27,500	10,100	27,700	10,100
Aug. 3	27,700	10,200	27,700	10,200	27,700	10,300	27,700	10,200
Aug. 6	27,500	10,000	27,500	10,100	27,500	10,100	27,300	9,940
Aug. 8	26,900	9,800	27,600	10,200	27,600	10,100	27,600	10,100
Aug. 10	26,200	9,510	26,900	9,850	27,700	10,100	27,800	10,100
Aug. 13	26,300	10,400	26,700	10,800	26,900	10,700	26,800	10,700
Aug. 15	28,800	10,600	28,600	10,500	28,000	10,600	29,200	10,800
Aug. 17	26,800	10,300	26,200	10,800	26,900	10,800	28,700	10,800
Aug. 20	27,900	10,300	29,200	10,800	31,100	11,600	31,100	11,700
Aug. 22	30,800	11,500	31,000	11,500	30,300	11,300	30,400	11,300
Aug. 24	30,500	11,400	30,500	11,400	30,500	11,400	30,400	11,400
Aug. 26	30,700	11,200	30,400	11,300	30,700	11,500	30,700	11,500
Aug. 29	30,100	11,200	30,400	11,400	31,000	11,600	31,000	11,600
Aug. 31	30,400	11,300	29,700	11,100	30,900	11,500	30,800	11,500
Sept. 3	30,800	11,500	30,300	11,400	30,400	11,500	30,500	11,500
Sept. 5	26,500	9,800	27,000	9,990	29,100	10,900	28,600	10,800
Sept. 7	31,000	11,800	31,000	11,800	31,000	11,800	31,600	12,000
Sept. 10	30,700	11,700	30,500	11,500	31,000	11,700	30,400	11,500
Sept. 12	31,800	12,200	32,000	12,300	32,700	12,500	31,800	12,200
Sept. 14	32,000	12,300	31,700	12,100	31,900	12,300	32,000	12,300
Sept. 17	31,400	12,000	31,700	12,200	32,700	12,600	31,700	12,200
Sept. 19	31,000	11,900	31,100	11,900	33,500	13,000	30,600	11,600
Sept. 21	29,200	11,100	29,600	11,100	32,400	12,500	30,500	11,600
Sept. 24	33,700	13,100	33,700	13,100	33,900	13,200	33,500	13,000
Sept. 26	33,800	13,100	33,600	12,900	33,900	13,200	33,800	13,100
Sept. 28	31,600	12,200	31,600	12,100	32,300	12,500	32,600	12,500

TRINITY RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN TRINITY RIVER BASIN IN TEXAS

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption	Specific conductance (micro-mhos at 25°C)		
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate				
SOUTH CHANNEL OF TEHUACANA CREEK AT FARM-TO-MARKET ROAD 488, NEAR FAIRFIELD																					
May 12, 1956		13		35	12		171	58	33	301		1.1		595	0.81	136	88	73	6.4	1,130	6.9
June 6,		11		53	19		232	86	49	420	0.7	.4		827	1.12	211	190	71	7.0	1,590	7.4
NORTH CHANNEL OF TEHUACANA CREEK AT FARM-TO-MARKET ROAD 488, NEAR FAIRFIELD																					
May 12, 1956		9.8		21	7.6		156	67	23	243		1.2		495	0.67	84	29	80	7.4	956	6.7
June 6,		9.6		26	8.4		209	92	30	315	0.8	.9		645	.88	99	24	82	9.1	1,250	7.3

BRAZOS RIVER BASIN

HUBBARD CREEK NEAR BRECKENRIDGE, TEX.

LOCATION --At gaging station at bridge on U. S. Highway 183, 2.3 miles downstream from Big Sandy Creek, 6.8 miles northeast of Breckenridge, Stephens County, 7 miles upstream from Gonzales Creek, and 8 miles upstream from Clear Fork Brazos River.

RECORDS AVAILABLE --1.087 square miles.

WATER TEMPERATURES --April 1955 to September 1956.

EXTREMES, 1955-56 --Dissolved solids: Maximum, 2,200 ppm Apr. 17-28; minimum, 152 ppm Oct. 3-10.

HARDNESS: Maximum, 866 ppm Apr. 17-28; minimum, 95 ppm Oct. 3-10.

SPECIFIC CONDUCTANCE: Maximum daily, 5,530 microhmhos Apr. 18; minimum daily, 238 microhmhos June 9.

EXTREMES, April 1955 to September 1956 --Dissolved solids: Maximum, 2,200 ppm Apr. 17-28, 1956; minimum, 152 ppm Oct. 3-10, 1955.

HARDNESS: Maximum, 866 ppm Apr. 17-28; minimum, 92 ppm Sept. 25-30, 1955.

SPECIFIC CONDUCTANCE: Maximum daily, 5,530 microhmhos Apr. 18, 1956; minimum daily, 174 microhmhos Sept. 25, 1955.

REMARKS --Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate			
Oct. 1-2, 1955	242	14		53	6.8		72	100	14	154	--	5.0		368	0.50	161	79	49	691	7.9
Oct. 3-10	88.7	10		32	3.6		13	101	16	20	0.5	3.5		a 132	.21	95	12	23	256	7.9
Oct. 11-28	.44	11		46	4.9		22	134	16	37	.5	1.2		a 223	.36	134	24	26	374	7.7
Oct. 29-31, Nov. 1-12	b .05	10		53	7.1		26	163	24	46	--	.5		a 252	.36	162	28	28	452	8.1
Nov. 13-30		8.8		63	8.0		33	183	31	55	.4	.5		a 290	.40	189	39	28	518	7.6
Dec. 1-11	0	5.8		68	9.7		41	198	39	67	.4	.2		a 331	.45	210	47	30	580	7.5
Dec. 12-30	0	4.8		79	8.8		44	210	48	75	.2	.2		a 363	.49	232	60	29	644	7.8
Jan. 1-16, 1956	0	4.6		81	9.4		45	212	55	81	.2	.2		a 384	.52	240	66	31	673	7.9
Jan. 19-31	1.17	3.0		82	11		52	203	66	90	.1	.2		a 404	.55	250	84	31	708	7.8
Feb. 1-8	3.19	5.2		84	15		52	185	101	90	.4	.8		a 444	.60	3.82	271	120	750	8.1
Feb. 9-26	b 1.50	7.2		46	7.2		24	147	21	37	.4	.5		a 234	.32	144	24	26	387	7.9
Mar. 1-19	0	4.8		51	9.6		26	167	24	43	.4	.5		a 262	.36	167	30	26	439	7.8
Mar. 20-31	0	4.8		48	9.0		33	158	26	51	.3	.7		a 255	.35	157	28	32	460	7.7

a Residue on evaporation at 180°C.

b Includes days of less than 0.05 cubic foot per second discharge.

Apr. 1-4, 1956....	0	2.9	44	10	39	148	30	58	.3	.6	a261	.35	--	151	30	36	1.4	475	7.8
Apr. 15-16.....	16.0	--	--	--	--	116	--	432	--	--	--	--	--	252	157	--	--	1,560	8.0
Apr. 17-26.....	1.28	5.6	268	48	498	132	32	1,280	.2	1.2	2,200	2.99	7.60	866	758	56	7.4	4,120	7.9
Apr. 29-30.....	1.08	9.0	88	12	102	84	63	250	.2	3.8	569	.77	.12	268	199	45	2.7	1,080	7.5
May 1-10.....	551	11	36	4.2	29	102	11	51	.3	2.5	195	.27	290	107	23	37	1.2	361	7.7
May 11-22.....	b1.52	10	47	6.4	42	129	18	76	.3	1.5	264	.36	1.08	143	37	39	1.5	495	7.7
May 23-30, June 1-7	0	6.6	51	7.8	50	148	21	88	.3	.8	298	.41	--	160	38	41	1.7	564	7.7
June 9, 11-12, 19-30	b50.8	11	36	3.7	30	107	10	48	.6	2.9	a207	.28	28.4	105	17	38	1.3	352	7.7
June 10, 13-18.....	22.9	12	44	5.2	58	116	13	103	.5	2.9	a316	.43	19.5	131	36	49	2.2	552	7.8
July 1-25.....	0	9.8	42	5.8	37	132	11	61	.6	1.2	233	.32	--	128	20	38	1.4	438	7.7
July 26-31.....	0	--	--	--	--	143	--	70	--	--	--	--	--	138	28	--	--	480	7.7
Aug. 1-19.....	0	7.0	45	7.6	49	150	11	80	.6	2.0	276	.38	--	144	21	43	1.8	534	8.2
Aug. 20-31, Sept. 1-7	b28.2	13	41	3.9	22	137	11	7.8	.6	2.0	137	.25	14.2	136	6	29	4.9	323	8.2
Sept. 8-16.....	0	8.2	76	11	172	100	16	360	.7	1.3	694	.64	--	234	152	61	5.5	1,360	7.7
Sept. 17-30.....	0	9.6	71	12	188	86	15	368	.4	2.0	728	.89	--	226	156	64	5.5	1,360	7.7
Weighted Average	22.7	11	38	4.4	32	106	11	58	0.4	2.7	212	0.29	13.0	113	26	38	1.3	386	--

a Residue on evaporation at 180°C.

b Includes days of less than 0.05 cubic foot per second discharge.

WESTERN GULF OF MEXICO BASINS

BRAZOS RIVER BASIN--Continued

HUBBARD CREEK NEAR BRECKENRIDGE, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

/ Once daily measurement, usually before 9 a. m. Many days of no flow /

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--			--	--		--	66	--		--	
2	75			--	35		--	64	--		--	
3	75			--	--			65	--		--	
4	75			--	38		--	70	--		--	
5	76			--	--		--	72	--		--	
6	--			--	39		--	--	--		--	
7	69			--	--		--	77	--		--	
8	--			--	46		--	--	--		--	
9	63			--	--		--	75	75		--	
10	--			--	--		--	--	76		--	
11	67			--	50		--	76	79		--	
12	--			--	45		--	--	--		--	
13	65			--	--		--	76	80		--	
14	--			--	47		--	77	--		--	
15	63			--	--		--	--	79		--	
16	--			--	48		61	71	--		--	
17	62			--	--		--	--	80		--	
18	--			--	48		60	--	--		--	
19	62			35	--		--	--	79		--	
20	--			--	48		55	--	--		74	
21	61			37	--		--	--	81		73	
22	--			--	51		59	--	--		--	
23	64			38	--		--	--	--		76	
24	--			--	--		66	--	--		--	
25	55			43	--		--	--	--		74	
26	--			--	--		--	--	--		--	
27	60			50	--		--	--	--		76	
28	--			--	--		73	--	--		--	
29	54			53	--		68	--	--		--	
30	--			--	--		--	--	--		--	
31	54			41	--		--	--	--		--	
Average	--			--	--		--	--	--		--	

BRAZOS RIVER BASIN--Continued

BRAZOS RIVER AT POSSUM KINGDOM DAM, NEAR GRAFORD, TEX.

LOCATION.--Immediately below dam on Brazos River, 2.6 miles upstream from Loving Creek, 11.3 miles southwest of Grafard, Palo Pinto County, and 20 miles upstream from gaging station near Palo Pinto.
DRAINAGE AREA.--22,550 square miles, approximately, of which 9,240 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: January 1942 to September 1956.
Water temperatures: October 1949 to September 1955.
EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,640 ppm Jan. 1-31; minimum, 806 ppm Oct. 1-16.
Hardness: Maximum, 828 ppm Jan. 1-31; minimum, 304 ppm Oct. 1-16.

Specific conductance: Maximum daily, 5,720 micromhos Jan. 7; minimum daily, 1,080 micromhos Oct. 8.
EXTREMES, 1942-56.--Dissolved solids: Maximum, 2,640 ppm Jan. 1-31, 1956; minimum, 806 ppm Oct. 1-16, 1955.
Hardness: Maximum, 828 ppm Jan. 1-31, 1956; minimum, 304 ppm Oct. 1-16, 1955.
Specific conductance: Maximum daily, 5,720 micromhos Jan. 7, 1956; minimum daily, 1,080 micromhos Oct. 8, 1955.

Water temperatures (1949-55): Maximum, 76°F Sept. 27-30, 1950; minimum, 45°F on several days in February 1951.
Remarks. Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for gaging station near Palo Pinto for water year October 1955 to September 1956 given in WSP 1442. No appreciable inflow between dam and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-iron (B)	Dissolved solids			Hardness as CaCO ₃		Percent sodium	So-adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-16, 1955 ..	10,920	11		102	12	152	152	97	235	220		1.1		806	1.10	23,760	304	224	52	3.8	1,310	7.3
Oct. 17-31	298	15		190	19	200	200	97	499	275		.8		1,250	1.70	1,010	552	472	44	3.7	1,930	7.5
Nov. 1-8, 10-11, 13, 20, 24	500	14		197	24	232		109	494	440		1.5		1,520	2.07	2,050	590	500	52	5.2	2,400	7.4
Nov. 9, 12, 14-19, 21-23, 25-30	294	14		231	32	476		121	575	740		1.2		2,130	3.11	1,680	708	609	59	7.8	3,410	7.6
Dec. 1-31	186	12		238	36	525		122	601	820		1.5		2,290	3.11	1,150	742	642	61	8.4	3,650	7.7
Jan. 1-31, 1956 ..	584	13		286	40	620		128	680	980		1.3		2,640	3.59	4,160	828	723	62	9.4	4,230	7.8
Feb. 1-29	620	12	9.6	234	30	511		120	581	790		.8		2,220	3.02	3,720	708	609	61	8.3	3,570	7.8
Mar. 1-31	745	12		212	32	458		117	550	700		.9		2,020	2.75	4,060	660	564	60	7.7	3,220	7.6
Apr. 1-30	466	10		189	28	374		109	484	572		.8		1,710	2.33	2,150	566	497	58	6.7	2,770	7.8
May 1-31	536	10		184	26	340		112	452	525		3.2		1,600	2.18	3,610	586	474	57	6.2	2,640	7.5
June 1-30	340	11		183	23	359		116	449	545		1.2		1,630	2.22	1,500	551	456	59	6.7	2,650	7.6
July 1-29	176	10.6		163	27	379		118	468	578		.6		1,700	2.11	1,130	572	476	59	6.7	2,160	7.7
Aug. 1-31	574	10		203	30	435		122	566	700		.7		1,906	2.58	2,940	600	500	60	8.5	3,410	7.5
Sept. 1-30	52.9	11		214	32	515		129	530	800		1.2		2,110	2.86	3,310	666	560	63	8.7	3,440	7.5
Weighted average	983	11		156	21	292		107	379	445		1.2		1,370	1.86	3,640	476	388	57	5.8	2,220	--

BRAZOS RIVER BASIN--Continued

BRAZOS RIVER NEAR WHITNEY, TEX.

LOCATION --At Whitney Dam on State Highway 22, 3.4 miles upstream from gaging station which is 1.0 mile downstream from Coon Creek, 7.5 miles south of Whitney, Hill County, and at mile 439.

DRAINAGE AREA --26,190 square miles, approximately, above gaging station, of which 9,240 square miles is probably noncontributing.

RECORDS AVAILABLE --Chemical analyses: October 1947 to May 1948, October 1948 to September 1956.

Water temperatures: October 1947 to May 1948, October 1948 to September 1956.

EXTREMES 1955-56 --Dissolved solids: Maximum 1,290 ppm Sept. 1-30; minimum 766 ppm Nov. 1-30.

Hardness: Maximum 432 ppm May 1-31, Sept. 1-30; minimum 287 ppm Nov. 1-30.

Specific conductance: Maximum 85 μ June 25, Aug. 5, 6, 19; minimum 96 ppm June 11-20, 1952.

Water temperatures: Maximum, 85 $^{\circ}$ F June 25, Aug. 5, 6, 19; minimum, 42 $^{\circ}$ F Jan. 18.

EXTREMES 1947-56 --Dissolved solids: Maximum 1,560 ppm Oct. 1-10, 1948; minimum 183 ppm June 11-20, 1952.

Hardness: Maximum 542 ppm Oct. 1-10, 1948; minimum 96 ppm June 11-20, 1952.

Specific conductance: Maximum 98 μ July 8, 1954; minimum, freezing point Jan. 28, 29, 1948.

Water temperatures: Maximum, 98 $^{\circ}$ F July 8, 1954; minimum, freezing point Jan. 28, 29, 1948.

REMARKS --Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids				Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1955 ..	9,553	11		105	13	203		113	221	308		1.2		918	1.25	23,680	316	224	58	5.0	1,570	7.7
Nov. 1-30	411	8.8		92	14	159		107	196	242		1.0		876	1.04	850	287	200	55	4.1	1,340	7.4
Dec. 1-31	385	9.6		94	13	163		112	196	245		1.0		808	1.10	840	288	196	55	4.2	1,320	7.6
Jan. 1-31, 1956 ..	576	12		106	14	173		117	225	260		1.2		903	1.23	1,400	322	226	54	4.2	1,430	7.9
Feb. 1-29	637	9.6		114	15	184		122	237	282		1.0		987	1.32	1,660	346	246	54	4.3	1,530	7.9
Mar. 1-31	548	7.8		124	21	218		125	275	340		1.6		1,050	1.43	1,550	396	294	54	4.8	1,740	7.7
Apr. 1-30	605	8.4		135	20	233		126	309	385		1.0		1,170	1.59	1,910	419	316	57	5.1	1,950	7.8
May 1-31	2,331	8.4		140	20	269		117	326	410		2.4		1,230	1.67	7,740	432	336	58	5.6	2,050	7.5
June 1-30	618	11		132	23	248		112	317	382		4.0		1,170	1.59	1,950	424	332	56	5.2	1,960	7.8
July 1-31	1,636	11		130	19	240		121	293	368		1.4		1,120	1.52	4,950	402	304	56	5.2	1,880	7.9
Aug. 1-31	751	12		125	21	256		125	310	375		1.2		1,160	1.58	2,350	398	296	58	6.1	1,950	7.8
Sept. 1-30	609	10		137	22	289		115	345	430		1.2		1,290	1.75	2,120	432	338	59	6.1	2,160	7.8
Weighted average	1,571	10		116	16	220		116	255	333		1.4		1,010	1.37	4,280	356	260	57	5.1	1,710	--

a Calculated from determined constituents.

BRAZOS RIVER BASIN--Continued
 BRAZOS RIVER NEAR WHITNEY, TEX.--Continued
 Temperature (°F) of water, water year October 1955 to September 1956
 Temperature recorder at gaging station/

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	
1.....	81	81	70	68	54	51	49	49	49	56	54	63	58	70	64	79	74	82	77	83	78	83	78	
2.....	81	80	67	61	55	52	50	49	46	56	54	63	58	64	64	81	76	81	74	80	77	83	80	
3.....	80	80	67	61	58	54	53	49	48	47	56	54	63	58	66	64	81	76	74	80	77	84	80	
4.....	80	80	66	61	54	52	51	47	46	61	55	64	58	67	66	75	72	78	75	84	77	83	78	
5.....	80	80	66	64	54	52	52	48	47	46	56	54	62	61	67	67	74	72	78	76	85	78	80	
6.....	80	80	66	64	54	51	53	50	52	47	56	54	65	61	67	67	75	73	78	77	85	79	82	
7.....	80	79	64	59	54	52	51	48	50	48	57	54	67	62	71	67	75	72	80	78	82	79	80	
8.....	79	78	63	58	54	51	50	47	50	49	57	53	67	64	70	68	77	72	80	78	84	78	78	
9.....	78	78	63	60	52	50	50	46	49	49	61	53	67	60	70	67	79	73	81	79	80	78	78	
10.....	78	77	61	58	52	49	51	48	49	49	64	56	63	59	72	67	80	77	81	79	81	78	79	
11.....	77	77	62	59	52	50	47	52	48	58	56	63	58	71	67	79	74	80	78	83	78	82	76	
12.....	77	77	65	60	52	47	51	47	54	49	58	54	63	60	77	68	77	74	79	77	84	78	79	
13.....	77	76	66	61	52	49	50	47	53	49	55	52	64	60	80	69	81	74	80	78	81	78	79	
14.....	76	75	66	60	51	50	50	47	54	50	57	53	66	60	73	69	78	75	81	78	81	78	79	
15.....	75	75	67	60	51	48	49	49	51	50	57	56	67	66	74	70	81	73	81	79	83	79	78	
16.....	75	74	61	56	50	46	49	45	50	48	58	53	67	60	78	71	79	71	80	78	82	80	81	
17.....	75	74	58	55	50	48	46	46	50	49	60	54	63	59	79	72	83	72	81	79	82	79	81	
18.....	74	74	58	56	51	50	47	42	52	50	61	59	62	60	76	72	75	72	81	79	84	79	83	
19.....	74	70	58	57	51	49	46	43	53	50	61	57	63	59	75	72	75	73	81	79	85	80	82	
20.....	73	70	58	56	53	50	46	45	52	50	60	58	67	62	77	72	76	73	82	81	82	78	83	
21.....	76	71	59	56	51	51	45	45	52	50	59	57	64	61	74	72	78	72	81	79	82	79	82	
22.....	74	71	62	59	53	51	45	44	55	51	57	55	69	61	79	72	78	83	82	79	82	78	82	
23.....	75	71	59	57	54	50	45	44	56	51	59	55	68	61	80	72	82	73	80	78	83	78	83	
24.....	71	66	58	56	55	51	45	45	54	51	64	54	66	61	78	73	82	77	80	78	83	78	83	
25.....	71	68	58	54	53	51	49	45	54	52	64	56	62	61	82	76	85	75	81	79	82	78	81	
26.....	69	66	58	56	54	52	46	46	57	54	70	57	65	61	81	79	82	74	80	78	82	80	80	
27.....	69	65	56	55	52	51	56	48	58	54	69	57	70	61	80	77	82	74	80	78	81	78	80	
28.....	69	66	56	48	53	51	58	53	56	53	61	57	72	69	79	73	80	75	80	78	81	78	80	
29.....	66	62	56	53	52	51	60	58	57	53	60	56	72	71	74	73	81	74	82	78	84	78	80	
30.....	64	61	54	50	52	50	59	51	---	---	60	57	71	60	76	74	80	74	81	79	84	78	79	
31.....	63	61	---	---	51	49	52	48	---	---	62	57	---	---	75	74	---	---	84	79	83	77	---	
Average.....	75	73	62	58	53	50	50	47	52	50	60	55	66	61	77	70	79	74	80	78	83	78	81	

BRAZOS RIVER BASIN--Continued
BRAZOS RIVER AT RICHMOND, TEX.

LOCATION.--At gaging station at bridge on U. S. Highway 59 in Richmond, Fort Bend County, 925 feet downstream from Texas and New Orleans Railroad bridge and at mile 93.

DRAINAGE AREA.--44,020 square miles (revised), approximately, of which 9,240 square miles is probably noncontributing.

RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1956.

Water temperatures: November 1950 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 1,190 ppm Sept. 21-30; minimum, 318 ppm Feb. 14-19.

Hardness: Maximum, 404 ppm Sept. 21-30; minimum, 122 ppm Feb. 14-19.

Specific conductance: Maximum daily, 2,090 micromhos Sept. 30; minimum daily, 433 micromhos Feb. 16.

EXTREMES, 1945-56.--Dissolved solids: Maximum, 85 F on several days during July and August; minimum, 43 F Jan. 30.

Hardness: 194-36.--Dissolved solids: Maximum, 1,400 ppm Sept. 1-10, 1951; minimum, 133 ppm Aug. 27-31, 1947.

Specific conductance: Maximum daily, 2,194 micromhos, 74 ppm Jan. 13-14, 18-20, 1950.

Hardness: Maximum daily, 446 ppm Sept. 1-10, 1946; minimum, 140 ppm Aug. 3, 1951; minimum daily, 187 micromhos Aug. 31, 1947.

Water temperatures: 1950-56: Maximum, 69 F Aug. 5, 1951; minimum, 40 F Dec. 24, 1953.

REMARKS.--Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are calculated from determined constituents unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Bo- ron (B)	Dissolved solids			Hardness as CaCO ₃		Per- cent adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH	
														Parts per mil- lion	Tons per acre- foot	Tons per acre- foot	Calcium, magnesium	Non-carbon- ate				
Oct. 1-10, 1955 ..	14,860	13		107	14	214	6.3	126	211	335	0.6	2.2	0.22	982	1.34	39,400	324	221	58	5.2	1,650	7.6
Oct. 11-20 ..	15,000	13		106	15	209	6.2	114	238	325	.5	1.2	.24	a1,000	1.36	40,500	326	232	58	5.0	1,660	7.7
Oct. 21-31 ..	3,569	13		109	13	197	6.1	134	224	302	.5	1.2	.26	952	1.29	9,170	326	216	56	4.8	1,350	7.7
Nov. 1-30 ..	1,120	13		112	15	174	5.8	174	191	272	.5	1.0	.27	886	1.20	2,680	341	198	52	4.1	1,460	7.8
Dec. 1-10 ..	869	14		104	17	152	5.2	209	157	225	.3	.6	.13	811	1.10	1,900	330	158	50	3.6	1,320	8.2
Dec. 11-20 ..	745	9.8		102	16	141	4.9	218	154	205	.3	.3	.15	770	1.05	1,550	320	144	48	3.4	1,260	8.0
Dec. 21-31 ..	741	8.4		100	17	141	5.1	214	153	205	.3	.5	.13	757	1.03	1,510	320	144	48	3.4	1,250	7.8
Jan. 1-10, 1956 ..	719	7.8		101	16	141	5.2	210	158	215	.4	.6	.19	764	1.04	1,480	318	146	49	3.4	1,260	7.9
Jan. 11-20 ..	764	9.2		102	16	143	5.2	217	157	215	.4	.8	.22	772	1.05	1,590	320	142	49	3.5	1,270	7.9
Jan. 21-31 ..	1,363	6.0		86	13	130	5.0	152	154	198	.4	.8	.14	680	.92	2,500	268	144	51	3.4	1,140	7.7
Feb. 1-8, 12 ..	1,412	7.8		81	14	127	4.8	156	133	192	.4	.9	.20	642	.87	2,450	260	132	51	3.4	1,110	7.7
Feb. 9-11, 13 ..	3,232	7.6		57	8.0	75	4.2	135	78	110	.4	1.0	.16	431	.57	3,670	176	66	47	2.5	732	7.6
Feb. 14-19 ..	3,212	9.6		54	4.8	53	4.3	104	45	77	.5	2.2	.14	318	.43	2,760	122	37	48	2.1	519	7.6
Feb. 20-29 ..	1,536	9.4		58	10	120	5.4	123	78	192	.5	1.0	.22	552	.75	2,290	186	84	58	3.8	970	7.6
Mar. 1-6, 14-16 ..	1,396	9.6		103	15	178	6.0	159	193	280	.4	.6	.14	884	1.20	3,330	318	188	54	3.4	1,460	7.6
Mar. 7-13 ..	1,477	11		68	9.4	100	5.0	129	104	157	.4	2.3	.12	530	.72	2,110	208	102	50	3.0	903	7.6
Mar. 17-31 ..	651	10		110	18	164	5.4	189	193	262	.4	.8	.12	879	1.20	1,550	348	194	50	3.8	1,430	7.7

a Residue on evaporation at 180°C.

Apr. 1-10, 1956..	99	18	5	142	5.2	215	148	208	.4	.7	0.14	768	1.04	1,230	320	144	49	3.5	1,280	7.5
11	108	19	5	174	5.8	165	209	265	.5	.8	.17	943	1.28	2,330	348	212	52	4.0	1,490	8.0
12	June 1-10	96	17	154	5.5	150	185	240	.5	.5	.14	848	1.15	1,980	310	186	51	3.8	1,330	8.1
13	June 11-20	100	18	174	5.7	163	195	265	.6	.8	.11	922	1.25	2,430	328	195	53	4.2	1,460	8.1
14	June 21-30	102	18	174	5.7	163	195	265	.6	.8	.11	922	1.25	2,430	328	195	53	4.2	1,460	8.1
15	July 1-10	100	19	182	6.1	186	226	305	.5	.8	.11	926	1.26	2,338	328	175	54	4.4	1,530	7.9
16	July 11-20	103	19	225	6.6	133	265	338	.5	.8	.03	1,050	1.43	2,810	369	280	56	5.1	1,750	7.7
17	July 21-31	115	19	239	6.3	117	286	360	.5	.8	.06	1,100	1.50	2,960	375	279	58	5.4	1,870	7.8
18	Aug. 1-10	114	19	226	6.1	119	269	342	.4	1.2	.18	1,060	1.43	2,440	382	285	57	5.2	1,790	7.9
19	Aug. 11-20	108	20	244	6.9	151	246	325	.4	1.2	.16	1,190	1.59	2,890	376	256	56	5.0	1,820	7.8
20	Aug. 21-30	110	20	246	6.9	151	246	325	.4	1.2	.16	1,190	1.59	2,890	376	256	56	5.0	1,820	7.8
21	Sept. 1-10	119	19	239	6.5	126	276	352	.5	1.2	.22	1,080	1.47	2,740	378	272	58	5.1	1,790	7.6
22	Sept. 11-20	121	18	219	6.3	155	257	340	.4	1.2	.21	1,050	1.43	2,340	376	249	55	4.9	1,740	8.1
23	Sept. 21-30	127	18	254	7.0	127	300	400	.4	1.5	.23	1,190	1.62	2,380	404	300	57	5.5	1,960	7.6
24	Weighted average	95	14	166	5.8	136	185	260	0.5	1.5	0.18	884	1.13	4,860	294	183	54	4.2	1,360	--

a Residue on evaporation at 180°C.

^b Calculated from determined constituents.

Calculated from determined constituents.

WESTERN GULF OF MEXICO BASINS

BRAZOS RIVER BASIN--Continued

BRAZOS RIVER AT RICHMOND, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	83	67	50	52	57	63	68	--	81	84	84	83
2	83	67	51	54	--	--	72	--	81	83	83	84
3	81	60	55	58	--	--	73	--	81	84	84	83
4	81	62	61	56	45	70	71	73	80	84	84	82
5	81	62	57	55	46	67	73	76	80	85	85	81
6	80	64	55	55	47	68	67	--	--	85	85	82
7	79	64	55	--	48	68	61	73	81	--	85	82
8	74	60	54	56	60	63	--	--	--	85	85	--
9	72	60	52	53	51	59	68	77	81	85	85	78
10	74	51	50	51	53	63	62	77	81	83	--	78
11	74	52	50	50	51	66	57	77	81	83	85	78
12	75	62	49	50	51	66	63	78	78	84	84	78
13	74	63	49	52	54	58	63	78	81	84	84	79
14	72	72	50	48	57	63	70	79	82	84	84	80
15	72	73	49	51	60	57	72	79	82	84	84	81
16	73	73	48	51	64	64	68	78	82	83	85	79
17	70	53	49	51	66	--	70	--	82	84	85	80
18	68	59	53	49	66	--	68	77	80	--	84	79
19	67	63	55	45	68	58	66	78	80	84	83	80
20	67	57	56	--	66	58	68	79	80	84	83	--
21	67	57	56	46	63	58	68	80	81	84	83	81
22	68	67	57	52	63	56	67	80	82	84	81	81
23	--	69	57	52	64	56	68	81	82	83	81	81
24	67	63	63	52	65	64	68	80	83	83	80	81
25	65	57	67	53	66	66	69	79	83	83	81	80
26	64	55	63	54	56	67	68	80	84	--	80	78
27	66	59	62	56	66	69	73	80	84	83	80	78
28	--	55	62	62	59	67	76	81	84	83	80	76
29	65	46	60	65	62	69	77	81	84	84	82	--
30	62	48	57	43	--	69	--	81	84	84	84	78
31	63	--	54	57	--	70	--	81	--	84	84	--
Average	72	61	55	53	58	64	68	78	82	84	83	80

BRAZOS RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN BRAZOS RIVER BASIN IN TEXAS

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25° C)		
													Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, magnesium	Non- carbon- ate				
WHITE RIVER AT U. S. HIGHWAY 82, 4½ MILES EAST OF CROSSBYTON																					
Jan. 19, 1956	3.36	38		54	46	74	452	70	28			0.5	532	0.72		323	0	33	1.8	875	8.2
WHITE RIVER AT COUNTY ROAD CROSSING 4½ MILES EAST OF CROSSBYTON																					
Jan. 19, 1956	2.44	41		49	47	78	447	77	27			0.2	539	0.73		315	0	35	1.9	914	8.2
LAKE BELTON NEAR BELTON																					
Aug. 22, 1956		2.9	0.02	44	5.0	15	163	7.9	14	0.3	0.5		170	0.23		131	0	20	0.6	317	7.4

COLORADO RIVER BASIN

COLORADO RIVER NEAR SAN SABA, TEX.

LOCATION --At gaging station at bridge on U. S. Highway 190, 5.2 miles downstream from San Saba River, 9.2 miles east of San Saba County, and at mile 47.1.

DRAINAGE AREA --30,600 square miles, approximately of which 11,900 square miles is probably noncontributing.

RECORDS AVAILABLE --Chemical analyses, September 1947 to September 1956.

Water temperatures: September 1947 to September 1956.

Sediment records: December 1950 to September 1956.

EXTREMES, 1955-56 --Dissolved solids: Maximum, 1,520 ppm Aug. 21, 24-28; minimum, 171 ppm Oct. 1-5.

Hardness: Maximum, 380 ppm Aug. 21, 24-28; minimum, 114 ppm Oct. 1-5.

Specific conductance: Maximum daily, 3,140 micromhos Aug. 26; minimum daily, 223 micromhos Apr. 30.

Water temperatures: Maximum, 98°F Aug. 3.

Sediment concentrations: Maximum daily, 6,560 ppm May 1; minimum daily, 32 ppm Apr. 20-29, June 6-14.

Sediment loads: Maximum daily, 486,000 tons May 2; minimum daily, 1.2 tons Sept. 25-30.

EXTREMES, 1947-56 --Dissolved solids: Maximum, 1,530 ppm Oct. 15-19, 1947; minimum, 102 ppm Sept. 23-25, 1955.

Hardness: Maximum, 522 ppm Oct. 15-19, 1947; minimum, 71 ppm June 25-30, 1949.

Specific conductance: Maximum daily, 3,420 micromhos Sept. 20, 1947; minimum daily, 161 micromhos Sept. 11, 1952.

Water temperatures: Maximum, 98°F Aug. 3, 1956; minimum, freezing point Jan. 29, 1948, Jan. 30, 1951.

Sediment concentrations (1950-56): Maximum daily, 10,200 ppm May 24, 1951; minimum, no flow Aug. 27-31, 1954.

Sediment loads (1950-56): Maximum daily, 535,000 tons May 19, 1955; minimum, 0 tons Aug. 27-31, 1954.

REMARKS --Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent non-carbonate	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate			
Oct. 1-5, 1955 ..	2,046	11		38	4.8	13		127	11	18		2.5		171	0.23	114	10	20	289	7.8
Oct. 6-10	1,752	9.2		43	6.0	50		136	25	71		3.2		285	1.350	132	21	45	503	7.6
Oct. 11-20	406	9.6		46	7.4	50		147	26	74		2.5		298	.41	145	24	43	527	7.7
Oct. 21-31	162	12		55	10	42		187	22	64		2.2		310	.42	136	24	34	542	7.9
Nov. 1-10	56.5	13		57	16	39		228	21	59		2.0		327	.44	208	21	29	567	7.7
Nov. 11-20	60.2	13		63	19	43		261	24	62		2.4		361	.49	235	21	28	622	8.1
Nov. 21-30	49.7	12		64	24	49		278	28	75		3.2		400	.54	258	30	29	699	8.0
Dec. 1-10	56.0	12		70	23	53		291	31	78		2.8		4413	.56	269	30	30	734	8.1
Dec. 11-20	53.1	12		57	26	52		266	29	78		3.5		398	.54	249	31	31	703	8.0
Dec. 21-31	53.4	10		64	26	60		282	33	92		3.4		438	.60	263	31	33	769	8.0
Jan. 1-10, 1956 ..	43.3	8.2		63	26	43		270	37	114		3.4		438	.60	284	49	38	840	8.1
Jan. 11-20	50.8	8.4		53	28	69		286	35	103		2.5		438	.61	243	36	38	784	8.1
Jan. 21-31	82.0	7.8		73	25	69		295	39	106		2.8		479	.65	284	42	35	841	8.1

a Calculated from determined constituents.

Feb. 1-10, 1956..	238	6.2	68	22	78	273	38	116	3.2	485	.66	312	260	36	39	2.1	858	7.9
Feb. 11-20.....	118	8.6	63	21	69	259	40	96	6.8	449	.61	143	244	32	38	1.9	776	8.1
Feb. 21-29.....	73.2	11	61	21	54	244	33	84	3.8	408	.55	80.6	238	38	33	1.5	699	8.3
Mar. 1-10.....	55.4	9.6	55	22	49	239	30	76	1.0	362	.49	54.1	228	32	32	1.4	655	8.0
Mar. 11-20.....	33.1	11	57	26	47	264	29	74	.8	404	.55	36.1	249	32	29	1.3	679	8.1
Mar. 21-31.....	24.3	9.4	56	29	50	276	28	80	.2	404	.55	26.5	258	32	30	1.4	714	8.1
Apr. 1-7.....	19.3	10	54	29	60	269	33	91	1.0	420	.57	21.9	254	33	34	1.6	747	8.0
Apr. 8-20.....	163	7.6	108	26	107	172	225	165	2.0	a 726	.99	320	376	236	38	2.4	1,200	8.0
Apr. 21-29.....	20.7	7.6	97	26	86	158	204	138	.8	a 537	.87	35.6	349	220	35	2.0	1,050	7.8
Apr. 30, May 1-6	28, 130	10	40	4.7	18	137	14	20	2.4	186	.25	14, 130	118	6	25	1.7	320	7.7
May 7, 15.....	1, 122	14	32	8.6	56	163	31	63	3.7	336	.46	1, 122	304	30	43	1.9	592	8.0
May 16-18, 25....	3, 089	13	48	11	137	168	62	216	4.1	524	.33	5, 140	224	17	36	4.1	1,080	7.8
May 19-24, 26-31	1, 086	12	44	7.1	31	146	21	44	3.4	241	.33	714	138	16	33	1.2	420	7.6
June 1-10.....	207	13	47	9.4	21	175	16	29	3.2	a 225	.31	126	157	22	23	.7	412	7.9
June 11-20.....	78.1	16	52	14	32	b 203	24	43	3.1	266	.30	60.3	156	20	27	1.0	489	8.4
June 21-30.....	28.7	16	48	17	40	201	30	56	2.4	310	.42	24.0	190	28	31	1.3	538	8.2
July 1-10.....	44.8	15	49	19	50	205	34	74	1.6	348	.47	42.1	200	32	35	1.5	611	8.2
July 11-20.....	78.1	14	60	21	73	218	51	114	2.3	452	.61	95.3	235	56	40	2.1	794	8.2
July 21-31.....	28.6	11	58	23	97	179	61	170	.8	558	.76	43.1	239	92	47	2.7	934	7.8
Aug. 1-10.....	18.8	14	56	27	112	196	62	190	1.0	a 558	.76	28.8	250	90	49	3.1	1,020	8.2
Aug. 11-20.....	31.2	13	62	27	147	172	80	225	1.0	a 670	.91	56.4	266	124	55	3.9	1,240	8.1
Aug. 21, 24-28...	161	13	88	39	425	180	188	680	2.0	a 1,520	2.07	661	330	232	71	9.5	2,710	8.0
Aug. 22-23, 29...	889	11	50	10	89	148	46	133	2.0	441	.60	1,060	166	44	54	3.0	762	7.9
Aug. 30-31, Sept.	252	12	38	8.8	31	159	17	34	3.5	233	.32	159	131	1	34	1.2	398	8.1
1-10.....	18.2	13	42	12	32	184	17	38	2.2	258	.35	12.7	154	3	31	1.1	446	8.1
Sept. 11-20.....	9.72	12	40	18	42	212	17	52	1.0	294	.40	7.7	174	0	34	1.4	514	8.1
Sept. 21-30.....	772	10	44	6.6	32	145	21	43	2.6	242	0.34	504	137	18	34	1.2	419	--
Weighted average																		

a Calculated from determined constituents.

b Includes equivalent of 4 parts per million of carbonate (CO₃).

WESTERN GULF OF MEXICO BASINS
COLORADO RIVER BASIN--Continued

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	74	45	56	--	60	70	62	80	86	87	84
2	78	68	47	--	--	60	68	65	77	85	86	83
3	76	55	55	--	--	65	65	--	78	85	98	82
4	77	54	55	--	--	68	62	71	80	86	89	84
5	77	64	50	--	--	72	66	74	85	88	81	85
6	78	62	49	--	--	69	62	72	80	88	86	80
7	72	52	46	--	--	80	61	74	86	90	92	80
8	79	--	50	55	--	52	65	75	89	90	90	78
9	75	51	--	48	--	52	63	75	84	80	90	78
10	68	52	48	--	--	60	63	76	87	--	90	80
11	70	54	50	--	53	64	58	76	78	85	89	80
12	72	64	49	--	57	54	61	--	79	86	90	80
13	68	66	--	--	50	49	65	83	80	87	89	82
14	68	--	--	--	58	50	65	78	80	87	90	83
15	68	70	--	--	57	54	71	75	88	86	91	84
16	75	80	--	--	56	52	63	71	--	85	91	85
17	65	54	--	--	62	65	64	74	85	88	--	84
18	61	55	--	--	64	65	61	76	85	88	--	85
19	64	54	--	--	60	59	60	75	86	--	85	85
20	65	57	--	--	55	55	60	80	81	81	85	86
21	62	58	--	--	55	56	62	75	85	86	84	85
22	65	60	--	--	59	56	68	77	88	87	82	86
23	73	57	--	--	62	55	66	75	80	86	82	84
24	62	55	--	--	65	60	66	78	85	89	83	83
25	61	60	--	--	68	69	69	76	85	90	84	84
26	59	61	--	--	62	65	70	76	86	86	80	80
27	64	58	--	--	58	68	71	80	89	85	85	81
28	63	47	--	--	55	63	70	81	87	89	85	80
29	55	46	--	--	57	60	74	82	89	--	81	78
30	62	45	--	--	--	63	--	78	87	--	76	76
31	64	--	--	--	--	66	--	80	--	--	77	--
Average	69	58	--	--	--	60	65	76	84	86	86	82

COLORADO RIVER BASIN--Continued

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	1,520	750	3,080	62			47		
2.....	2,340	2,250	14,200	64			48		
3.....	1,130	2,800	8,540	67			51		
4.....	1,250	1,300	s 4,840	65			56		
5.....	3,990	4,170	s 45,200	58			60		
6.....	2,370	6,500	41,600	55	35	5.6	64	47	7.1
7.....	2,260	3,850	23,500	53			64		
8.....	1,760	2,700	12,800	55			60		
9.....	1,120	1,600	4,840	58			55		
10.....	1,250	1,600	5,400	58			55		
11.....	820	1,250	2,770	64			53		
12.....	604	650	1,080	65			53	67	9.6
13.....	495	350	458	64			53		
14.....	408	250	275	62			56		
15.....	356	220	211	62			58		
16.....	320	200	173	60	47	7.6	56		
17.....	295	186	148	58			53		
18.....	275	160	119	56			51		
19.....	256	150	104	56			50		
20.....	243	122	80	55			48		
21.....	230	114	71	55			47	--	e 7
22.....	225	115	70	55			48		
23.....	217			55			48		
24.....	217			53			48		
25.....	213			51	50	6.7	55		
26.....	192			48			58		
27.....	155	48	19	47			58		
28.....	109			45			58		
29.....	89			44			56		
30.....	73			44			56		
31.....	65			--	--	--	55		
Total.	24,837	--	169,511	1,694	--	199.0	1,678	--	223.2
	January			February			March		
1.....	50			73			64		
2.....	45			73			62		
3.....	45			73			60		
4.....	44			73			58		
5.....	41			73	--	e 12	60		
6.....	38			73			60	86	13
7.....	41			73			53		
8.....	41			314	468	397	47		
9.....	44			920	395	981	47		
10.....	44	--	e 6	632	155	264	43		
11.....	45			305			37		
12.....	45			173			35		
13.....	44			120			34		
14.....	43			101			34		
15.....	43			91	86	27	35	80	7.1
16.....	45			82			33		
17.....	50			80			31		
18.....	64			76			31		
19.....	62			76			31		
20.....	67			73			30		
21.....	73			78			29		
22.....	89			78			26		
23.....	91			78			24		
24.....	84			78			24		
25.....	84			76			24		
26.....	87	--	e 15	71	78	16	25	76	5.0
27.....	84			69			24		
28.....	80			67			24		
29.....	78			64	118	20	24		
30.....	76			--	--	--	22		
31.....	76			--	--	--	21		
Total.	1,843	--	285	4,213	--	2,144	1,152	--	256.0

e Estimated.

s Computed by subdividing day.

WESTERN GULF OF MEXICO BASINS

COLORADO RIVER BASIN--Continued

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	20	70	3.6	18,600	6,560	s331,000	415	196	220
2.....	18			32,200	5,510	s486,000	315	172	146
3.....	19			52,800	3,400	485,000	261	123	87
4.....	21			48,400	2,150	281,000	238	111	71
5.....	20			32,500	1,800	158,000	196	95	50
6.....	19	291	s756	8,080	3,800	82,900	155	32	10
7.....	18			3,250	2,000	17,600	148		
8.....	758			1,980	1,300	6,950	129		
9.....	534			1,340	800	2,890	112		
10.....	256			964	456	1,190	99		
11.....	136	59	13	716	294	568	126	90	13
12.....	94			562	208	318	126		
13.....	67			464	173	217	89		
14.....	55			422	136	155	78		
15.....	51			401	142	154	73		
16.....	47	32	1.8	998	583	s2,700	67	94	6.4
17.....	41			3,470	3,060	s30,000	62		
18.....	30			1,430	2,200	8,490	60		
19.....	25			940	900	2,280	53		
20.....	22			724	500	977	47		
21.....	22	2,970	s96,400	653	357	629	40	94	6.4
22.....	22			590	276	440	37		
23.....	20			534	217	313	33		
24.....	19			1,030	700	s2,370	29		
25.....	18			6,300	4,400	74,800	28		
26.....	19	4,360	2,970	3,460	2,000	18,700	26	94	6.4
27.....	22			1,660	1,100	4,930	26		
28.....	22			1,140	700	2,150	26		
29.....	22			932	350	881	22		
30.....	4,360			876	350	828	20		
31.....	--	--	--	632	268	457	--	--	--
Total.	6,797	--	97,560.2	228,048	--	2,004,885	3,136	--	825.8
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	18	68	8.2	14	80	4.1	295	800	637
2.....	32			14			243	340	223
3.....	65			13			180	340	165
4.....	45			27			107	330	95
5.....	37			29			67	270	49
6.....	31	78	16	24	80	2.1	48	225	29
7.....	44			21			40	205	22
8.....	76			18			31	190	16
9.....	55			15			25	179	11
10.....	45			13			22	145	8.6
11.....	188	42	3.2	12	80	2.1	25	130	8.8
12.....	142			11			31	130	11
13.....	91			11			24	110	a7
14.....	67			11			20	105	5.7
15.....	50			9.6			18	90	4.4
16.....	38	42	3.2	9.3	80	2.1	14	70	2.6
17.....	50			8.7			13	65	2.3
18.....	53			8.1			13	65	2.3
19.....	45			7.9			12	55	1.8
20.....	57			223	196	s294	12	48	1.6
21.....	56	42	3.2	518	331	s427	11	86	2.6
22.....	38			646	450	785	10	102	2.8
23.....	36			261	220	155	9.6	74	1.9
24.....	43			170	90	41	9.0	72	1.7
25.....	32			101	72	20	9.0	--	--
26.....	24	42	3.2	71	149	29	9.0	48	1.2
27.....	20			60	112	18	10		
28.....	18			48	120	16	10		
29.....	16			1,760	2,090	s20,000	10		
30.....	16			1,370	3,190	s12,700	9.6		
31.....	16			590	1,800	2,870	--	--	--
Total.	1,544	--	277.2	6,094.6	--	38,114.9	1,337.2	--	1,319.3
Total discharge for year (cfs-days)									282,373.8
Total load for year (tons)									2,315,600.6

s Computed by subdividing day.

a Estimated from concentration curve.

COLORADO RIVER BASIN--Continued

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
 (Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
 W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350		0.500	1.000
Oct. 3, 1955	8:00 a.m.	1,200	73	3,140	1,590	68	82	92	98	100	100	--	--			BWC
Oct. 7,	8:00 a.m.	2,040	72	3,820	2,380	--	74	87	93	93	100	--	--			SPWC
Apr. 30, 1956 ..	5:20 p.m.	6,920	--	13,300	6,540	9	18	39	63	92	98	99	100			SPN
Apr. 30,	5:20 p.m.	6,920	--	13,300	5,860	42	457	72	85	94	98	99	100			SPWC
Apr. 30,	8:30 p.m.	16,500	--	7,860	3,110	5	37	66	80	97	98	100	--			SPN
Apr. 30,	8:30 p.m.	16,500	--	7,860	2,780	42	69	83	95	97	98	99	100			SPWC
May 3,	5:30 p.m.	52,500	--	2,670	2,390	--	80	91	98	98	100	--	--			SPWC
May 5,	6:50 a.m.	38,700	74	1,320	1,170	73	88	91	98	98	100	--	--			BWC
May 7,	6:00 p.m.	2,920	75	1,770	1,270	67	82	83	96	99	100	--	--			BWC
May 17,	7:30 a.m.	4,490	74	3,130	2,170	43	58	67	84	95	99	100	--			SPWC
May 25,	5:00 p.m.	6,920	80	4,440	3,070	--	64	80	91	98	100	--	--			SPWC
Aug. 29,	6:00 p.m.	4,130	86	6,100	4,510	--	66	82	93	99	100	--	--			SPWC

COLORADO RIVER BASIN--Continued

COLORADO RIVER AT AUSTIN, TEX.

LOCATION.--At raw-water intake at Austin City Water Plant, 4.5 miles upstream from gaging station which is at Montopolis Bridge on U. S. Highway 183 at southeast edge of Austin, Travis County, 2.8 miles upstream from Walnut Creek, 3.8 miles downstream from Waller Creek, 5 miles downstream from Walnut Creek, 38,400 square miles, approximately of which 11,900 square miles is probably noncontributing.

DRAINAGE AREA.--38,400 square miles. Records available--Chemical analyses: October 1947 to September 1956.

Water temperatures.--October 1947 to September 1956.

EXTREMES 1955-56--Dissolved solids: Maximum, 245 ppm Oct. 1-31; minimum, 225 ppm Apr. 1-30.

Hardness: Maximum, 157 ppm Dec. 1-31; minimum, 139 ppm May 1-31.

Specific conductance: Maximum daily, 459 micromhos June 22; minimum daily, 368 micromhos May 2.

Water temperatures: Maximum, 79° F Oct. 1-4, 6 Sept. 8; minimum, 48° F Feb. 4.

EXTREMES 1947-56--Dissolved solids: Maximum, 340 ppm Nov. 1-30, 1951; minimum, 214 ppm July 1-31, 1953.

Hardness: Maximum, 214 ppm Jan. 1-31, 1954; minimum, 139 ppm May 1-31, 1956.

Specific conductance: Maximum daily, 591 micromhos July 1, 1948; minimum daily, 243 micromhos Dec. 2, 1953.

Water temperatures: Maximum 87° F on several days during summer months; minimum, 43° F Jan. 28, 1948, Feb. 4, 1949.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442. No appreciable inflow between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- nesium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per- cent sod- ium	So- dium chlor- ide ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
														Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, magnesium	Non- carbon- ate				
Oct. 1-31, 1955 ..	2,243	7.4	42	10	33	157	23	46	0.2	0.7	249	0.34	1,510	146	18	33	1.2	425	7.8			
Nov. 1-30	1,733	8.8	41	10	31	151	23	44	0.4	0.8	233	0.32	1,090	143	20	32	1.1	410	8.1			
Dec. 1-31	506	7.8	45	11	26	180	23	41	0.4	0.5	234	0.32	320	157	26	27	0.9	421	8.0			
Jan. 1-31, 1956 ..	328	6.4	44	9.3	31	161	24	42	0.1	0.8	237	0.32	210	149	17	31	1.1	424	7.9			
Feb. 1-29	547	6.8	43	10	27	160	21	38	0.1	0.7	226	0.31	334	148	17	29	1.0	405	7.9			
Mar. 1-31	485	7.2	44	11	28	166	23	38	0.4	0.8	247	0.34	323	155	19	28	1.0	430	8.1			
Apr. 1-30	966	8.0	42	11	26	159	22	36	0.4	1.2	225	0.31	587	150	20	27	0.9	423	8.1			
May 1-31	2,300	11	40	9.3	30	151	23	38	0.3	2.4	228	0.31	1,420	139	16	32	1.1	405	7.9			
June 1-30	2,273	7.8	42	9.2	31	158	21	40	0.3	1.2	230	0.31	1,410	143	14	32	1.1	414	8.1			
July 1-31	2,382	7.8	43	10	29	161	22	39	0.4	1.0	232	0.32	1,490	149	17	30	1.0	416	7.7			
Aug. 1-31	1,583	8.0	43	10	29	163	22	38	0.4	0.8	235	0.32	1,000	148	14	30	1.0	419	8.0			
Sept. 1-30	581	7.0	41	10	30	161	21	38	0.3	0.6	236	0.32	370	143	11	32	1.1	411	8.2			
Weighted average	1,331	8.2	42	9.9	30	158	22	40	0.3	1.1	234	0.32	841	146	16	31	1.1	416	--			

COLORADO RIVER BASIN--Continued

COLORADO RIVER AT AUSTIN, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
 /Once-daily measurement at approximately 8 a. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	70	58	56	55	63	64	70	71	74	73	77
2	79	72	58	56	53	63	67	66	73	73	74	76
3	79	69	62	58	51	65	66	67	70	74	74	78
4	79	67	61	--	49	62	66	--	69	74	75	78
5	78	--	58	57	50	66	68	--	70	75	75	78
6	79	--	60	58	51	67	65	70	70	75	76	78
7	78	--	58	58	52	66	66	70	70	74	76	78
8	75	69	58	55	55	63	67	--	71	73	75	79
9	73	68	56	53	54	62	66	66	71	--	75	78
10	75	65	57	56	54	62	63	66	71	74	75	77
11	76	65	57	56	53	64	62	67	71	72	76	77
12	76	66	56	55	52	64	63	68	71	72	77	76
13	75	67	--	54	53	62	--	68	71	72	76	77
14	74	69	56	--	56	60	--	69	72	73	76	76
15	74	71	56	54	58	60	--	70	70	74	77	77
16	75	69	57	54	58	61	--	69	70	74	78	77
17	74	67	54	54	57	61	--	70	72	74	77	77
18	73	66	55	52	58	63	66	68	72	74	75	77
19	72	67	56	50	59	60	65	67	72	74	77	78
20	72	66	55	51	59	61	64	66	--	75	77	77
21	74	67	57	52	60	59	65	68	71	75	76	78
22	72	70	56	53	60	60	64	67	70	75	78	78
23	72	67	56	53	61	59	66	68	72	72	76	78
24	72	64	56	52	61	60	65	68	72	75	76	78
25	70	64	59	53	63	61	66	69	72	74	75	78
26	69	63	59	54	63	60	65	68	74	75	76	77
27	70	64	58	55	63	63	65	69	74	72	74	74
28	71	59	58	56	63	64	66	70	75	73	75	77
29	69	60	59	58	62	63	66	71	74	74	75	76
30	69	59	60	56	--	64	67	71	72	74	75	76
31	69	--	58	54	--	65	--	70	--	74	76	--
Average	74	66	57	55	57	62	65	68	71	74	76	77

COLORADO RIVER BASIN--Continued

WALLER CREEK AT 23RD STREET, AT AUSTIN, TEX.

LOCATION.--Temperature recorder at gaging station on San Jacinto Boulevard, 50 feet upstream from bridge on East 23rd Street in Austin, Travis County, and 2.1 miles upstream from Colorado River.

DRAINAGE AREA.--4.13 square miles.

RECORDS AVAILABLE.--Water temperatures: March 1955 to September 1956.

EXTREMES, 1955-56.--Water temperatures: Maximum, 88° F June 28, 29, July 5-9; minimum, 43° F Jan. 18.

EXTREMES, March 1955 to September 1956.--Water temperatures: Maximum, 93° F June 28, 1955; minimum, 43° F Jan. 18, 1956.

REMARKS.--Records of discharge for water year October 1955 to September 1956

Temperature (°F) of water, water year October 1955 to September 1956

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1.....	85	82	74	67	52	45	60	55	54	47	72	64	74	73	80	71	83	80	86	86	86	83	82	79
2.....	87	81	75	70	59	51	62	56	46	77	68	76	74	71	60	61	82	79	87	86	85	83	81	80
3.....	85	81	70	63	69	61	59	48	44	73	68	76	71	76	72	81	80	87	86	85	85	83	81	79
4.....	83	81	63	58	66	61	63	56	48	44	72	64	77	72	78	74	83	80	87	85	85	83	81	79
5.....	84	81	68	63	61	58	64	56	50	45	72	63	77	74	78	75	85	81	88	88	85	83	82	80
6.....	84	81	71	68	61	58	66	59	54	47	74	71	79	72	78	76	86	82	88	87	85	83	83	81
7.....	81	75	67	65	64	58	63	58	54	52	74	52	75	69	80	76	85	82	88	87	84	82	83	81
8.....	81	75	67	65	64	58	63	58	54	52	74	52	75	69	80	76	85	82	88	87	84	82	83	81
9.....	75	72	59	55	63	58	61	53	58	55	65	57	74	72	80	78	85	83	88	86	84	83	82	79
10.....	76	72	64	59	61	58	61	53	55	53	70	63	73	67	81	78	85	83	87	86	84	83	81	78
11.....	79	76	68	63	60	55	59	52	54	52	68	64	76	67	82	77	85	83	87	85	84	83	81	79
12.....	81	79	71	68	58	53	59	53	58	53	64	51	79	70	82	73	86	84	96	85	85	84	81	79
13.....	81	75	73	71	56	52	59	53	50	55	57	51	80	74	82	78	85	84	96	85	85	84	81	80
14.....	75	72	75	73	58	56	58	53	65	59	60	55	81	76	83	78	85	83	88	85	86	84	82	81
15.....	74	71	76	75	57	53	59	54	67	64	66	59	79	76	80	74	84	83	88	85	85	83	82	81
16.....	74	71	76	75	54	51	57	52	67	64	65	57	78	73	79	73	84	82	86	85	85	83	82	81
17.....	73	70	71	65	54	51	55	51	68	65	65	58	77	72	80	73	84	83	86	85	85	83	82	80
18.....	71	69	66	65	59	54	51	43	67	63	67	61	76	72	82	76	83	82	87	85	84	83	82	80
19.....	71	68	69	66	58	55	50	45	67	65	68	61	75	71	82	76	84	82	87	85	84	83	82	80
20.....	71	68	69	65	59	57	52	47	67	63	66	61	75	72	82	76	84	83	87	86	84	82	81	80
21.....	72	70	71	66	61	58	54	52	69	63	69	63	74	73	81	76	84	83	87	85	82	79	81	79
22.....	73	71	75	70	60	57	53	51	69	65	70	61	76	73	81	77	84	83	86	84	80	78	81	80
23.....	73	70	75	68	65	58	53	51	70	68	68	62	75	71	82	77	85	83	85	84	80	78	81	79
24.....	73	69	68	65	68	61	54	52	74	70	73	66	79	70	81	78	85	83	85	84	80	79	81	79
25.....	70	69	69	65	69	62	56	54	72	65	73	65	79	72	83	78	84	82	86	83	80	78	82	81
26.....	69	65	66	63	67	61	58	56	67	60	70	62	75	63	78	85	83	86	84	79	78	82	80	79
27.....	69	65	63	60	64	58	60	54	70	64	71	63	75	63	79	86	83	85	83	76	76	77	77	76
28.....	74	71	69	65	60	56	64	60	61	74	69	81	76	83	80	86	83	85	83	79	79	79	77	76
29.....	69	65	64	61	63	58	60	56	60	61	74	66	83	77	85	82	86	83	88	86	83	82	80	79
30.....	67	63	57	52	65	53	60	57	66	60	74	66	81	77	85	81	86	85	85	83	82	81	79	77
31.....	67	62	64	61	60	56	57	54	66	62	73	70	77	86	82	85	83	86	85	83	82	81	79	77
Average.....	76	72	69	64	61	57	59	54	62	58	70	63	77	72	81	77	85	83	86	85	83	82	81	79

COLORADO RIVER BASIN--Continued

COLORADO RIVER AT WHARTON, TEX.

LOCATION:--At gaging station at bridge on U. S. Highway 59 in Wharton, Wharton County, 1,000 feet downstream from Texas and New Orleans Railroad bridge, 12.1 miles upstream from Jones Creek, and at mile 67.

DRAINAGE AREA: 1,300 square miles, approximately, of which 11,900 square miles is probably noncontributing.

RECORDS AVAILABLE:--Chemical analyses: April 1944 to September 1956.

Water temperatures:--Records of water temperatures: 1948, March 1950 to September 1956.

EXTREMES: 1955-56--Dissolved solids: Maximum, 288 ppm Jan. 1-31; minimum, 178 ppm Feb. 10-17.

Hardest: Maximum, 185 Jan. 1-31; minimum, 114 ppm Feb. 10-17.

Specific conductance: Maximum, 427 microhos Sept. 1-10; minimum, 266 microhos Feb. 12.

Water temperatures: Maximum, 86°F Aug. 29-31; minimum, 42°F Dec. 26, 1953.

EXTREMES: 1944-56--Dissolved solids: Maximum, 366 ppm Apr. 1-10, 1948; minimum, 144 ppm Feb. 24-28, 1949.

Hardest: Maximum, 231 ppm Feb. 1-10, 1947; minimum, 87 ppm Feb. 24-28, 1949.

Specific conductance: Maximum daily, 721 microhos Oct. 3, 1952; minimum daily, 179 microhos Oct. 30, 1953.

Water temperatures (1945-48, 1950-56): Maximum, 95°F July 26, 1954; minimum, 42°F Dec. 26, 1953.

REMARKS:--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (microhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium	Non-magnesium				
Oct. 1-31, 1955 ..	2,609	10		45	9.6	31	5.2	163	23	46	0.5	1.5	0.14	a252	0.34	1,780	151	18	30	1.1	454	7.8
Nov. 1-30	1,781	6.4		44	10	30	5.3	160	23	46	.5	1.2	.13	a246	.33	1,180	150	19	29	1.1	435	7.9
Dec. 1-31	780	7.8		49	12	30	4.9	188	24	44	.2	.7	.07	274	.37	577	172	18	27	1.0	477	8.2
Jan. 1-31, 1956 ..	461	5.2		56	11	32	4.8	212	26	44	.1	.5	--	288	.39	358	165	12	27	1.0	507	8.1
Feb. 1-9, 18-29 ..	800	7.6		48	9.7	26	4.8	173	25	38	.2	1.8	.10	a246	.33	531	159	17	26	.9	441	8.0
Feb. 10-17	1,575	8		36	6	17	4	118	21	24	.2	2.4	.18	178	.24	757	114	18	24	.7	313	7.7
Mar. 1-31	509	8		49	13	31	5.2	192	27	45	.3	.6	.12	a273	.37	376	176	18	27	1.0	487	7.8
Apr. 1-30	749	7.4		42	10	28	5.3	155	24	42	.4	1.2	.11	243	.33	491	146	19	29	1.0	429	7.6
May 1-31	1,424	--		40	9.6	26	5.6	148	24	37	--	--	--	238	.32	915	140	18	28	1.0	401	7.9
June 1-30	1,235	8.8		39	9.4	27	5.3	149	22	40	.5	1.2	.14	229	.31	764	137	15	29	1.0	413	7.8
July 1-31	797	8.4		39	10	27	5.3	152	22	40	.4	.8	.00	a228	.31	491	138	14	29	1.0	413	7.8
Aug. 1-31	554	12		42	10	28	5.1	186	21	40	.4	.8	.06	a241	.33	426	147	11	28	1.0	427	8.1
Sept. 1-30	475	11		45	12	31	5.5	b166	22	44	.3	.8	.15	265	.36	340	161	8	29	1.1	470	8.3
Weighted average	1,041	8.6		44	10	29	5.2	163	23	42	0.4	1.2	0.11	246	0.33	591	151	13	29	1.0	435	--

a Calculated from determined constituents.

b Includes equivalent of 2 parts per million of carbonate (CO₃).

COLORADO RIVER BASIN--Continued

COLORADO RIVER AT WHARTON, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	70	48	51	55	62	71	78	81	82	83	84
2	84	71	50	56	57	61	71	74	81	82	82	79
3	84	65	59	60	45	70	73	72	80	83	82	82
4	82	60	60	56	42	70	69	75	79	83	83	80
5	82	63	57	55	46	70	72	75	--	83	84	80
6	82	65	54	59	46	72	69	77	80	84	84	81
7	76	64	54	60	50	71	68	77	80	--	84	81
8	74	62	54	57	60	55	68	78	82	--	83	76
9	70	56	50	54	56	56	68	78	82	84	84	75
10	74	53	50	51	52	61	60	79	78	83	84	76
11	75	56	50	49	52	67	62	80	82	82	83	75
12	77	62	48	48	53	65	64	80	83	83	83	77
13	76	67	47	48	55	52	67	80	83	83	84	78
14	70	72	52	48	62	52	71	80	82	83	84	78
15	71	73	51	52	67	55	71	80	81	83	84	79
16	72	74	--	51	70	51	68	75	82	82	85	78
17	68	61	50	51	70	54	68	72	82	83	84	78
18	66	61	57	48	65	58	67	76	79	83	83	79
19	65	63	56	43	70	61	65	77	79	84	84	80
20	67	59	56	45	67	59	66	78	79	83	83	80
21	68	60	59	51	63	61	66	78	82	83	81	81
22	70	66	57	50	64	57	65	78	83	83	80	80
23	71	68	60	53	65	59	68	79	83	82	79	79
24	69	64	65	51	68	64	67	79	83	83	78	80
25	64	63	62	50	66	66	69	78	84	83	79	79
26	64	59	62	50	60	67	72	79	84	84	79	76
27	67	60	61	60	67	69	73	79	84	81	77	73
28	71	55	62	66	61	71	75	80	84	84	81	73
29	66	50	64	68	59	66	76	81	84	83	86	74
30	64	50	62	61	--	68	77	81	83	84	86	76
31	--	--	56	55	--	68	--	80	--	85	86	--
Average	72	62	56	53	59	63	69	78	82	83	83	78

COLORADO RIVER BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN COLORADO RIVER BASIN IN TEXAS
Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
LAKE J. B. THOMAS NEAR VINCENT																						
Jan. 3, 1956.....		0.6	0.00	31	4.5	48		140	52	22	0.7	0.2		225	0.31		97	0	52	2.1	388	8.0
LAKE BROWNWOOD NEAR BROWNWOOD																						
Apr. 20, 1956.....		4.2		43	4.5	19		145	9.3	26		1.5		181	0.25		125	6	25	0.7	318	7.8

GUADALUPE RIVER BASIN

GUADALUPE RIVER AT VICTORIA, TEX.

LOCATION.--At gaging station at bridge on U. S. Highway 59 in Victoria, Victoria County, 1,300 feet upstream from Texas and New Orleans Railroad bridge, 10 miles upstream from Coletto Creek, and at mile 51.
 DRAINAGE AREA.--5,161 square miles.
 RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1946, October 1948 to September 1956.

Water temperatures: November 1950 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 427 ppm June 11-20; minimum, 304 ppm May 11-20.

Hardness: Maximum, 230 ppm Jan. 11-20; minimum, 155 ppm Aug. 11-20.

Specific conductance: Maximum daily, 905 micromhos Jan. 1; minimum daily, 478 micromhos May 14.

Water temperatures: Maximum, 86°F on several days during summer months; minimum, 47°F Nov. 9, Feb. 3.

EXTREMES, 1945-46, 1948-56.--Dissolved solids: Maximum, 1,040 ppm Jan. 11-17, 1946; minimum, 168 ppm Oct. 26-31, Nov. 1-2, 1953.

Hardness: Maximum, 428 ppm Jan. 11-17, 1946; minimum, 104 ppm Oct. 26-31, Nov. 1-2, 1953.

Specific conductance: Maximum daily, 1,950 micromhos Jan. 11-17, 1946; minimum daily, 201 micromhos Sept. 1, 1953.

Water temperatures (1950-56): Maximum, 90°F Aug. 4, 27, 1952; minimum, 40°F Feb. 1-2, 1951.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent adsorption	Specific conductance (micro-mhos at 25°C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-10, 1955.	108	22		48	13	47	4.2	214	24	59	0.6	0.8	0.25	324	0.44	94.5	174	0	36	1.5	570	8.1
Oct. 11-20.	98.3	20		52	15	49	3.9	230	26	60	.6	.5	.15	340	.46	90.2	191	2	35	1.5	592	8.1
Oct. 21-31.	94.7	17		52	14	51	3.9	232	26	64	.5	.5	.24	343	.47	87.7	187	0	37	1.6	604	8.0
Nov. 1-10.	101	16		57	16	54	3.8	246	29	71	.6	.8	.26	369	.50	101	208	6	36	1.6	639	8.0
Nov. 11-20.	106	16		58	15	55	3.8	251	29	70	.6	1.0	.25	372	.51	106	206	0	36	1.7	642	8.5
Nov. 21-30.	114	15		60	16	66	3.9	256	31	85	.6	.8	.27	405	.55	125	216	6	39	2.0	699	8.0
Dec. 1-10.	200	16		60	17	57	3.8	263	30	71	.3	2.6	.18	6396	.54	214	220	4	36	1.7	680	8.1
Dec. 11-20.	167	16		60	18	54	3.6	262	32	70	.3	1.0	.18	6390	.53	176	224	9	34	1.6	675	7.9
Dec. 21-31.	182	13		62	18	56	3.6	254	31	77	.3	.9	.15	6389	.53	191	228	20	34	1.6	684	8.0
Jan. 1-10, 1956.	170	13		70	13	66	3.4	265	36	94	.2	.8	.22	6422	.57	216	227	26	38	1.9	737	8.1
Jan. 11-20.	124	12		71	13	68	3.5	266	32	60	.2	.5	.22	3711	.50	171	230	12	33	1.4	637	8.1
Jan. 21-31.	218	11		70	11	50	3.4	260	30	62	.2	.5	.20	366	.50	215	220	7	33	1.5	636	8.1
Feb. 1-10.	218	13		59	17	50	3.2	252	32	63	.2	1.0	.09	362	.49	213	217	10	33	1.5	612	8.2
Feb. 11-20.	335	13		61	18	50	3.3	259	30	64	.2	1.3	.17	368	.50	333	226	14	32	1.5	628	8.2
Feb. 21-29.	208	14		54	14	41	3.6	228	27	50	.2	1.6	.06	317	.43	178	192	5	31	1.3	538	8.0
Mar. 1-10.	176	20		60	17	53	3.9	237	34	74	.3	1.4	.21	381	.52	181	220	26	34	1.6	656	8.2
Mar. 11-20.	151	15		59	18	52	3.5	250	33	72	.3	1.0	.18	377	.51	154	221	16	33	1.5	659	8.0
Mar. 21-31.	148	13		56	19	50	3.5	244	33	67	.4	.5	.20	363	.49	145	218	18	33	1.5	630	7.9

a Includes equivalent of 6 parts per million of carbonate (CO₃).

b Residue on evaporation at 180°C.

Apr. 1-10, 1956.	118	14	55	17	54	3.4	238	31	68	.4	.6	.18	b362	.49	115	206	11	36	1.6	640	7.8
Apr. 11-20	128	15	54	18	57	3.5	240	33	72	.4	.7	.22	b378	.51	120	208	12	37	1.7	660	8.1
Apr. 21-30	236	16	54	19	56	3.6	240	32	72	.4	.7	.22	b378	.51	120	208	12	37	1.7	660	8.1
May 1-10	258	15	54	20	64	3.7	215	33	90	.5	1.6	.26	b385	.53	270	200	24	40	2.0	630	8.0
May 11-20	338	22	47	13	43	4.3	174	23	64	.4	2.0	.14	b304	.41	270	182	20	36	1.9	524	8.0
May 21-31	58.7	17	47	12	56	4.8	180	30	81	.5	1.7	.18	b348	.47	32.7	168	20	41	1.9	606	7.9
June 1-10	64.2	21	48	14	61	4.8	205	30	82	.6	1.0	.22	364	.50	63.1	178	10	42	2.0	633	8.2
June 11-20	57.4	19	57	16	76	4.8	c203	31	122	.6	1.0	.16	427	.58	66.2	208	42	44	2.3	758	8.4
June 21-30	57.4	18	54	13	67	4.6	c180	27	109	.6	.8	.19	388	.53	60.1	188	32	43	2.1	690	8.4
July 1-10	44.5	23	52	12	54	4.8	204	23	78	.6	.5	.12	348	.47	41.8	178	11	39	1.8	600	7.7
July 11-20	72.8	23	48	12	52	4.8	208	22	68	.6	.5	.13	333	.45	65.5	169	0	39	1.7	577	7.9
July 21-31	45.2	19	52	12	72	5.2	208	31	98	.6	.5	.19	392	.53	47.8	180	10	46	2.3	698	7.9
Aug. 1-10	38.5	22	47	14	80	4.9	216	31	101	.5	.7	.16	407	.55	42.3	174	0	49	2.6	718	8.2
Aug. 11-20	27.9	24	44	11	61	5.0	207	20	70	.6	.9	.13	339	.46	25.5	155	0	45	2.1	591	8.1
Aug. 21-31	45.5	20	47	12	71	5.1	219	26	85	.6	.8	.13	376	.51	46.2	168	0	47	2.4	661	8.1
Sept. 1-10	69.8	23	45	15	70	5.0	228	27	86	.5	1.2	.30	385	.52	72.6	175	0	46	2.3	679	8.1
Sept. 11-20	53.2	21	45	15	77	4.8	234	29	91	.5	1.0	.33	400	.54	57.5	174	0	48	2.5	709	8.0
Sept. 21-30	31.8	19	44	15	73	4.6	228	28	88	.5	.8	.33	b388	.53	33.3	171	0	47	2.4	685	8.2
Weighted average	132	16	56	16	55	3.9	235	30	72	0.4	1.1	0.19	368	0.50	131	206	13	36	1.7	639	--

b Residue on evaporation at 180°C.

c Includes equivalent of 5 parts per million of carbonate (CO₃).

WESTERN GULF OF MEXICO BASINS
GUADALUPE RIVER BASIN--Continued
GUADALUPE RIVER AT VICTORIA, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	70	52	54	58	64	72	76	81	85	84	83
2	--	74	54	58	57	68	74	76	82	83	83	84
3	79	67	62	64	47	70	74	72	82	--	85	82
4	81	66	62	58	57	68	72	76	82	82	85	81
5	81	60	57	57	49	72	73	75	83	83	85	80
6	81	70	55	59	50	72	70	78	80	85	86	80
7	76	67	56	60	56	74	69	77	84	--	84	82
8	70	63	57	57	64	58	69	79	82	85	85	81
9	71	47	52	54	54	65	--	77	83	85	85	79
10	73	55	53	54	54	63	63	78	83	86	85	78
11	78	59	55	50	52	68	63	79	80	86	84	79
12	80	68	50	52	56	66	66	81	81	84	84	78
13	77	70	49	53	--	55	68	--	82	85	85	78
14	70	74	55	49	66	59	70	81	--	84	84	79
15	71	74	54	53	68	60	69	80	82	84	86	77
16	72	74	49	54	69	55	69	75	83	84	--	82
17	71	60	53	54	70	56	69	--	84	82	86	81
18	68	62	60	50	66	59	70	77	84	84	85	80
19	66	67	58	48	71	64	68	76	80	83	85	81
20	68	60	60	50	67	62	67	76	80	86	84	79
21	68	61	58	52	64	65	68	76	83	85	83	82
22	72	71	56	56	64	60	64	78	84	85	85	80
23	72	70	62	54	67	62	70	80	83	84	85	80
24	71	65	55	53	69	64	68	76	85	85	81	80
25	64	64	64	56	68	--	69	79	84	85	82	83
26	66	60	60	58	61	67	72	80	85	84	86	80
27	67	72	62	60	67	71	73	80	83	81	79	78
28	72	58	62	60	63	71	73	82	86	93	82	76
29	64	50	64	68	60	68	76	82	86	--	82	74
30	63	53	63	60	--	70	74	82	83	84	84	78
31	66	--	55	58	--	70	--	82	--	84	82	--
Average	72	64	57	56	61	65	70	78	83	84	84	80

NUECES RIVER BASIN
NUECES RIVER NEAR MATHIS, TEX.

LOCATION. --At intake tower at Lake Corpus Christi, 0.8 mile upstream from gaging station at bridge on State Highway 359, 200 feet downstream from Texas and New Orleans Railroad bridge and 4 miles southwest of Mathis, San Patricio County.

DRAINAGE AREA. 16,660 square miles.

RECORDS AVAILABLE. --Chemical analyses: October 1947 to September 1956.

EXTREMES. 1955 to present: October 1947 to September 1956.

Hardness: Maximum 175 micromhos daily, 410 ppm Apr. 1-30, Aug. 1-31; minimum, 254 ppm Sept. 1-30.

Specific conductance: Maximum daily, 788 micromhos Apr. 29; minimum daily, 355 micromhos Sept. 14, 15.

Water temperatures: Maximum 87°F Sept. 19-20; minimum, 46°F Feb. 5.

EXTREMES. 1947-56 --Dissolved solids: Maximum, 548 ppm June 1-30, 1948; minimum, 175 ppm Apr. 27-30, 1949.

Hardness: Maximum, 201 ppm May 1-24, 1951; minimum, 85 ppm Apr. 27-30, 1949.

Specific conductance: Maximum daily, 1,040 micromhos July 1, 1948; minimum daily, 233 micromhos July 30, 1949.

Water temperatures: Maximum, 94°F July 27, 1948; minimum, 38°F Jan. 31, 1948.

REMARKS. --Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (residue at 180°C)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH			
													Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate						
Oct. 1-31, 1955...	672	22		46	3.9	35	7.7	177	26	30	0.7	3.5	0.28	267	0.36	484	131	0	35	1.3	430	7.9
Nov. 1-30.....	61.5	22	52	52	3.8	33	8.0	194	23	29	.6	3.0	.22	284	.39	47.2	145	0	32	1.2	435	7.8
Dec. 1-31.....	45.4	21	52	52	4.6	35	7.8	201	24	30	.4	2.1	.10	294	.40	36.0	148	0	32	1.2	444	7.7
Jan. 1-31, 1956..	32.0	18	55	55	3.7	40	7.9	208	27	32	.3	1.2	.18	300	.41	42.1	153	0	35	1.4	472	8.1
Feb. 1-29.....	52.9	19		56	4.8	42	7.9	217	28	37	.2	.8	.23	303	.41	43.3	160	0	35	1.4	497	8.2
Mar. 1-31.....	59.0	21	59	59	5.1	46	8.8	227	31	42	.4	2.0	.18	332	.45	52.9	168	0	36	1.5	542	7.9
Apr. 1-30.....	49.0	21	60	60	8.2	73	9.1	259	36	62	.5	1.8	.22	410	.56	54.2	173	0	46	2.4	666	7.9
May 1-31.....	70.1	20		48	4.8	87	9.0	289	38	76	.5	3.7	.26	409	.56	77.4	139	0	56	3.2	679	7.8
June 1-30.....	106	21	81	45	4.1	81	8.3	212	38	66	.5	3.5	.34	382	.52	109	129	0	56	3.1	624	8.0
July 1-31.....	110	22	47	47	4.2	80	8.3	211	41	68	.7	2.8	.14	378	.51	112	134	0	55	3.0	638	7.7
Aug. 1-31.....	183	22		48	4.6	84	8.5	228	43	66	.7	2.3	.12	410	.56	203	138	0	55	3.1	652	8.2
Sept. 1-30.....	740	17	35	35	3.2	40	7.5	137	32	34	.5	4.5	.14	254	.35	507	100	0	44	7.9	406	7.8
Weighted average	184	20		44	3.9	48	7.9	179	31	41	0.6	3.5	0.20	296	0.40	147	126	0	43	1.9	480	--

a Calculated from determined constituents.

NUECES RIVER BASIN--Continued

NUECES RIVER NEAR MATHIS, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	69	56	58	61	67	70	76	81	83	84	83
2	82	68	58	59	56	67	73	74	81	83	84	83
3	82	68	58	60	50	68	74	76	82	83	84	83
4	82	68	59	61	48	68	74	78	82	83	84	83
5	82	--	56	62	46	69	73	85	82	83	85	83
6	82	68	56	63	48	69	72	82	82	83	85	83
7	82	67	56	62	53	70	72	82	83	83	86	81
8	81	62	56	62	54	69	72	80	86	83	85	80
9	81	61	56	60	50	63	71	80	84	83	85	79
10	81	62	57	58	50	63	68	80	84	83	85	80
11	81	64	57	56	49	64	69	79	83	83	85	81
12	82	64	52	56	50	64	69	79	85	83	85	82
13	82	64	50	56	56	58	70	80	84	83	85	82
14	71	66	51	55	56	58	70	80	83	83	85	82
15	70	66	53	55	58	58	70	80	83	83	85	83
16	71	65	51	56	64	59	70	78	83	83	86	84
17	71	63	54	55	64	58	70	80	83	83	86	86
18	70	63	54	55	64	61	68	82	82	83	85	86
19	71	63	55	50	64	62	68	81	82	83	86	87
20	71	63	55	51	65	62	67	81	82	83	86	87
21	--	63	55	52	66	63	67	80	84	83	86	85
22	71	63	58	52	66	62	67	80	83	83	86	85
23	71	65	57	54	68	68	68	80	83	83	86	84
24	71	65	58	56	70	69	68	80	83	83	85	82
25	69	65	58	56	70	69	68	82	83	83	84	83
26	69	66	58	58	69	69	69	82	83	83	83	82
27	69	66	58	58	68	69	71	81	83	83	83	82
28	69	60	59	60	68	70	71	80	83	82	83	81
29	68	54	58	62	66	70	71	80	83	82	83	80
30	69	54	60	58	--	70	70	80	82	84	82	79
31	69	--	58	60	--	70	--	81	--	84	81	--
Average	75	64	56	57	59	65	70	80	83	83	85	83

RIO GRANDE BASIN

RIO GRANDE ABOVE CULEBRA CREEK, NEAR LOBATOS, COLO.

LOCATION.--Half a mile southeast of Lasauces, 7 miles upstream from Culebra Creek, and 15 miles upstream from gaging station near Lobatos, Conejos County, Colorado.

DRAINAGE AREA.--7,700 square miles, approximately, above gaging station (includes 2,940 square miles in northern part of San Luis Valley, Colo.).

RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 628 ppm June 13-25; minimum, 160 ppm Feb. 21-29.

Hardness: Maximum, 276 ppm June 13-25; minimum, 74 ppm Oct. 3.

Specific conductance: Maximum daily, 997 micromhos June 13; minimum daily, 213 micromhos Nov. 3.

EXTREMES, 1946-56.--Dissolved solids: Maximum, 691 ppm July 21-31, 1948; minimum, 104 ppm May 2-10, 1947.

Hardness: Maximum, 346 ppm June 9-14, 1953; minimum, 52 ppm May 1-10, 1952.

Specific conductance: Maximum daily, 1,070 micromhos July 26, 1948; minimum daily, 122 micromhos June 1, 1949.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for gaging station near Lobatos for water year October 1955 to September 1956 given in WSP 1442. Culebra Creek which enters the Rio Grande between the sampling point and the gaging station is usually dry at its mouth. Inflow from this and other sources between sampling point and gaging station occurs only after heavy local rainfall.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per cent adsorption at 25°C	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-2, 4-10, 1955	16.3	41	0.05	42	8.6	37	7.4	188	55	10	0.7	0.6	0.14	298	0.41	13.5	140	0	35	1.4	432	7.4
Oct. 3	12.0	--	--	24	3.3	--	17	96	29	5	--	8	--	--	--	--	74	0	33	0.8	222	7.4
Oct. 11-20	33.1	--	--	37	9.3	40	--	177	--	--	--	--	--	289	39	25.8	130	0	40	1.5	425	7.5
Oct. 21-31	32.0	--	--	41	9.0	43	--	180	--	--	--	--	--	306	42	26.4	140	0	40	1.6	450	7.4
Nov. 1-10	76.8	--	--	33	7.1	32	--	143	--	--	--	--	--	246	33	51.0	112	0	38	1.3	355	7.3
Nov. 11-20	62.1	--	--	37	8.3	50	--	164	--	--	--	--	--	318	43	53.3	126	0	46	1.9	474	7.4
Nov. 21-30	94.7	--	--	37	7.4	34	--	164	--	--	--	--	--	263	36	67.2	123	0	38	1.3	383	7.4
Dec. 1-10	96.0	--	--	42	8.8	36	--	175	--	--	--	--	--	305	41	79.1	141	0	36	1.3	440	7.7
Dec. 11-20	130	--	--	33	6.2	23	--	134	--	--	--	--	--	223	30	78.3	108	0	32	1.0	319	7.2
Dec. 21-31	190	--	--	28	4.8	18	--	113	--	--	--	--	--	180	24	92.3	90	0	30	0.8	265	7.1
Jan. 1-4, 6-10, 1956	198	32	.02	29	5.0	21	4.7	114	40	6.0	.4	1.0	.08	200	.27	107	93	0	31	.9	288	7.4
Jan. 5	195	--	--	35	12	--	42	230	23	11	--	1.0	--	--	--	--	137	0	40	1.6	414	7.4
Jan. 11-20	215	--	--	27	5.5	17	--	113	--	--	--	--	--	181	25	105	90	0	29	.8	264	7.1
Jan. 21-31	185	--	--	30	5.5	18	--	127	--	--	--	--	--	193	26	96.4	98	0	29	.8	282	7.3
Feb. 1-3	158	--	--	48	10	32	--	234	--	--	--	--	--	320	44	137	161	0	30	1.1	454	7.5
Feb. 4-10	179	--	--	28	5.2	16	--	108	--	--	--	--	--	185	25	89.4	92	3	28	.7	265	7.3
Feb. 11-20	198	--	--	27	4.7	15	--	106	--	--	--	--	--	173	24	94.5	87	0	27	.7	251	7.3
Feb. 21-29	218	--	--	24	4.5	15	--	104	--	--	--	--	--	160	22	92.5	78	0	29	.7	236	7.3

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO GRANDE AT EMBUDO, N. MEX.

LOCATION.--At gaging station a quarter of a mile downstream from bridge at Embudo, Rio Arriba County, and 2½ miles downstream from Embudo Creek.

DRAINAGE AREA.--10,400 square miles, approximately (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

RECORDS AVAILABLE.--Water temperatures: October 1948 to June 1956 (discontinued).

Sediment records: January 1948 to June 1956 (discontinued). Monthly sampling after July 1, 1956.

EXTREMES, 1955-56.--Water temperatures: Maximum 69°F June 14; minimum 32°F Dec. 5, 9.

Sediment concentrations: Maximum daily, 530 ppm June 5; minimum daily, 21 ppm Mar. 28.

Sediment loads: Maximum daily, 1,400 tons June 5; minimum daily, 21 tons Mar. 28.

EXTREMES, 1948-56.--Water temperatures: Maximum 79°F July 29, Aug. 5, 1955; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 10,200 ppm Aug. 5, 1948; minimum daily, 4 ppm June 4, 1954.

Sediment loads: Maximum daily, 51,000 tons May 25, 1948; minimum daily, 4 tons June 4, 1954.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in 1442.

Temperature (F°) of water, October 1955 to June 1956
/Once-daily measurement, generally between 8 a. m. and 3 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a61	b58	41	40	b39	b45	49	51	62			
2	61	b52	42	b40	b34	41	47	52	63			
3	62	48	40	39	33	39	44	54	65			
4	b68	57	35	36	b35	46	53	56	62			
5	62	b51	b32	37	35	b49	43	57	64			
6	58	b54	33	35	40	46	46	57	64			
7	53	48	35	38	33	45	41	56	62			
8	50	46	34	41	b39	b45	49	56	63			
9	53	42	32	37	b39	b48	45	57	63			
10	55	41	34	36	38	b49	47	53	65			
11	58	40	35	b45	43	46	47	53	67			
12	b52	48	34	39	40	b46	49	54	61			
13	52	48	35	41	b43	45	50	55	67			
14	52	48	38	b42	b43	b44	50	55	69			
15	b58	42	39	38	b44	47	50	50	64			
16	58	36	37	--	39	38	50	53	--			
17	b62	37	42	b41	38	42	53	52	63			
18	--	44	b42	b42	43	51	48	57	63			
19	--	46	42	b41	38	b54	53	59	65			
20	b57	45	43	39	b45	47	48	59	66			
21	--	41	41	b41	44	46	52	60	41			
22	--	43	b41	39	b45	54	53	60	62			
23	--	40	42	44	b45	45	53	62	65			
24	--	39	45	38	42	48	52	58	67			
25	--	b40	45	b38	b44	54	51	67	64			
26	--	38	39	b43	44	b56	53	59	62			
27	--	41	b44	40	b40	b52	54	56	67			
28	b49	39	45	44	37	50	b55	56	64			
29	--	39	b44	41	b46	51	52	56	64			
30	52	40	39	b40	--	55	51	58	66			
31	b54	--	b41	37	--	55	--	59	--			
Average	--	44	39	40	39	48	50	56	64			

a Measurement before 6 a. m.

b Measurement after 3 p. m.

RIO GRANDE BASIN--Continued

RIO GRANDE AT EMBUDO, N. MEX.--Continued

Suspended sediment, October 1955 to June 1956

Day	October			November			December		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1.....	256	77	53	262	111	79	355	103	99
2.....	253	120	82	259	62	43	351	74	70
3.....	253	88	60	262	80	57	367	141	140
4.....	253	99	68	265	135	97	339	116	106
5.....	247	111	74	272	95	70	272	35	26
6.....	241	75	49	279	88	66	296	110	88
7.....	244	80	53	388	420	457	343	87	81
8.....	244	49	32	355	260	249	343	59	55
9.....	232	56	35	318	175	150	310	54	45
10.....	232	71	44	296	255	204	310	134	112
11.....	244	83	55	304	115	94	310	96	80
12.....	256	123	85	300	90	73	310	73	61
13.....	256	127	88	304	112	92	328	52	46
14.....	262	110	78	304	134	110	351	65	62
15.....	259	103	72	304	127	104	363	169	166
16.....	253	82	56	282	68	52	384	137	142
17.....	253	162	111	279	70	53	398	227	244
18.....	250	158	107	304	90	74	398	132	142
19.....	253	155	106	307	195	162	402	162	176
20.....	253	166	113	307	380	315	416	204	229
21.....	253	77	53	310	70	59	434	156	183
22.....	253	79	54	324	88	77	434	122	143
23.....	253	90	a 61	343	126	117	456	206	254
24.....	253	104	71	321	122	106	470	122	155
25.....	256	137	95	300	68	55	490	211	279
26.....	256	65	45	307	198	164	475	259	332
27.....	256	162	112	324	62	55	480	188	244
28.....	262	136	96	328	113	100	480	168	218
29.....	272	83	61	328	61	54	515	166	321
30.....	268	127	92	335	91	82	490	158	209
31.....	262	129	91	--	--	--	510	117	161
Total.	7,838	--	2,252	9,171	--	3,470	12,180	--	4,579
Day	January			February			March		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1.....	490	119	157	406	161	176	490	96	127
2.....	420	77	87	442	99	118	485	74	97
3.....	438	120	142	355	37	35	505	111	151
4.....	398	103	111	335	82	74	540	78	114
5.....	388	69	72	456	110	135	545	99	146
6.....	411	80	89	460	140	174	505	75	102
7.....	452	197	240	447	150	181	490	75	99
8.....	470	226	287	460	153	190	460	67	83
9.....	470	69	88	429	73	85	456	62	76
10.....	465	105	132	402	52	56	456	65	80
11.....	460	196	243	429	90	104	434	97	114
12.....	442	117	140	438	50	59	398	38	41
13.....	452	83	101	442	74	88	388	36	38
14.....	460	106	132	442	88	105	384	80	83
15.....	460	114	142	442	76	91	398	45	48
16.....	480	96	124	460	50	62	375	47	48
17.....	500	210	284	480	96	119	371	37	37
18.....	490	263	348	456	59	73	371	35	35
19.....	456	150	185	465	61	77	367	50	50
20.....	447	106	128	465	86	108	363	55	54
21.....	475	114	146	470	154	195	363	34	33
22.....	424	101	116	485	50	65	355	61	58
23.....	434	110	129	505	208	284	377	39	37
24.....	438	130	154	520	88	124	355	41	39
25.....	420	91	103	495	46	61	367	37	37
26.....	398	114	123	490	41	54	371	38	38
27.....	398	58	62	460	112	139	375	51	52
28.....	550	190	282	452	148	181	367	21	21
29.....	555	143	214	470	147	187	371	31	31
30.....	480	61	79	--	--	--	384	25	26
31.....	393	49	52	--	--	--	388	37	39
Total.	14,014	--	4,692	13,038	--	3,400	12,824	--	2,034

s Computed by subdividing day.

a Computed from estimated concentration graph.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO GRANDE AT EMBUDO, N. MEX.--Continued

Suspended sediment, October 1955 to June 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day
1.....	393	65	69	359	68	66	530	123	176
2.....	388	48	50	332	48	43	582	120	189
3.....	375	36	36	321	61	53	708	174	333
4.....	375	58	59	296	38	30	850	277	636
5.....	371	32	32	279	52	39	980	530	1,400
6.....	359	43	42	286	43	33	980	492	1,300
7.....	339	35	32	304	52	43	880	273	649
8.....	328	35	31	363	56	55	850	255	585
9.....	307	41	34	411	91	101	820	358	793
10.....	293	37	29	424	94	108	719	162	314
11.....	282	32	24	420	96	109	664	130	233
12.....	268	30	22	398	81	87	626	122	206
13.....	265	36	26	351	76	72	576	134	208
14.....	268	37	27	324	73	64	505	104	142
15.....	272	31	23	324	71	62	480	120	156
16.....	268	44	32	300	69	56	416	83	93
17.....	262	39	28	282	59	45	347	60	56
18.....	265	42	30	282	54	41	321	62	54
19.....	259	35	24	276	44	33	293	48	38
20.....	259	37	26	272	44	32	272	42	31
21.....	259	56	39	279	44	33	259	50	35
22.....	256	37	26	286	50	39	250	40	27
23.....	256	41	28	324	83	73	247	60	40
24.....	256	47	32	565	200	305	241	46	30
25.....	250	39	26	570	327	503	235	41	26
26.....	247	41	27	653	400	705	226	42	26
27.....	265	53	38	664	215	385	226	43	26
28.....	293	65	51	631	129	220	235	73	46
29.....	300	56	45	598	88	142	250	380	256
30.....	347	73	68	570	116	179	220	158	94
31.....	--	--	--	550	127	189	--	--	--
Total	8,925	--	1,056	12,294	--	3,945	14,788	--	8,198
Total discharge for period (cfs days).....									105,072
Total load for period (tons).....									33,626

Periodic determinations of suspended-sediment discharge, July to September 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
July 27, 1956	183	43	21
July 27	172	762	354
Aug. 22	185	146	73
Sept. 27	171	33	15

RIO GRANDE BASIN--Continued
RIO GRANDE AT EMBUDO, N. MEX. --Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000		
May 4, 1956	4:05 p. m.	281	62	33	--		--		--		63	74	82	88	94	100	S
July 27	9:00 p. m.	172	--	662	4,530		73		97		99	99	100				SPWCM
Aug. 22	9:25 a. m.	187	64	146	1,110		67		87		97	100	--				SPWCM

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR ABIQUIU, N. MEX.

LOCATION.--At gaging station at bridge on State Highway 96, 1½ miles upstream from El Rito Creek, 5 miles downstream from Abiquiu, Rio Arriba County, and 13.5 miles downstream from Abiquiu dam site.

DRAINAGE AREA.--2,170 square miles, approximately.

RECORDS AVAILABLE.--Sediment records: January 1948 to June 1956 (discontinued).

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 6,700 ppm Feb. 25; minimum daily, 18 ppm Oct. 10.

Sediment loads: Maximum daily, 9,070 tons May 9; minimum daily, 1 ton Oct. 4, 8-10.

EXTREMES, 1948-56.--Sediment concentrations: Maximum daily, 58,000 ppm Aug. 8, 1955; minimum daily, 3 ppm Mar. 30, 1951.

Sediment loads: Maximum daily, 248,000 tons Aug. 21, 1955; minimum daily, less than 0.50 ton on many days.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442. Flow affected by ice Nov. 16-19, 24-25, Dec. 5-16, 19-20, Jan. 1, Jan. 30 to Feb. 12, Feb. 25-27.

Suspended sediment, October 1955 to June 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	20	51	3	22	44	3	56	174	26
2.....	20	48	3	21	44	2	76	295	61
3.....	20	33	2	22	34	2	76	143	29
4.....	12	37	1	23	36	2	51	113	16
5.....	10	56	2	25	40	3	50	87	12
6.....	12	63	2	24	35	2	50	56	8
7.....	13	52	2	25	35	2	55	62	9
8.....	15	20	1	24	30	2	60	56	9
9.....	18	28	1	29	39	3	55	49	7
10.....	19	18	1	30	49	4	50	37	5
11.....	20	41	2	29	41	3	50	68	9
12.....	20	31	2	30	57	5	50	68	9
13.....	20	52	3	30	46	4	50	138	19
14.....	19	79	4	35	152	14	55	127	19
15.....	20	49	3	41	66	7	57	67	10
16.....	20	70	4	40	66	7	60	78	13
17.....	24	45	3	37	89	9	60	81	13
18.....	23	47	3	44	114	14	58	102	16
19.....	22	35	2	37	103	10	55	86	13
20.....	20	29	2	37	50	5	55	70	10
21.....	20	80	4	43	65	8	57	83	13
22.....	20	80	4	48	63	8	62	81	14
23.....	23	81	5	51	46	6	60	106	17
24.....	26	45	3	50	51	7	66	104	19
25.....	26	47	3	48	40	5	60	116	19
26.....	26	56	4	40	32	3	60	110	a18
27.....	24	46	3	40	50	5	58	100	a16
28.....	24	54	3	46	31	4	68	105	19
29.....	26	50	4	48	66	9	68	100	a18
30.....	24	41	3	52	108	15	68	176	32
31.....	22	46	3	--	--	--	68	102	19
Total.	628	--	85	1,071	--	173	1,824	--	517

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR ABIQUIU, N. MEX.--Continued

Suspended sediment October 1955 to June 1956--Continued

Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	65	282	49	40	450	49	192	6,000	3,110
2.....	60	258	42	35	310	29	220	5,800	3,450
3.....	51	190	26	35	590	56	230	4,500	2,790
4.....	46	163	20	40	270	29	240	5,700	3,690
5.....	45	158	19	50	250	34	250	6,400	4,320
6.....	58	145	23	55	430	64	250	3,500	2,360
7.....	58	105	16	60	370	60	230	1,200	745
8.....	52	111	16	60	200	32	145	--	b120
9.....	58	98	15	40	206	22	109	--	b66
10.....	56	112	17	50	346	47	98	--	b54
11.....	60	110	18	65	217	38	172	461	214
12.....	54	114	17	70	148	28	230	590	366
13.....	54	128	19	70	146	28	154	271	113
14.....	57	148	23	70	186	35	124	432	145
15.....	56	92	14	76	185	38	100	275	76
16.....	58	109	17	70	228	43	88	338	80
17.....	66	132	24	48	141	18	84	163	37
18.....	66	286	51	52	141	20	84	193	44
19.....	68	131	24	56	97	15	112	187	57
20.....	62	150	25	56	126	19	148	326	130
21.....	62	113	19	57	170	26	176	304	144
22.....	57	199	31	62	180	30	168	330	150
23.....	58	143	22	76	290	60	180	580	282
24.....	60	113	18	109	990	291	225	110	67
25.....	44	71	8	150	6,700	2,710	300	450	364
26.....	38	50	5	110	4,200	1,250	430	1,750	2,030
27.....	70	100	19	90	1,600	389	494	3,500	4,670
28.....	106	1,520	s706	84	1,900	431	528	2,730	3,890
29.....	151	3,000	1,220	64	1,400	242	438	1,460	1,750
30.....	80	1,050	227	--	--	--	388	1,220	1,280
31.....	50	650	88	--	--	--	423	1,400	a1,500
Total.	1,926	--	2,838	1,900	--	6,133	7,013	--	38,194
Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	546	1,430	2,110	930	1,680	4,220	486	910	1,190
2.....	600	1,100	1,780	930	2,590	6,500	416	780	876
3.....	528	940	1,340	943	2,980	7,590	395	670	715
4.....	430	1,080	1,250	982	2,550	6,760	416	230	258
5.....	348	570	536	995	2,480	6,660	402	130	141
6.....	318	640	550	1,050	2,320	6,580	388	400	419
7.....	295	540	a430	1,050	2,200	5,240	395	180	192
8.....	280	--	b550	1,060	2,520	7,210	395	480	512
9.....	318	--	b710	1,060	3,170	9,070	348	400	376
10.....	342	850	a780	711	2,500	4,800	295	260	207
11.....	388	540	566	810	1,700	3,720	280	270	a200
12.....	438	1,500	1,770	537	500	725	205	170	94
13.....	502	2,300	3,120	312	400	337	164	100	44
14.....	630	950	1,620	312	530	446	160	170	a73
15.....	660	1,450	2,580	280	260	197	151	52	21
16.....	640	1,320	2,280	176	--	b190	127	46	16
17.....	630	1,240	2,110	160	--	b160	80	48	10
18.....	650	1,120	1,970	150	--	b140	72	59	11
19.....	650	600	1,050	150	--	b140	68	38	7
20.....	660	1,650	2,940	140	--	b120	60	27	4
21.....	670	1,130	2,040	139	130	49	54	34	5
22.....	700	600	a1,100	148	120	48	52	34	5
23.....	733	920	1,820	446	860	1,040	51	29	4
24.....	766	2,300	4,760	486	1,300	1,710	48	48	6
25.....	799	3,270	7,050	510	970	1,340	45	60	7
26.....	846	3,200	a7,300	510	510	702	191	721	s1,400
27.....	918	3,170	7,880	502	910	1,230	699	1,830	3,450
28.....	956	2,600	a6,700	494	380	507	454	560	686
29.....	943	1,120	2,850	478	830	1,070	446	1,980	2,380
30.....	943	630	1,600	478	600	774	423	1,020	1,160
31.....	--	--	--	470	980	1,240	--	--	--
Total.	18,127	--	73,122	17,399	--	81,515	7,766	--	14,469

Total discharge for period (cfs-days) 57,654

Total load for period (tons) 217,046

s Computed by subdividing day.

a Computed from estimated concentration graph.

b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued
RIO CHAMA NEAR ABIQUIU, N. MEX.--Continued

Particle-size analyses of suspended sediment, October 1955 to June 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (° F)	Suspended sediment										Methods of analysis		
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250		0.350	0.500	1.000
Dec. 2, 1955....	2:00 p.m.	84	42	302	2,640	81	94	98	98	99						SPWCM
Mar. 5, 1956....	3:40 p.m.	318	46	6,510	3,290	60	78	87	97	100						VPWCM
Mar. 20	4:00 p.m.	470	50	3,590	3,240	39	53	73	92	100						VPWCM
Apr. 20	11:15 a.m.	650	50	1,900	3,480	18	24	41	77	97						VPWCM
May 23	4:00 p.m.	462	62	1,040	2,640	21	30	55	86	100						VPWCM
June 26	6:55 p.m.	700	78	3,540	4,100	15	26	60	86	99						VPWCM

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR CHAMITA, N. MEX.

LOCATION.--At gaging station on left bank, 200 feet downstream from bridge on U. S. Highway 285, half a mile west of Chamita, Rio Arriba County, 2½ miles northwest of San Juan Pueblo, and 3 miles upstream from mouth.

DRAINAGE AREA.--3,200 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1956.

Sediment records: October 1947 to September 1956.

EXTREMES, 1955-56.--Water temperatures: Maximum, 89°F Aug. 8; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 11,400 ppm Mar. 2; minimum daily, 9 ppm Sept. 21, 24.

Sediment loads: Maximum daily, 12,800 tons Apr. 28, Aug. 11; minimum daily, less than 0.50 ton on many days.

EXTREMES, 1947-56.--Water temperatures (1950-56): Maximum 89°F July 19, 1951, Aug. 8, 1956; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 55,500 ppm Aug. 21, 1955; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 150,000 tons Aug. 21, 1955; minimum daily, 0 tons on many days.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442. Flow affected by ice Dec. 2-18, Jan. 24-26, Feb. 1-12, 25-28.

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement, generally between 11 a.m. and 5 p.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	52	a 37	35	37	41	55	60	73	71	b 68	a 65
2	74	56	43	40	32	a 32	47	61	a 68	72	71	56
3	70	53	34	39	32	a 37	49	64	71	a 66	81	a 58
4	64	54	35	38	32	40	53	60	71	74	82	72
5	70	56	35	37	--	50	a 41	a 55	69	a 65	72	a 61
6	66	56	32	41	34	48	56	a 56	67	a 62	a 67	--
7	a 45	43	33	40	34	45	52	62	a 60	a 63	79	73
8	a 51	47	32	35	37	44	a 47	62	69	a 71	89	66
9	a 51	45	32	a 32	38	49	--	61	69	a 65	85	a 67
10	66	49	32	41	40	55	56	64	72	84	83	a 62
11	68	44	32	43	35	b 48	55	55	78	a 69	73	78
12	72	41	32	41	a 32	a 32	58	59	82	a 65	b 76	79
13	68	a 38	32	a 40	48	46	59	58	79	82	76	78
14	a 49	55	32	a 32	a 32	43	50	60	83	a 74	b 74	70
15	66	43	32	a 33	48	50	59	54	71	75	76	a 63
16	a 51	34	42	39	44	53	58	71	a 69	73	b 72	a 61
17	69	44	39	39	46	55	55	74	a 66	73	73	74
18	68	48	34	39	36	48	53	a 65	a 64	78	a 76	81
19	a 47	--	40	35	a 35	53	55	a 59	83	a 66	a 64	81
20	a 47	--	39	36	48	55	55	74	a 65	72	a 63	a 59
21	63	48	38	40	45	a 47	55	a 65	a 66	a 65	a 62	78
22	a 47	48	39	40	52	57	59	72	a 73	a 75	a 80	76
23	a 55	42	43	43	43	60	57	62	a 72	83	a 59	a 67
24	64	45	46	42	47	52	56	65	78	81	a 61	68
25	57	45	45	a 32	38	--	61	67	a 67	85	a 60	a 57
26	58	33	42	40	47	58	61	a 61	a 61	a 65	a 63	b 74
27	54	45	40	49	42	50	56	61	a 67	81	a 63	69
28	54	47	47	43	37	51	50	a 56	76	a 68	a 63	a 68
29	a 42	42	45	39	50	53	52	b 62	b 72	81	a 61	68
30	45	36	42	34	--	57	59	a 76	a 67	78	a 57	76
31	56	--	32	34	--	53	--	74	--	76	a 58	--
Average	59	46	37	38	40	49	54	63	71	73	70	69

a Measurement before 11 am.

b Measurement after 5 pm.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR CHAMITA, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day
1.....	5.3	82	1	14	110	4	68	710	130
2.....	5.0	66	1	14	136	5	80	1,190	257
3.....	5.0	39	1	14	91	3	90	1,830	445
4.....	4.5	41	(t)	14	143	5	75	1,210	245
5.....	4.3	47	1	15	226	9	60	967	157
6.....	4.5	41	(t)	15	143	6	55	679	101
7.....	4.8	61	1	19	194	10	60	2,700	437
8.....	4.8	62	1	20	392	21	70	2,000	a 380
9.....	5.0	79	1	25	366	25	65	1,500	a 260
10.....	5.3	77	1	27	302	22	60	1,350	219
11.....	5.3	61	1	20	216	12	55	1,470	218
12.....	4.8	65	1	20	142	8	55	1,760	216
13.....	4.8	55	1	19	168	9	55	692	103
14.....	5.0	52	1	20	167	9	57	2,090	322
15.....	5.8	35	1	22	250	15	60	1,600	a 260
16.....	5.8	48	1	36	1,080	105	65	1,460	256
17.....	6.3	55	1	56	1,000	151	63	2,200	374
18.....	7.6	70	1	58	991	155	60	1,830	296
19.....	8.0	78	2	54	959	140	58	1,570	246
20.....	5.8	85	1	52	572	80	54	1,700	248
21.....	6.9	84	2	52	681	96	54	1,450	211
22.....	7.6	75	2	54	837	122	56	907	137
23.....	9.7	114	3	56	1,030	156	68	1,440	264
24.....	7.6	313	6	54	548	80	68	2,100	386
25.....	10	99	3	54	1,070	156	64	1,940	335
26.....	12	86	3	52	1,380	194	64	1,570	271
27.....	8.3	80	2	54	874	127	68	1,330	244
28.....	8.6	126	3	56	657	99	64	1,950	337
29.....	14	136	5	56	806	122	71	1,650	316
30.....	15	191	8	58	1,090	171	74	1,750	350
31.....	15	175	7	--	--	--	74	1,480	296
Total.	222.4	--	64	1,080	--	2,117	1,990	--	8,362
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment concentration (ppm)	Tons per day
1.....	71	1,650	316	60	1,530	248	228	6,040	s 4,880
2.....	61	1,380	227	30	517	42	272	11,400	s 8,250
3.....	54	966	141	35	659	62	265	8,090	5,790
4.....	50	732	99	40	1,090	118	280	7,100	5,370
5.....	52	695	98	50	1,600	a 220	288	8,030	6,240
6.....	68	953	175	70	3,560	673	296	6,500	5,190
7.....	68	1,900	349	75	1,460	296	280	4,390	3,320
8.....	64	1,150	199	65	1,280	225	172	2,690	1,250
9.....	61	1,360	224	45	648	79	160	1,760	760
10.....	61	775	128	45	868	105	166	1,770	793
11.....	61	903	149	60	576	93	228	2,790	1,720
12.....	68	1,230	226	65	880	154	336	2,280	2,070
13.....	68	839	154	80	1,240	268	250	2,730	1,840
14.....	71	1,170	224	74	748	149	186	2,720	1,370
15.....	74	1,060	212	95	1,420	364	146	1,150	453
16.....	87	886	208	105	1,260	357	125	1,360	459
17.....	90	1,610	391	68	712	131	130	1,130	397
18.....	105	1,810	513	77	1,020	212	140	1,150	435
19.....	110	1,300	386	80	814	176	130	963	338
20.....	100	1,350	364	80	686	148	150	1,570	636
21.....	90	1,090	265	80	893	193	179	2,000	967
22.....	84	991	225	68	871	160	172	2,300	1,070
23.....	84	871	198	84	1,060	240	166	1,930	865
24.....	90	693	168	140	1,730	654	205	2,770	1,530
25.....	80	1,110	240	180	5,690	s 3,780	304	2,780	2,280
26.....	60	651	105	130	6,180	2,170	470	4,430	5,620
27.....	87	1,500	352	100	4,040	1,090	570	4,920	7,570
28.....	80	1,100	238	100	3,190	861	600	4,570	7,400
29.....	186	4,640	2,330	115	1,950	605	510	3,330	4,590
30.....	90	4,810	1,120	--	--	--	460	2,210	2,740
31.....	61	1,830	301	--	--	--	550	3,560	5,280
Total.	2,436	--	10,325	2,296	--	13,873	8,414	--	91,483

s Computed by subdividing day.

t Less than 0.50 ton.

a From estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR CHAMITA, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	738	4,070	8,110	1,030	4,010	11,200	387	908	949
2.....	771	4,450	9,260	1,040	3,330	9,350	360	897	872
3.....	727	5,070	9,950	1,040	3,120	8,760	369	937	934
4.....	530	2,820	4,040	1,070	3,460	10,000	336	801	727
5.....	450	2,280	2,770	1,070	3,990	11,500	336	1,510	1,370
6.....	369	1,910	1,900	1,070	3,720	10,700	328	781	692
7.....	336	1,470	1,330	1,070	3,420	9,880	352	1,090	1,040
8.....	320	1,830	1,580	1,070	3,470	10,000	344	426	396
9.....	320	1,480	1,280	1,060	3,420	9,790	328	731	647
10.....	360	2,140	2,080	760	1,930	3,960	320	425	367
11.....	441	1,970	2,350	894	2,610	6,300	304	386	317
12.....	480	2,110	2,730	683	1,400	2,580	242	582	380
13.....	630	3,600	6,120	320	1,510	1,300	120	319	103
14.....	815	4,350	9,570	320	1,650	1,430	115	344	107
15.....	870	3,820	8,970	328	1,200	1,060	100	222	60
16.....	815	3,240	7,130	192	825	428	87	209	49
17.....	859	3,930	9,110	179	540	261	52	172	24
18.....	848	3,580	8,200	135	611	223	45	74	9
19.....	859	3,590	8,330	110	551	164	37	45	4
20.....	815	3,400	7,480	95	336	86	35	52	5
21.....	826	3,290	7,340	120	434	141	16	38	2
22.....	848	3,190	7,300	105	410	116	11	41	1
23.....	894	3,260	7,870	280	1,960	1,480	11	35	1
24.....	894	3,520	8,500	405	1,610	1,760	8.3	30	1
25.....	918	3,480	8,630	423	1,000	1,140	5.0	24	(t)
26.....	1,020	4,320	11,900	432	2,020	2,360	2.5	31	(t)
27.....	1,080	4,310	12,600	460	1,470	1,830	619	3,350	s6,020
28.....	1,080	4,390	12,800	450	1,410	1,710	312	1,100	927
29.....	1,080	4,160	12,100	423	1,120	1,280	328	1,810	s1,580
30.....	1,030	3,280	9,120	396	960	1,030	336	1,290	1,170
31.....	--	--	--	396	935	1,000	--	--	--
Total.	22,023	--	210,450	17,426	--	122,819	6,245.8	--	18,755
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	352	822	781	23	1,720	107	1.0	56	(t)
2.....	352	735	699	37	1,040	104	435	6,240	s8,320
3.....	360	1,160	1,130	27	828	60	420	1,840	2,090
4.....	304	901	740	8.8	653	16	410	1,300	1,440
5.....	89	206	50	3.9	504	5	400	1,280	1,380
6.....	43	82	10	3.2	276	2	395	1,100	1,170
7.....	31	37	3	2.4	151	1	390	768	809
8.....	28	51	4	1.0	91	(t)	400	978	1,060
9.....	6.2	20	(t)	.8	79	(t)	408	1,680	1,850
10.....	2.4	17	(t)	.6	67	(t)	168	549	249
11.....	2.0	34	(t)	454	9,730	s12,800	70	94	18
12.....	1.7	22	(t)	376	2,500	2,540	34	65	6
13.....	.8	24	(t)	353	1,330	1,270	20	42	2
14.....	.6	21	(t)	358	1,260	1,220	15	35	1
15.....	448	2,600	s3,560	371	1,120	1,120	8.0	25	1
16.....	371	900	902	353	1,470	1,400	4.8	20	(t)
17.....	340	1,000	918	390	3,850	s4,030	2.7	29	(t)
18.....	353	1,100	1,050	353	1,750	1,670	1.2	29	(t)
19.....	362	800	782	172	650	302	.9	24	(t)
20.....	400	2,220	s2,390	57	225	35	.9	25	(t)
21.....	299	1,400	1,130	24	93	6	.8	9	(t)
22.....	77	260	54	13	54	2	.8	11	(t)
23.....	20	63	3	6.6	31	1	.8	14	(t)
24.....	7.1	35	1	9	52	1	.8	9	(t)
25.....	3.4	24	(t)	7.1	981	19	.9	26	(t)
26.....	2.4	22	(t)	5.2	118	2	.9	12	(t)
27.....	2.0	18	(t)	7.5	223	5	.8	15	(t)
28.....	2.0	17	(t)	3.9	99	1	.9	18	(t)
29.....	1.7	16	(t)	2.9	94	1	1.0	13	(t)
30.....	1.7	14	(t)	2.0	153	1	.8	21	(t)
31.....	9.6	698	18	1.5	99	(t)	--	--	--
Total.	4,272.6	--	14,226	3,427.4	--	26,722	3,593	--	18,397

Total discharge for year (cfs-days) 73,426.2

Total load for year (tons) 537,593

s Computed by subdividing day.

t Less than 0.50 ton.

RIO GRANDE BASIN--Continued
RIO CHAMA NEAR CHAMITA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)		Percent finer than indicated size, in millimeters									
				Concentration of suspension analyzed (ppm)	0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	
Dec. 1, 1955.....	10:00 a. m.	58	37	835	--	12	--	15	--	28	54	88	98	100	VPWCM
Jan. 29, 1956.....	11:30 a. m.	198	39	4,680	--	51	--	59	--	69	87	99	100	100	VPWCM
Feb. 25.....	11:20 a. m.	150	34	3,420	--	15	--	18	--	29	62	94	100	100	VPWCM
Feb. 25.....	1:25 p. m.	500	38	9,050	--	27	--	49	--	58	86	98	100	100	VPWCM
Mar. 1.....	5:45 p. m.	396	42	7,710	--	34	--	49	--	63	84	99	100	100	VPWCM
Mar. 27.....	4:55 p. m.	580	50	4,990	--	26	--	38	--	53	76	97	100	100	VPWCM
Apr. 20.....	12:30 p. m.	870	55	3,270	--	10	--	14	--	26	56	94	100	100	VPWCM
May 23.....	4:50 p. m.	378	62	2,100	12	15	17	20	25	33	60	96	100	100	VPWCM
May 23.....	4:50 p. m.	378	62	2,100	8	12	15	18	24	33	60	96	100	100	VFN
June 27.....	9:45 a. m.	694	67	3,860	--	15	--	24	--	46	66	95	100	100	VPWCM
June 29.....	6:10 p. m.	272	72	6,710	--	60	--	86	--	90	94	100	--	--	VPWCM
July 15.....	8:50 a. m.	609	71	3,730	--	18	--	32	--	57	75	94	100	100	VPWCM
July 20.....	1:10 p. m.	430	72	3,110	--	54	--	70	--	77	86	97	100	100	VPWCM
Aug. 1.....	7:00 p. m.	55	68	2,990	--	87	--	98	--	100	--	--	--	--	SPWCM
Aug. 11.....	6:45 p. m.	454	72	5,420	--	44	--	67	--	84	91	97	100	100	VPWCM
Sept. 2.....	3:55 a. m.	390	56	14,500	--	56	--	77	--	90	94	99	100	100	VPWCM

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.

LOCATION.--At gaging station on downstream side of pier of former railway bridge, 400 feet downstream from bridge on State Highway 4, 1½ miles southwest of San Ildefonso Pueblo, 2½ miles downstream from Pojoaque River, and 7 miles west of Pojoaque, Santa Fe County.

DRAINAGE AREA.--14,300 square miles, approximately (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.)

RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1956.

Water temperatures: October 1948 to September 1956.

Sediment records: October 1947 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 542 ppm Aug. 11; minimum, 182 ppm Apr. 21 to May 10.

Hardness: Maximum, 352 ppm Aug. 11; minimum, 110 ppm July 16-22.

Specific conductance: Maximum daily, 792 micromhos Aug. 11; minimum daily, 255 micromhos Apr. 24.

Water temperatures: Maximum, 84°F July 25, Aug. 8, 9; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 9,440 ppm Aug. 11; minimum daily, 34 ppm June 24.

Sediment loads: Maximum daily, 17,000 tons Aug. 11; minimum daily, 13 tons Sept. 30.

EXTREMES, 1946-56.--Dissolved solids: Maximum, 884 ppm Aug. 26, 1951; minimum, 137 ppm June 11-20, 1952.

Hardness: Maximum, 572 ppm Aug. 26, 1951; minimum, 85 ppm June 21-30, 1948.

Specific conductance: Maximum daily, 1,238 micromhos Aug. 26, 1951; minimum daily, 165 micromhos June 13, 1952.

Water temperatures (1948-56): Maximum, 86°F Aug. 4, 9; minimum, freezing point many days during winter months.

Sediment concentrations (1947-56): Maximum daily, 42,600 ppm Aug. 21, 1955; minimum daily, 8 ppm Sept. 24, 26, 1953.

Sediment loads (1947-56): Maximum daily, 29,000 tons Aug. 21, 1955; minimum daily, 9 tons Sept. 22, 24, 26, 1953.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Bo- ron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Per- cent sodium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)	pH
														Parts per mil- lion	Tons per acre- foot	Calcium, mag- nesium	Non- carbon- ate			
Oct. 1-10, 1955 ..	233	32	41	10	25	174	43	10	0.2	247	0.34	155	144	1	28	0.9	379	7.9		
Oct. 11-20	272	32	41	8.6	27	174	46	9.0	0.2	248	0.34	182	138	0	30	1.0	383	7.8		
Oct. 21-31	293	33	43	9.3	28	178	51	9.5	0.2	262	0.36	207	145	0	30	1.0	393	8.0		
Nov. 1-10	337	31	45	11	32	183	63	12	0.6	285	0.39	259	158	8	31	1.1	438	7.8		
Nov. 11-20	366	30	44	11	30	176	62	10	0.5	274	0.37	271	155	11	30	1.0	419	7.9		
Nov. 21-30	386	32	45	11	32	180	65	12	0.5	286	0.39	298	158	10	31	1.1	428	7.8		
Dec. 1-10	401	31	46	10	32	179	64	12	0.9	284	0.39	307	156	10	31	1.1	435	7.9		
Dec. 11-20	453	34	45	11	32	176	66	10	0.8	286	0.39	350	158	14	31	1.1	430	8.1		
Dec. 21-31	546	32	41	9.3	26	158	54	8.5	0.8	250	0.34	369	140	10	29	1.0	377	7.8		
Jan. 1-10, 1956 ..	517	32	40	9.5	26	151	59	8.8	0.9	250	0.34	349	139	16	29	1.0	378	7.8		
Jan. 11-20	561	27	42	8.8	25	150	54	9.5	0.4	241	0.33	365	141	18	28	0.9	376	7.6		
Jan. 21-31	560	27	44	9.7	26	154	62	8.8	0.6	254	0.35	384	150	24	27	0.9	397	7.8		
Feb. 1-10	478	30	42	9.7	26	154	59	8.2	0.6	252	0.34	325	145	19	28	0.9	388	8.2		
Feb. 11-20	522	30	42	9.5	26	150	59	8.5	0.6	250	0.34	352	144	21	28	0.9	381	7.8		
Feb. 21-28	618	26	48	9.5	26	157	70	8.2	0.8	266	0.36	444	159	30	26	0.9	402	7.6		
Feb. 29-Mar. 1, 8-11, 15	614	30	44	10	26	148	72	7.0	0.8	263	0.36	436	151	30	27	0.9	404	7.8		

RIO GRANDE BASIN--Continued
RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Mar. 2-7, 21-25, 1956.....	633	26		56	11	28		154	93	7.5		1.7		304	0.41	561	184	50	25	0.9	472	7.6
Mar. 12-14, 16-20.....	569	27		48	10	29		158	79	8.8		1.0		281	.38	432	161	32	28	1.0	434	7.7
Mar. 26-31.....	895	24		47	9.0	19		152	57	6.0		2.1		239	.33	578	154	30	21	.7	376	7.8
Apr. 1-20.....	881	22		44	6.6	17		143	45	6.0		1.2		212	.29	504	137	20	21	.6	336	7.7
Apr. 21-30.....	1,235	16		38	7.1	13		129	35	5.5		1.0		182	.25	607	124	18	19	.5	291	7.6
May 1-10.....	1,337	18		41	5.7	13		140	29	5.0		.9		182	.25	657	126	12	18	.5	295	7.8
May 11-20.....	1,670	22		37	6.8	20		136	38	6.2		.8		198	.27	358	120	8	27	.8	317	7.7
May 21-31.....	806	23		38	7.4	21		142	42	6.8		.6		209	.28	455	126	9	27	.8	329	7.7
June 1-10.....	1,047	23		35	6.6	18		122	41	5.2		.8		190	.26	537	114	14	25	.7	298	7.6
June 11-17.....	572	23		38	7.6	23		126	59	6.8		.7		220	.30	340	126	23	28	.9	348	7.5
June 18-26.....	231	27		49	11	38		158	94	13		.6		311	.42	194	168	38	33	1.3	483	7.8
June 27-30.....	542	21		37	6.2	18		124	49	5.0		.6		198	.27	290	118	16	25	.7	301	7.8
July 1-4.....	506	23		37	5.5	16		124	40	6.0		.4		189	.26	258	115	14	23	.7	295	7.8
July 5.....	268	--		40	7.4	26		140	62	10		--		214	.29	155	130	16	30	1.0	369	7.9
July 6-12.....	159	30		43	9.0	31		168	60	10		.5		266	.36	114	144	7	32	1.1	412	8.0
July 13-14.....	139	30		40	8.8	28		167	51	9.0		.4		249	.34	93.4	136	0	31	1.0	382	8.1
July 15.....	523	28		49	10	34		173	79	11		.9		297	.40	419	164	22	31	1.2	462	8.0
July 16-22.....	498	24		34	6.2	16		123	38	4.5		.5		183	.25	246	110	10	24	.7	284	7.9
July 23-29.....	136	25		38	8.1	23		161	41	9.5		.4		229	.31	96.5	128	0	32	1.1	361	8.0
July 30-31.....	210	30		48	7.6	27		198	34	8.5		.7		233	.34	143	152	0	28	1.0	382	7.6
Aug. 1-10.....	214	31		52	9.0	28		176	61	10		1.2		279	.36	151	166	22	27	.9	426	7.6
Aug. 11.....	265	27		110	19	43		268	194	13		2.1		342	.43	600	352	133	22	1.0	792	7.5
Aug. 12-31.....	249	30		48	7.8	25		163	46	9.2		.6		243	.33	188	152	18	24	.8	376	7.6
Sept. 1, 3-30.....	249	30		44	7.4	25		161	47	10		.6		243	.33	183	140	8	28	.9	371	7.9
Sept. 2.....	448	31		74	12	40		226	114	13		1.3		396	.54	479	234	49	27	1.1	602	7.7
Weighted average	519	26		43	8.3	23		151	53	7.7		0.8		236	0.32	339	142	18	26	0.8	366	--

RIO GRANDE BASIN--Continued
 RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued
 Temperature (°F) of water, water year October 1955 to September 1956
 Seven-day mercury-actuated thermograph^a

Day	October		November		December		January		February		March		April		May		June		July		August		September	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1.....	68	54	55	43	46	40	42	34	37	34	47	39	55	47	62	48	74	63	74	64	a77	61	75	56
2.....	69	56	53	43	43	a38	40	32	32	31	a47	37	50	44	61	50	75	64	73	64	74	65	70	57
3.....	70	57	51	39	41	36	40	32	32	31	49	39	48	39	63	51	74	65	74	62	80	60	72	59
4.....	66	56	52	38	38	32	39	32	34	31	50	40	51	40	62	54	74	67	74	63	80	65	71	60
5.....	67	a54	52	39	a37	32	38	32	37	31	48	41	54	42	64	53	72	65	79	63	82	64	73	60
6.....	61	50	54	44	37	32	40	32	39	31	a49	42	55	44	66	54	74	63	78	65	82	63	70	58
7.....	60	45	45	43	41	32	41	34	38	32	45	38	56	44	64	54	74	63	81	61	82	66	72	60
8.....	62	45	47	35	38	32	43	34	40	32	42	36	55	46	64	54	70	64	82	64	84	64	71	58
9.....	63	46	46	37	32	32	42	a38	31	48	37	55	43	64	56	74	62	74	63	84	65	73	60	60
10.....	63	49	47	35	36	31	42	34	39	31	50	39	56	45	62	54	72	65	78	62	83	65	76	60
11.....	66	52	50	40	37	32	43	34	40	31	47	41	56	46	62	51	76	64	80	64	76	66	76	60
12.....	64	50	48	41	38	32	42	34	42	32	40	a35	58	47	63	54	79	66	82	67	76	66	77	59
13.....	63	51	48	42	39	32	42	36	44	34	46	37	58	48	66	52	76	66	79	64	77	67	76	60
14.....	64	50	49	41	41	32	42	34	45	36	46	38	55	47	59	52	77	66	82	66	79	66	78	59
15.....	64	50	44	40	41	32	44	36	45	36	46	39	56	44	65	49	75	64	77	68	76	a67	78	61
16.....	61	49	41	32	41	34	41	37	44	38	49	36	58	47	a66	53	74	62	76	66	76	65	78	a58
17.....	64	50	44	32	40	32	39	37	44	37	51	40	55	50	70	54	75	62	74	62	77	66	76	58
18.....	64	50	45	38	41	31	40	32	44	36	56	43	54	45	74	56	78	61	74	64	76	66	79	59
19.....	62	49	45	34	40	32	40	32	43	37	56	44	54	44	72	59	79	60	76	63	a65	71	a65	78
20.....	61	46	46	35	40	32	42	36	46	36	54	44	58	47	74	58	78	66	73	63	73	63	74	58
21.....	61	48	46	36	40	32	42	37	46	36	56	44	60	49	70	58	79	64	77	64	73	60	72	60
22.....	58	a48	45	40	40	32	42	36	48	38	54	46	59	48	73	59	80	61	78	65	78	60	74	55
23.....	60	48	43	33	44	33	42	36	47	42	a56	45	58	49	65	60	75	62	78	66	80	62	72	56
24.....	57	44	43	34	46	36	42	38	47	42	58	47	58	50	66	a73	64	63	83	64	74	63	72	56
25.....	57	42	44	32	46	38	39	35	a43	36	58	48	61	49	65	58	78	62	84	65	74	59	72	a57
26.....	55	43	44	a33	44	36	44	37	44	36	57	49	62	52	64	57	82	62	80	64	74	60	74	a56
27.....	54	45	46	35	42	35	46	36	42	34	52	48	56	55	64	54	75	65	82	a84	77	60	76	56
28.....	53	40	46	35	47	38	45	40	42	36	50	a41	56	40	68	56	69	60	79	64	77	62	68	56
29.....	52	41	a37	44	39	44	a36	40	35	52	52	41	59	47	70	59	73	60	80	64	77	62	72	56
30.....	53	39	42	38	42	38	38	32	41	54	43	58	47	74	58	74	64	79	63	74	58	70	57	57
31.....	53	40	--	--	40	34	36	34	--	53	44	--	--	75	61	--	--	--	75	64	73	58	--	--
Average.....	61	48	47	37	41	34	41	35	42	35	51	41	56	46	66	55	75	63	78	64	77	63	74	58

^a Estimated from adjoining days and available curve.

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956									
Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	257	590	409	298	486	391	426	479	551
2.....	247	609	406	295	442	352	453	763	933
3.....	237	609	390	295	464	370	453	922	1,130
4.....	232	499	313	304	544	447	434	660	773
5.....	227	411	252	310	368	308	365	540	532
6.....	220	461	274	327	565	499	333	395	355
7.....	222	417	250	365	750	739	419	1,040	1,180
8.....	232	368	231	412	1,220	1,220	402	532	577
9.....	232	378	237	388	890	932	368	528	525
10.....	227	318	195	374	760	767	358	808	761
11.....	230	323	201	381	670	689	394	1,060	1,130
12.....	237	425	272	371	680	681	378	846	863
13.....	254	555	381	361	670	653	416	1,020	1,150
14.....	260	421	296	361	825	804	445	699	840
15.....	278	418	314	371	490	491	453	707	865
16.....	278	398	299	365	500	493	476	838	1,080
17.....	278	441	331	355	595	570	489	822	1,090
18.....	281	369	280	361	820	799	489	772	1,020
19.....	301	436	354	371	725	726	489	779	1,030
20.....	324	685	599	358	735	710	501	802	1,080
21.....	290	460	360	368	735	730	501	981	1,330
22.....	284	454	348	378	700	714	514	1,120	1,550
23.....	281	402	305	408	673	741	523	906	1,280
24.....	276	352	262	398	788	847	536	805	1,160
25.....	287	511	396	378	514	525	546	836	1,230
26.....	301	475	386	368	886	880	546	820	1,210
27.....	290	466	381	381	739	760	555	1,120	1,680
28.....	298	695	559	388	655	686	555	1,000	1,500
29.....	304	628	515	391	503	531	575	1,160	1,800
30.....	310	637	533	402	587	637	580	940	1,470
31.....	304	526	432	--	--	--	570	1,370	2,110
Total.	8,279	--	10,751	10,883	--	19,692	14,542	--	33,805
January			February			March			
1.....	570	910	1,400	481	1,460	1,900	657	1,200	s 2,240
2.....	548	890	1,320	466	870	1,090	740	2,990	5,970
3.....	511	828	1,140	409	380	420	747	3,820	7,700
4.....	486	826	1,100	365	920	907	789	3,710	7,900
5.....	466	864	1,090	442	1,200	a 1,400	838	4,620	10,500
6.....	461	739	920	548	1,080	1,600	824	3,380	7,520
7.....	506	620	847	548	830	1,230	782	2,220	4,690
8.....	538	1,110	1,610	538	725	1,050	651	1,210	2,130
9.....	532	980	1,410	511	617	851	604	900	1,470
10.....	548	760	1,120	476	572	735	593	860	1,380
11.....	538	746	1,080	481	655	851	615	807	1,340
12.....	538	858	1,250	511	578	797	688	963	1,790
13.....	532	841	1,210	527	639	909	645	876	1,530
14.....	532	579	932	522	719	872	615	747	1,240
15.....	565	599	914	517	513	716	615	577	958
16.....	559	668	1,010	538	490	a 710	559	670	1,010
17.....	609	739	1,220	532	465	668	527	571	812
18.....	598	805	1,300	506	425	581	511	688	949
19.....	587	880	1,390	543	590	865	491	616	817
20.....	548	582	861	538	363	527	517	845	1,180
21.....	576	768	1,190	527	564	803	532	548	787
22.....	548	735	1,090	559	763	1,150	538	805	1,170
23.....	522	825	1,160	609	706	1,160	532	740	1,060
24.....	548	792	1,170	633	840	1,440	554	950	1,420
25.....	527	683	972	740	1,790	s 4,070	639	1,210	2,090
26.....	476	812	1,040	669	2,740	4,950	817	2,010	4,430
27.....	481	640	831	609	2,180	3,580	929	3,270	8,200
28.....	576	750	1,170	598	1,360	2,200	982	3,380	8,960
29.....	768	1,600	s 3,340	565	950	1,450	901	2,350	5,720
30.....	615	1,600	2,660	--	--	--	852	1,840	4,230
31.....	522	1,850	2,610	--	--	--	886	2,090	5,010
Total.	16,931	--	40,257	15,508	--	39,482	21,171	--	106,203

s Computed by subdividing day.

a Computed from partly estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	990	2,380	6,360	1,370	2,130	7,880	873	890	2,100
2.....	1,080	2,500	7,250	1,340	2,560	9,260	880	1,200	2,850
3.....	1,020	2,360	6,500	1,330	3,230	11,600	958	1,230	3,180
4.....	894	1,910	4,610	1,310	2,960	10,500	1,050	1,290	3,660
5.....	775	3,520	7,370	1,280	2,520	8,710	1,220	1,310	4,320
6.....	714	2,050	3,950	1,310	2,930	10,400	1,250	1,290	4,350
7.....	663	1,620	2,900	1,360	2,470	9,070	1,180	1,350	4,230
8.....	669	1,540	2,780	1,400	2,950	11,200	1,100	1,100	3,270
9.....	669	1,160	2,100	1,460	2,800	11,000	1,050	900	2,550
10.....	682	1,180	2,170	1,210	2,060	6,730	929	710	1,780
11.....	714	1,300	2,510	1,240	2,590	8,670	817	720	1,590
12.....	727	1,330	2,610	1,040	1,600	4,490	714	790	1,520
13.....	831	1,540	3,460	734	1,840	3,650	609	770	1,270
14.....	958	2,050	5,300	682	1,180	2,170	543	688	997
15.....	1,040	2,250	6,320	688	975	1,810	486	623	818
16.....	1,040	2,140	6,010	565	600	915	456	557	686
17.....	1,030	1,960	5,450	491	940	1,250	378	593	805
18.....	1,040	1,800	5,050	447	1,300	1,570	332	519	465
19.....	1,030	1,960	5,450	418	830	937	282	422	321
20.....	1,050	1,800	5,100	396	630	674	258	256	178
21.....	1,030	1,750	4,870	409	790	872	241	288	174
22.....	1,030	1,810	5,030	405	800	875	213	301	173
23.....	1,090	2,200	6,470	522	1,520	2,140	196	171	90
24.....	1,130	1,730	5,280	866	1,730	4,050	193	34	18
25.....	1,160	2,060	6,450	901	1,320	3,210	196	139	74
26.....	1,270	2,060	7,060	990	1,540	4,120	169	115	52
27.....	1,390	2,610	9,800	1,060	1,250	3,580	580	1,190	s 2,300
28.....	1,470	2,840	11,300	998	920	2,480	522	860	1,210
29.....	1,420	2,610	10,000	943	1,080	2,750	532	2,000	2,870
30.....	1,360	2,300	8,450	894	725	1,750	532	1,690	2,430
31.....	--	--	--	880	730	1,730	--	--	--
Total.	29,966	--	168,000	28,939	--	150,043	18,719	--	50,131
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	522	770	1,090	262	1,160	821	136	75	28
2.....	517	810	1,130	332	1,550	1,390	448	3,660	s 6,610
3.....	527	800	1,140	332	1,350	1,210	527	1,250	1,780
4.....	458	590	726	245	700	463	496	994	1,330
5.....	268	383	277	210	540	306	532	873	1,250
6.....	182	206	101	193	290	151	517	582	812
7.....	164	140	62	159	120	52	506	586	801
8.....	174	132	62	145	112	44	506	505	690
9.....	162	110	48	136	146	54	621	1,250	2,100
10.....	150	137	55	131	164	58	340	486	446
11.....	142	319	122	465	9,440	s 17,000	199	140	75
12.....	136	158	58	476	2,900	3,730	167	112	51
13.....	138	170	63	423	1,300	1,480	159	63	27
14.....	140	570	215	447	1,100	1,330	152	68	28
15.....	523	2,650	s 5,370	456	975	1,200	152	48	20
16.....	543	930	1,360	466	1,020	1,280	150	40	16
17.....	506	675	922	517	1,700	2,370	152	51	21
18.....	506	625	854	481	2,250	2,920	140	41	15
19.....	517	675	942	472	4,920	s 10,200	138	39	15
20.....	604	890	1,450	222	1,000	569	142	54	21
21.....	527	2,410	3,430	190	2,410	1,240	145	74	29
22.....	282	425	324	216	1,300	758	145	52	20
23.....	202	200	109	185	304	152	147	48	19
24.....	169	147	67	174	165	78	159	63	27
25.....	150	123	50	159	171	73	142	49	19
26.....	133	81	29	164	339	150	150	62	25
27.....	140	49	19	167	174	78	147	53	21
28.....	164	7,200	sb 5,300	136	109	40	145	49	19
29.....	131	800	283	131	102	36	154	59	25
30.....	159	4,380	s 2,840	125	79	27	142	35	13
31.....	262	2,500	1,770	127	99	34	--	--	--
Total.	9,196	--	30,268	8,344	--	49,324	7,656	--	16,353
Total discharge for year (cfs-days)									190,134
Total load for year (tons)									714,319

s Computed by subdividing day.

b Computed from partly estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOMI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Particle-size analyses, of suspended sediment, water year October 1955 to September 1956
 (Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
 W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature per- ature (°F)	Suspended sediment												Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500		1.000
	Dec. 1, 1955	496	42	617	--	--	--	--	--	--	18	43	91	100	100	--	V
	Jan. 29, 1956	831	41	2,050	3,490	--	13	--	21	--	46	72	96	100	100	100	VPWCM
	Feb. 25	675	37	843	2,300	--	15	--	19	--	32	56	91	100	100	100	VPWCM
	Feb. 25	824	42	3,190	3,580	--	9	--	13	--	48	74	91	97	100	100	VPWCM
	Mar. 2	657	40	2,520	2,930	--	55	--	71	--	77	83	98	100	100	100	VPWCM
	Mar. 27	894	48	2,460	3,370	--	28	--	39	--	58	79	94	100	100	100	VPWCM
	Apr. 23	1,060	52	1,840	4,140	--	15	--	21	--	37	73	96	99	100	100	VPWCM
	May 7	1,380	57	2,410	1,830	12	15	17	20	25	34	64	95	100	100	100	VPWCM
	May 7	1,380	57	2,410	2,000	9	12	14	17	22	34	64	95	100	100	100	VFN
	May 23	651	64	1,840	3,110	--	9	--	13	--	36	73	99	100	100	100	VPWCM
	June 27	734	70	2,590	4,890	--	14	--	24	--	43	58	80	83	98	98	VPWCM
	June 30	560	68	1,950	3,390	--	36	--	57	--	64	75	96	100	100	100	VPWCM
	July 15	852	77	4,810	4,100	--	38	--	56	--	66	72	83	91	99	99	VPWCM
	July 21	587	66	3,190	4,090	--	61	--	82	--	86	91	99	100	100	100	VPWCM
	July 30	238	71	40,500	11,000	--	53	--	86	--	99	99	100	100	100	100	VPWCM
	Aug. 11	727	74	8,670	5,260	--	54	--	79	--	93	96	99	100	100	100	VPWCM
	Aug. 19	587	68	15,900	4,660	--	36	--	57	--	90	97	98	99	100	100	VPWCM
	Sept. 2	675	63	9,200	4,200	--	48	--	73	--	88	96	99	100	100	100	VPWCM

RIO GRANDE BASIN--Continued

GALISTEO CREEK AT DOMINGO, N. MEX.

LOCATION.--At gaging station in Santo Domingo Pueblo Grant, 160 feet downstream from highway bridge, 0.3 mile northeast of Domingo, Sandoval County, 2½ miles east of Santo Domingo Pueblo, and 4 miles upstream from mouth. Prior to July 20, 1956, at site 160 feet upstream.

DRAINAGE AREA.--640 square miles, approximately.

RECORDS AVAILABLE.--Sediment records: January 1948 to September 1956.

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 62,900 ppm July 19; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 300,000 tons July 19; minimum daily, 0 tons on many days.

EXTREMES, 1948-56.--Sediment concentrations: Maximum daily, 88,800 ppm July 4, 1952; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 1,600,000 tons Sept. 25, 1955; minimum daily, 0 tons on many days.

REMARKS.--No flow during November, March, April, May, and September; tabulation omitted for these months. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Suspended sediment, water year October 1955 to September 1956

Day	October			December			January		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	8	1,400	sa370	0.2	--	e1	0		
2.....	50	11,000	sa1,800	.3	--	e1	0		
3.....	10	8,000	216	0	--	0	0		
4.....	5	4,000	s54	.1	--	(et)	0		
5.....	1	--	a3	0	--	0	0		
6.....	.5	--	e2	.2	--	e1	0		
7.....	.4	--	e1	0	--	0	0		
8.....	.5	--	e2	0	--	0	0		
9.....	.5	--	e2	0	--	0	0		
10.....	.2	--	e1	0	--	0	0		
11.....	.1	--	(et)	0	--	0	0		
12.....	.2	--	e1	0	--	0	0		
13.....	0	--	0	.1	}		0		
14.....	.1	--	(et)	.1			0		
15.....	.1	--	(et)	.1		(et)	0		
16.....	0	--	0	.1	}		0		
17.....	0	--	0	.1			0		
18.....	0	--	0	.1			0		
19.....	0	--	0	0		0	.1		
20.....	0	--	0	0	--	0	0		
21.....	0	--	0	0	--	0	0		
22.....	0	--	0	0	--	0	0		
23.....	0	--	0	0	--	0	0		
24.....	0	--	0	0	--	0	0		
25.....	0	--	0	0	--	0	0		
26.....	.1	}	(et)	0	--	0	0		
27.....	.1		0	0	--	0	0		
28.....	0		0	0	--	0	0		
29.....	0	--	0	0	--	0	.2		
30.....	.1	--	(et)	0	--	0	0		
31.....	.2	--	e1	0	--	0	0		
Total.	77.1	--	2,454	1.4	--	5	0.3	--	e1

e Estimated.

s Computed by subdividing day.

t Less than 0.50 ton.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

GALISTEO CREEK AT DOMINGO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued								
Day	February			June			July	
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)
1.....	0			0	--	0	0	--
2.....	0			0	--	0	0	--
3.....	0			0	--	0	0	--
4.....	0			0	--	0	0	--
5.....	0			0	--	0	0	--
6.....	0			0	--	0	0	--
7.....	0			0	--	0	0	--
8.....	0			0	--	0	0	--
9.....	.1			0	--	0	0	--
10.....	.1			0	--	0	0	--
11.....	.1			0	--	0	0	--
12.....	0			0	--	0	0	--
13.....	0			0	--	0	0	--
14.....	0			0	--	0	0	--
15.....	0			0	--	0	0	--
16.....	0			0	--	0	4	4,700
17.....	0			0	--	0	60	22,000
18.....	0			0	--	0	44	21,800
19.....	0			0	--	0	610	62,900
20.....	0			0	--	0	532	52,800
21.....	0			0	--	0	19	15,000
22.....	0			0	--	0	.1	2,000
23.....	0			0	--	0	0	--
24.....	0			0	--	0	0	--
25.....	0			0	--	0	0	--
26.....	0			0	--	0	0	--
27.....	0			0	--	0	0	--
28.....	0			34	54,800	s7,710	0	--
29.....	0			.5	16,000	a22	82	25,000
30.....	--			0	--	0	71	33,900
31.....	--			--	--	--	91	39,700
Total.	0.3	--	e1	34.5	--	7,732	1,513.1	--
August								
1.....				347	46,800	s123,000		
2.....				322	46,200	s86,900		
3.....				17	6,300	s388		
4.....				.1	900	sa1		
5.....				0	--	0		
6.....				0	--	0		
7.....				0	--	0		
8.....				0	--	0		
9.....				0	--	0		
10.....				0	--	0		
11.....				0	--	0		
12.....				0	--	0		
13.....				30	5,500	sa1,700		
14.....				.2	1,250	s2		
15.....				0	--	0		
16.....				0	--	0		
17.....				0	--	0		
18.....				3	5,300	sa230		
19.....				64	40,000	sa10,000		
20.....				15	19,400	s905		
21.....				.3	5,000	sa680		
22.....				0	--	0		
23.....				0	--	0		
24.....				0	--	0		
25.....				0	--	0		
26.....				0	--	0		
27.....				0	--	0		
28.....				0	--	0		
29.....				0	--	0		
30.....				0	--	0		
31.....				0	--	0		
Total.				798.6	--	223,806		
Total discharge for year (cfs-days).....								2,425.3
Total load for year (tons).....								748,550

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued
GALISTEO CREEK AT DOMINGO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis		
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters												
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500		1.000	
June 28, 1956	2:00 a. m.	184	59	134,000	3,470													SPWCM
July 20	12:30 a. m.	2,850	45	129,000	4,160		77		91		92	97	100					SPWCM

RIO GRANDE BASIN--Continued

JEMEZ RIVER BELOW JEMEZ CANYON DAM, N. MEX.

LOCATION.--At gaging station three-quarters of a mile downstream from Jemez Canyon Dam, 1½ miles upstream from mouth, and 6 miles north of Bernalillo, Sandoval County.

DRAINAGE AREA.--1,040 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1956.

Sediment records: April 1948 to September 1956.

EXTREMES, 1955-56.--Water temperatures: Maximum, 86°F July 31; minimum, freezing point Dec. 9, 12, 30, Feb. 28.

Sediment concentrations: Maximum daily, 67,500 ppm Aug. 1; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 94,400 tons Aug. 1; minimum daily, 0 tons on many days.

EXTREMES, 1948-56.--Water temperatures (1950-56) Maximum, 93°F July 19, 1953; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 118,000 ppm Aug. 1, 1955; minimum daily, no flow on many days each year.

Sediment loads: Maximum daily, 167,000 tons July 25, 1951; minimum daily, 0 tons on many days each year.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. No flow during October, June, and September, tabulation omitted for these months. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Temperature (°F) of water, water year October 1955 to September 1956

Once-daily measurement, generally between 11 a. m. and 4 p. m. No flow on many days

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		--	a 45	--	--	50	--	74			66	
2		--	41	--	--	55	a 38	78			75	
3		--	--	43	--	--	54	78			84	
4		--	--	39	--	--	65	a 63			--	
5		--	38	38	--	60	62	a 69			--	
6		--	34	46	34	56	60	--			--	
7		--	44	--	34	45	71	81			--	
8		--	37	--	33	50	--	78			--	
9		--	32	49	33	60	68	78			--	
10		--	--	50	35	--	71	70			--	
11		--	--	40	--	--	68	76			--	
12		--	32	49	--	38	74	a 64			--	
13		--	38	47	53	46	65	--			--	
14		--	41	--	38	58	--	71			--	
15		--	44	--	--	48	--	80			--	
16		--	42	39	--	56	--	a 56			--	
17		49	--	39	50	--	50	--			--	
18		44	--	36	--	--	47	a 75			--	
19		44	46	41	--	67	58	--			--	
20		--	46	44	54	54	70	--			--	
21		48	44	43	53	66	a 60	--			--	
22		47	43	--	--	66	--	--			--	
23		49	40	42	52	67	a 44	--			--	
24		--	--	43	a 44	--	a 46	--			--	
25		42	--	43	--	--	a 56	--			--	
26		--	--	53	48	58	a 48	--			--	
27		--	--	49	48	77	--	--			--	
28		50	a 42	--	a 31	53	51	--			--	
29		42	--	--	54	66	--	--			--	
30		38	32	47	--	69	--	--			--	
31		--	--	40	--	--	--	--		86	--	
Average	--	--	--	--	--	--	--	--	--	--	--	--

a Measurement before 11 a. m.

RIO GRANDE BASIN--Continued

JEMEZ RIVER BELOW JEMEZ CANYON DAM, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	November			December			January		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean dis-charge (cfs)	Mean concen-tration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concen-tration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concen-tration (ppm)	Tons per day
1.....	0	--	0	15	8,700	352	11	--	e 120
2.....	0	--	0	26	9,300	653	2	--	e 15
3.....	0	--	0	9	7,400	sa 190	7	2,700	51
4.....	0	--	0	1	4,300	sa 55	12	5,600	181
5.....	0	--	0	19	5,900	302	19	6,700	344
6.....	0	--	0	1	3,580	s 47	20	9,100	491
7.....	0	--	0	16	7,900	341	18	--	e 400
8.....	0	--	0	1	2,750	7	21	--	e 430
9.....	0	--	0	4	1,100	12	24	7,000	454
10.....	0	--	0	.4	--	e 1	16	6,550	283
11.....	0	--	0	.3	310	sa 2	22	5,300	315
12.....	0	--	0	15	6,540	s 477	15	7,200	292
13.....	0	--	0	31	14,400	s 1,490	22	4,150	247
14.....	0	--	0	30	13,800	1,120	21	5,300	a 300
15.....	.6	1,700	sa 9	16	10,600	s 561	26	6,500	a 460
16.....	0	--	0	18	8,700	423	22	8,750	520
17.....	2	1,740	s 17	13	--	e 170	31	8,400	703
18.....	3	6,000	49	13	--	e 180	20	7,110	384
19.....	2	5,550	30	16	6,800	294	15	5,280	214
20.....	5	7,300	a 99	13	4,200	147	22	6,200	368
21.....	9	8,150	198	15	4,500	182	28	7,100	537
22.....	8	6,500	140	16	8,900	384	25	6,500	a 440
23.....	13	6,100	214	18	6,100	296	20	4,500	243
24.....	9	6,400	sa 220	20	--	e 310	21	4,400	249
25.....	13	4,270	s 118	21	--	e 270	25	6,300	425
26.....	11	2,300	sa 64	22	--	e 280	21	4,600	261
27.....	7	2,200	a 42	19	--	e 210	26	4,700	330
28.....	9	3,000	73	21	3,800	215	22	5,200	a 310
29.....	11	3,350	s 132	19	--	e 190	21	5,500	a 310
30.....	12	6,610	s 333	11	3,630	108	19	5,400	277
31.....	--	--	--	16	--	e 260	19	5,200	267
Total.	114.6	--	1,738	455.7	--	9,529	613	--	10,221
Day	February			March			April		
	Suspended sediment			Suspended sediment			Suspended sediment		
	Mean dis-charge (cfs)	Mean concen-tration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concen-tration (ppm)	Tons per day	Mean dis-charge (cfs)	Mean concen-tration (ppm)	Tons per day
1.....	10	--	e 100	13	6,000	211	70	--	e 190
2.....	2	--	e 5	23	6,900	428	90	890	216
3.....	0	--	0	22	--	e 400	70	2,000	378
4.....	0	--	0	29	--	e 500	62	6,400	1,070
5.....	0	--	0	23	6,400	397	56	8,500	1,290
6.....	15	5,620	s 485	32	7,000	605	70	8,200	1,550
7.....	26	7,700	s 954	17	1,700	78	48	8,400	1,090
8.....	10	8,400	s 283	25	5,850	s 593	42	--	e 680
9.....	17	5,560	s 414	18	7,370	s 550	45	5,260	639
10.....	18	6,250	s 416	38	--	e 710	53	6,970	997
11.....	22	10,000	a 590	32	--	e 680	56	5,040	762
12.....	18	10,000	a 490	25	10,300	s 1,240	42	7,000	794
13.....	23	9,300	s 778	62	18,700	3,130	70	5,520	1,040
14.....	27	7,500	547	56	18,500	2,800	56	--	e 760
15.....	29	6,000	a 470	50	9,600	1,300	59	--	e 800
16.....	32	6,500	a 560	62	11,400	1,910	50	--	e 680
17.....	29	6,300	493	41	--	e 1,000	70	4,600	869
18.....	25	7,500	a 510	48	--	e 1,100	74	3,800	759
19.....	21	7,500	a 430	90	7,000	1,700	94	3,000	761
20.....	23	7,600	472	102	5,200	1,430	90	4,700	1,140
21.....	18	8,200	399	94	5,700	1,450	67	6,400	1,160
22.....	15	7,900	a 320	74	4,300	859	56	--	e 910
23.....	18	7,800	379	70	5,000	945	64	--	e 860
24.....	10	6,200	167	64	--	e 1,200	70	--	e 910
25.....	4	4,000	sa 97	94	--	e 1,800	74	3,360	671
26.....	4	5,600	a 60	86	5,160	1,200	78	1,840	388
27.....	2	2,300	12	70	4,630	875	82	--	e 1,000
28.....	7	6,000	113	70	2,540	480	74	4,550	906
29.....	11	5,500	163	90	1,390	338	56	--	e 760
30.....	--	--	--	67	1,310	237	48	--	e 650
31.....	--	--	--	64	--	e 220	--	--	--
Total.	436	--	9,507	1,650	--	30,366	1,936	--	24,683

e Estimated.

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

JEMEZ RIVER BELOW JEMEZ CANYON DAM, N. MEX.--Continued
Suspended sediment, water year October 1955 to September 1956--Continued

Day	May			July			August		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	42	4,520	513	0		0	615	87,500	s 94,400
2.....	38	7,750	795	0		0	353	58,200	s 37,600
3.....	42	6,200	771	0		0	11	24,400	s 1,510
4.....	50	3,700	500	0		0	2	--	e 30
5.....	48	3,800	492	0		0	1	--	e 8
6.....	42	--	e 430	0		0	0	--	0
7.....	38	3,990	409	0		0	0	--	0
8.....	29	5,500	431	0		0	0	--	0
9.....	25	6,100	412	0		0	0	--	0
10.....	23	7,600	472	0		0	0	--	0
11.....	21	5,800	329	0		0	0	--	0
12.....	17	5,250	241	0		0	0	--	0
13.....	16	--	e 170	0		0	0	--	0
14.....	15	3,630	147	0		0	0	--	0
15.....	13	3,620	127	0		0	0	--	0
16.....	12	4,200	136	0		0	0	--	0
17.....	10	--	e 80	0		0	0	--	0
18.....	8	1,700	37	0		0	0	--	0
19.....	4	--	e 10	0		0	.1	--	e 1
20.....	0	--	0	0		0	0	--	0
21.....	1	1,000	sa 9	0		0	0	--	0
22.....	2	730	sa 5	0		0	0	--	0
23.....	0	--	0	0		0	0	--	0
24.....	0	--	0	0		0	0	--	0
25.....	0	--	0	0		0	0	--	0
26.....	0	--	0	0		0	0	--	0
27.....	0	--	0	0		0	0	--	0
28.....	0	--	0	0		0	0	--	0
29.....	0	--	0	0		0	0	--	0
30.....	0	--	0	0		0	0	--	0
31.....	0	--	0	11	51,500	s 2,380	0	--	0
Total	496	--	6,516	11	--	2,380	982.1	--	133,549

Total discharge for year (cfs-days) 6,695.4
Total load for year (tons) 228,489

e Estimated.

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

JEMEZ RIVER BELOW JEMEZ CANYON DAM, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350		0.500	1.000
Dec. 9, 1955 ...	11:35 a.m.	4.0	32	339	--	--	--	--	--	--	97	100	--	--	--	S
Dec. 28 ...	10:10 a.m.	32	42	5,440	3,620	--	35	--	45	--	66	96	100	--	--	VPWCM
Jan. 13, 1956...	1:25 p.m.	19	41	6,400	3,220	--	26	--	34	--	73	98	100	--	--	VPWCM
Jan. 27 ...	9:30 a.m.	26	40	8,630	3,610	--	19	--	25	--	49	83	99	100	100	SPWCM
Mar. 16 ...	2:15 p.m.	42	56	8,500	3,670	--	30	--	39	--	69	94	98	100	100	VPWCM
Apr. 12 ...	2:00 p.m.	34	77	4,060	3,940	--	29	--	39	--	76	96	100	--	--	VPWCM
Apr. 19 ...	3:45 p.m.	70	58	3,860	4,180	--	42	--	52	--	81	97	100	--	--	VPWCM
Apr. 28 ...	10:10 a.m.	78	51	4,360	3,580	--	29	--	36	--	64	97	100	--	--	VPWCM
May 4 ...	10:10 a.m.	45	63	3,350	2,890	--	31	--	41	--	70	96	100	--	--	VPWCM
May 12 ...	9:30 a.m.	13	64	2,630	4,580	--	29	--	37	--	68	91	98	100	100	VPWCM
Aug. 1 ...	1:45 p.m.	738	67	77,500	3,500	42	51	59	66	71	75	87	99	100	100	SPWCM
Aug. 1 ...	1:45 p.m.	738	67	77,500	3,300	4	5	12	67	71	75	87	99	100	100	SPN
Aug. 1 ...	3:15 p.m.	1,070	67	64,400	3,620	--	55	--	72	--	78	88	99	100	100	SPWCM
Aug. 3 ...	12:15 p.m.	5.5	74	12,700	3,770	--	73	--	90	--	95	96	100	--	--	VPWCM

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNALILLO, N. MEX.

LOCATION.--At gaging station 2 miles northwest of Sandia Pueblo, 3 miles southwest of Bernalillo, Sandoval County, 3.5 miles downstream from State Highway 44, and 8.5 miles downstream from the Jemez River.

DRAINAGE AREA.--17,300 square miles, approximately (includes 2,940 square miles in a closed basin in the northern part of the San Luis Valley, Colo.).

RECORDS AVAILABLE.--Water temperatures: October 1948 to September 1956.

Sediment records: November 1947 to September 1956.

EXTREMES, 1955-56.--Water temperatures: Maximum, 81°F June 9; minimum, freezing point on many days during December to March.

Sediment concentrations: Maximum daily, 52,800 ppm Aug. 2; minimum daily, no flow on several days during July.

Sediment loads: Maximum daily, 382,000 tons July 20; minimum daily, 0 tons on several days during July.

EXTREMES, 1947-56.--Water temperatures (1948-56): Maximum, 93°F Aug. 18, 1951; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 75,000 ppm Sept. 25, 1955, minimum daily, no flow on several days during July 1956.

Sediment loads: Maximum daily, 1,680,000 tons Sept. 25, 1955; minimum daily, 0 tons on several days during July 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442. Flow affected by ice Feb. 3-8.

Temperature (°F) of water, water year October 1955 to September 1956
/Once-daily measurement, generally before 11 a.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 64	48	36	39	33	32	49	53	70	65	65	b 60
2	65	51	31	38	a 31	34	a 57	58	b 73	63	65	64
3	a 65	40	a 36	33	32	b 45	b 43	54	68	62	64	57
4	62	45	31	33	a 32	42	a 55	52	71	63	b 77	58
5	57	a 54	31	a 36	32	32	a 55	b 70	68	64	64	60
6	55	45	31	32	a 35	32	43	62	70	65	64	58
7	65	40	34	b 45	33	32	b 59	65	71	b 77	63	61
8	a 65	31	33	35	34	37	50	45	71	64	64	b 75
9	51	34	32	33	38	33	47	a 73	b 81	62	62	60
10	58	32	a 35	34	38	b 40	44	60	78	--	63	62
11	58	33	32	34	a 42	38	46	57	70	--	b 77	58
12	60	b 48	a 43	33	38	35	47	--	72	--	65	55
13	59	45	32	36	45	32	47	64	72	--	65	53
14	53	40	34	a 42	a 50	36	b 58	66	70	--	63	55
15	b 61	38	34	36	a 48	32	48	46	67	--	65	b 75
16	56	31	34	a 41	32	46	58	58	b 80	--	65	57
17	54	35	a 42	36	36	b 53	50	58	68	b 80	65	57
18	55	a 47	33	a 38	b 44	40	42	60	65	59	b 74	55
19	54	a 46	32	a 41	36	b 50	45	b 76	69	64	63	--
20	b 54	40	33	38	35	a 48	46	67	63	64	65	a 68
21	56	a 50	33	a 42	36	42	b 48	62	62	b 76	61	52
22	a 57	50	34	38	37	43	53	65	59	63	59	b 71
23	55	35	34	b 42	40	45	50	65	b 78	65	59	62
24	48	35	a 47	36	38	b 58	52	62	65	63	59	b 66
25	45	35	37	33	--	50	50	67	60	65	b 72	51
26	48	--	37	a 43	42	53	51	b 70	60	61	70	50
27	44	36	37	34	38	b 51	52	65	65	60	68	50
28	a 55	38	41	b 48	32	34	b 54	62	58	b 72	70	53
29	a 47	35	37	39	b 55	41	51	62	62	b 75	64	b 63
30	48	35	37	a 43	--	44	46	67	b 74	66	56	56
31	48	--	a 43	a 42	--	b 55	--	65	--	66	53	--
Average	56	40	35	38	39	41	49	62	69	--	65	59

a Measurement obtained between 11 a. m. and 6 p. m.

b Measurement obtained after 6 p. m.

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNALILLO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	111	1,200	360	76	330	68	442	1,860	2,220
2.....	240	4,730	s 3,480	110	608	s 220	502	2,470	3,350
3.....	264	8,900	6,340	179	1,130	546	502	2,650	3,590
4.....	185	1,400	699	188	910	462	488	2,720	3,580
5.....	79	630	134	228	1,330	819	454	2,620	3,210
6.....	67	450	81	272	1,420	1,040	385	1,750	1,820
7.....	67	400	72	240	885	573	375	1,660	1,680
8.....	87	890	209	272	1,400	1,030	430	1,930	2,240
9.....	199	1,100	591	350	1,980	1,870	406	1,590	1,730
10.....	206	1,020	567	365	1,910	1,880	370	2,030	2,030
11.....	142	714	274	340	1,720	1,580	365	1,830	1,800
12.....	74	340	68	345	1,550	1,440	390	2,130	2,240
13.....	65	300	53	335	1,420	1,280	406	2,000	2,190
14.....	64	370	64	330	1,310	1,170	442	3,240	3,870
15.....	76	660	135	335	1,400	1,270	460	2,810	3,490
16.....	220	1,490	885	345	1,580	1,470	474	2,830	3,620
17.....	248	1,250	837	340	1,360	1,250	481	2,930	3,810
18.....	199	670	360	315	1,300	1,110	495	3,020	4,040
19.....	69	284	53	350	1,590	1,500	502	3,070	4,160
20.....	64	311	54	350	1,810	1,710	502	3,380	4,580
21.....	76	348	71	355	1,790	1,720	523	3,090	4,360
22.....	78	460	97	365	1,360	1,340	544	3,350	4,920
23.....	206	1,300	723	385	1,920	2,000	530	3,850	5,510
24.....	213	1,050	604	400	2,250	2,430	537	3,640	5,280
25.....	167	700	316	395	1,830	1,950	558	3,670	5,530
26.....	78	296	62	395	1,690	1,800	565	3,360	5,130
27.....	74	288	58	385	1,580	1,640	565	3,950	6,030
28.....	74	333	67	406	2,330	2,550	600	3,500	5,670
29.....	76	357	73	406	1,470	1,610	558	4,500	6,780
30.....	61	312	68	412	1,520	1,690	558	3,470	5,230
31.....	89	369	89	--	--	--	600	3,860	6,250
Total.	3,938	--	17,544	9,569	--	41,018	15,009	--	119,940
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	600	3,250	5,260	664	3,900	6,990	593	3,050	4,880
2.....	579	6,700	10,500	558	3,750	5,650	664	4,450	7,980
3.....	558	2,980	4,490	500	2,670	3,600	672	5,650	10,300
4.....	523	2,360	3,330	430	3,350	3,890	672	5,800	10,500
5.....	460	2,590	3,220	400	5,940	6,420	707	6,460	12,300
6.....	488	3,100	4,080	520	5,220	7,330	680	6,570	12,100
7.....	537	5,900	8,550	600	5,000	8,100	672	5,700	10,300
8.....	530	3,680	5,270	620	4,000	6,700	640	4,770	8,240
9.....	551	3,470	5,160	586	3,050	4,830	530	3,130	4,480
10.....	558	2,630	3,960	551	3,150	4,690	579	2,690	4,210
11.....	551	3,680	5,470	530	2,970	4,250	616	2,900	4,820
12.....	537	3,450	5,000	530	3,250	4,650	572	2,950	4,560
13.....	516	2,940	4,100	537	3,170	4,600	608	3,950	6,480
14.....	551	1,870	2,780	544	2,600	3,820	544	3,100	4,550
15.....	565	2,040	3,110	530	1,960	2,800	509	2,350	3,230
16.....	565	2,130	3,250	558	2,130	3,210	467	1,960	2,470
17.....	586	2,750	4,350	593	2,510	4,020	400	1,930	2,080
18.....	579	3,920	6,130	544	2,230	3,280	530	2,610	3,730
19.....	600	4,250	6,880	558	1,970	2,970	360	1,950	1,900
20.....	586	3,000	4,750	565	2,170	3,310	315	1,910	1,620
21.....	565	3,100	4,730	530	2,150	3,080	360	1,850	1,800
22.....	600	3,140	5,090	516	1,840	2,560	340	2,690	2,470
23.....	530	3,790	5,420	523	2,430	3,430	335	1,600	1,450
24.....	544	3,170	4,660	565	2,510	3,830	350	1,770	1,670
25.....	558	3,440	5,180	608	2,190	3,600	572	2,660	4,110
26.....	551	2,600	3,870	734	3,610	s 7,360	454	2,090	2,560
27.....	530	2,170	3,110	624	3,380	5,690	600	3,360	5,440
28.....	530	3,220	4,610	586	3,570	5,650	624	3,500	5,900
29.....	680	3,910	7,180	579	2,960	4,630	600	2,610	4,710
30.....	792	3,960	8,470	--	--	--	565	2,900	4,420
31.....	743	4,270	8,570	--	--	--	551	2,250	3,350
Total.	17,643	--	160,530	16,183	--	134,940	16,681	--	158,610

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNALILLO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	814	3,120	6,860	906	4,150	10,200	390	980	1,030
2.....	734	3,030	8,000	971	3,600	9,440	454	1,100	1,350
3.....	825	3,800	8,460	958	3,950	10,200	716	3,950	7,640
4.....	624	3,500	5,900	958	4,460	11,500	474	1,780	2,280
5.....	572	2,400	3,710	1,040	4,250	11,900	537	1,160	1,680
6.....	495	2,250	3,010	984	5,250	13,900	648	1,680	2,940
7.....	418	1,600	1,810	984	4,850	12,900	648	2,030	3,550
8.....	640	2,700	4,670	1,120	3,650	11,000	608	1,650	2,710
9.....	544	2,130	3,130	1,220	2,770	9,120	716	2,100	4,060
10.....	320	1,580	1,370	1,260	3,600	12,200	893	2,600	6,270
11.....	325	2,800	2,460	958	3,400	8,790	516	1,160	1,620
12.....	345	1,410	1,310	1,040	1,800	5,050	454	800	981
13.....	375	1,480	1,500	880	3,700	8,790	350	730	690
14.....	530	2,500	3,580	406	1,500	1,640	260	330	232
15.....	906	3,200	7,830	355	1,080	1,040	179	270	130
16.....	640	2,800	4,840	340	870	799	170	330	151
17.....	664	2,650	4,750	268	530	384	154	220	91
18.....	752	2,910	5,910	188	410	208	64	150	26
19.....	672	2,550	4,630	179	350	169	51	120	17
20.....	616	2,200	3,660	300	1,710	1,390	43	90	10
21.....	716	2,210	4,270	139	350	131	40	82	9
22.....	958	3,890	10,100	106	160	46	32	120	10
23.....	656	2,670	4,730	118	2,600	s 2,120	20	120	6
24.....	725	2,950	5,770	184	12,500	s 5,980	16	100	4
25.....	716	3,200	6,190	474	3,700	4,740	6	62	1
26.....	752	2,950	5,990	551	1,800	2,680	9	98	2
27.....	869	3,600	8,450	608	2,000	3,280	9	144	3
28.....	1,010	4,900	13,400	608	1,700	2,790	113	696	s 384
29.....	1,190	6,050	19,400	537	2,100	3,040	204	4,020	2,210
30.....	906	3,800	9,300	442	1,960	2,340	188	1,210	614
31.....	--	--	--	395	1,740	1,860	--	--	--
Total.	20,309	--	172,990	19,477	--	169,627	8,962	--	40,701
Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	162	2,010	879	463	49,200	s 68,700	18	302	15
2.....	115	1,100	342	1,030	52,800	s 218,000	15	438	18
3.....	91	530	130	118	19,000	s 6,690	78	3,000	s 1,130
4.....	91	400	98	87	3,400	799	93	4,250	1,070
5.....	67	380	69	182	4,800	2,360	79	1,890	403
6.....	26	250	18	40	1,200	130	97	1,560	409
7.....	8	130	3	16	1,290	56	81	1,310	286
8.....	4	160	2	16	900	39	126	1,420	483
9.....	2	210	1	15	690	28	133	1,410	506
10.....	0	--	0	14	636	24	132	1,540	549
11.....	0	--	0	14	485	18	41	970	107
12.....	0	--	0	104	6,980	s 3,440	14	470	18
13.....	0	--	0	88	7,500	1,780	15	390	16
14.....	0	--	0	91	3,600	885	15	415	17
15.....	0	--	0	95	2,100	539	7	146	3
16.....	10	430	sa 67	123	2,200	731	5	172	2
17.....	75	1,100	223	118	1,700	542	3	170	1
18.....	97	12,700	s 4,240	195	3,470	s 2,010	3	134	1
19.....	104	3,800	1,070	225	7,800	4,740	.8	--	(et)
20.....	1,960	47,200	s 382,000	163	8,300	4,070	2	116	1
21.....	590	11,100	17,700	41	5,400	598	2	188	1
22.....	510	6,300	8,680	23	2,300	143	4	109	1
23.....	230	2,800	1,740	19	1,100	56	4	114	1
24.....	47	668	85	21	1,000	57	.5	98	(t)
25.....	23	558	35	22	670	40	4	130	1
26.....	18	447	22	24	850	55	4	98	1
27.....	8	290	6	6	390	6	5	98	1
28.....	5	106	1	12	740	24	6	94	2
29.....	4	104	1	20	630	34	4	54	1
30.....	66	6,640	s 4,730	22	481	29	7	103	2
31.....	162	24,300	s 13,600	23	503	31	--	--	--
Total.	4,475	--	435,742	3,430	--	316,654	998.3	--	5,046

Total discharge for year (cfs-days) 136,674.3

Total load for year (tons) 1,773,342

e Estimated.

s Computed by subdividing day.

t Less than 0.50 ton.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued
RIO GRANDE NEAR BERNALILLO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water tem- per- ature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500		1.000
Oct. 16, 1955.....	9:00 a.m.	224	56	1,530	3,680		29		54		90	98	100		--	VPWCM
Nov. 19.....	11:55 a.m.	360	46	1,470	2,270		21		36		75	80	97		99	100
Dec. 22.....	9:30 a.m.	579	34	2,410	2,520		13		19		58	86	99		100	VPWCM
Jan. 27, 1956.....	11:00 a.m.	544	46	1,920	2,660		10		15		48	82	96		100	VPWCM
Feb. 17.....	3:15 p.m.	600	47	2,620	2,940		8		11		45	83	96		100	VPWCM
Mar. 9.....	3:20 p.m.	454	53	2,580	3,600		27		35		56	91	99		100	VPWCM
Apr. 2.....	3:20 p.m.	792	47	3,560	3,570		15		21		40	60	74		96	VPWCM
Apr. 7.....	11:50 a.m.	442	56	1,530	2,580		26		33		60	88	99		100	VPWCM
Apr. 10.....	2:15 p.m.	340	59	1,540	3,810		21		27		52	89	99		100	VPWCM
Apr. 14.....	12:35 p.m.	800	51	1,840	3,380		27		39		68	90	99		100	VPWCM
Apr. 16.....	4:15 p.m.	608	62	2,360	3,780		29		38		61	85	92		98	VPWCM
Apr. 21.....	2:10 p.m.	734	65	2,100	3,970		24		33		68	92	100		--	VPWCM
Apr. 23.....	3:05 p.m.	632	64	3,330	3,680		15		20		38	54	77		93	VPWCM
Apr. 28.....	1:45 p.m.	880	61	3,750	3,990		19		28		65	94	99		100	VPWCM
May 1.....	2:30 p.m.	906	61	3,890	4,440		16		23		46	68	84		99	VPWCM
May 5.....	1:30 p.m.	971	69	2,600	4,620		17		25		61	90	98		100	VPWCM
May 8.....	2:45 p.m.	1,060	69	3,820	4,670		12		16		38	60	79		98	VPWCM
May 12.....	1:06 p.m.	984	66	1,120	2,760		21		27		51	84	95		100	VPWCM
May 14.....	2:15 p.m.	395	61	2,040	2,800		20		28		58	88	100		--	VPWCM
May 18.....	1:20 p.m.	188	75	319	--		--		--		60	89	99		100	V
May 22.....	1:25 p.m.	98	71	199	--		--		--		47	76	96		100	V
May 26.....	1:00 p.m.	531	71	1,720	2,460		23		33		60	88	100		--	VPWCM
May 29.....	11:15 a.m.	363	66	4,410	3,320		5		8		16	24	52		95	VPWCM
June 2.....	4:30 p.m.	467	75	926	2,670		15		22		52	89	99		100	VPWCM
June 4.....	11:20 a.m.	495	72	1,010	2,600		16		22		54	90	99		100	VPWCM
June 8.....	12:00 a.m.	608	78	2,090	3,650		8		13		40	61	84		100	VPWCM
June 12.....	10:50 a.m.	474	73	718	1,830		17		21		55	93	99		100	VPWCM

RIO GRANDE BASIN--Continued
RIO GRANDE NEAR BERNALILLO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956--Continued
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water tem- per- ature (° F)	Suspended sediment											Methods of analysis			
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters												
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000		
June 15, 1956, . . .	12:30 p. m.	182	80	382	--	--	--	--	--	--	41	77	100	--	--	V		
June 18	2:10 p. m.	49	85	57	--	--	--	--	--	--	82	98	100	--	--	S		
June 22	1:00 p. m.	34	82	142	--	--	--	--	--	--	52	91	98	100	--	--	SPWCM	
June 26	11:50 a. m.	12	85	77	690	79	79	82	82	81	88	93	98	100	--	--	VPWCM	
June 29	12:45 p. m.	271	81	3,350	3,850	63	63	81	81	88	88	97	100	--	--	--		
July 9	10:35 a. m.	42	81	130	1,000	87	87	88	88	92	92	94	95	99	100	--	SPWCM	
July 20	12:45 p. m.	828	70	46,300	3,920	60	60	85	85	95	95	99	100	--	--	--	VPWCM	
July 30	11:00 p. m.	415	68	47,900	4,450	50	50	79	79	95	95	98	100	--	--	--	VPWCM	
July 31	7:45 a. m.	247	65	22,000	3,380	61	61	88	88	96	96	100	--	--	--	--	VPWCM	
Aug. 1	5:45 p. m.	690	--	66,100	4,880	63	63	84	84	94	94	97	100	--	--	--	VPWCM	
Aug. 24	10:40 a. m.	28	79	855	2,860	79	79	90	90	92	92	95	99	100	--	--	SPWCM	
Sept. 7	11:40 a. m.	81	76	1,000	3,220	63	63	86	86	94	94	97	99	100	--	--	SPWCM	
Sept. 21	3:40 p. m.	34	76	136	990	83	83	91	91	91	91	93	93	98	100	--	SPWCM	

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNARDO, N. MEX.

LOCATION.--At gaging station at bridge on U. S. Highway 60, 2 miles east of Bernardo, Socorro County, and 3½ miles upstream from Rio Puerco.

DRAINAGE AREA.--19,230 square miles, approximately (includes 2,940 square miles in closed basin in Northern part of San Luis Valley, Colo.).

RECORDS AVAILABLE.--Sediment records: October 1947 to September 1956.

EXTREMES, 1955-56.--Sediment loads: Maximum daily, 29,190 tons July 31; minimum daily, 0 tons on many days.

EXTREMES, 1947-56.--Sediment loads: Maximum daily, 348,000 tons Sept. 26, 1955; minimum daily, 0 tons on many days.

REMARKS.--Records of specific conductance of daily samples and daily mean sediment concentrations for separate channels available in district office at Albuquerque, N. Mex. Records are summation of water and sediment discharges in main channel, conveyance channel, and Bernardo interior drain. Table for particle-size analyses for conveyance channel is published separately and shows water discharges and concentrations in that channel at the time of sampling. Daily sediment concentrations not listed because a composite concentration of more than one channel is meaningless. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	129		253	33		7	398		2,660
2.....	133		570	34		9	410		2,690
3.....	154		2,810	35		7	450		3,840
4.....	242		10,400	35		9	510		4,640
5.....	173		1,230	35		8	494		4,100
6.....	163		1,010	35		8	494		4,100
7.....	162		778	42		17	465		3,850
8.....	154		537	49		20	398		2,820
9.....	123		204	86		128	396		2,800
10.....	120		200	85		75	465		3,850
11.....	147		418	95		88	447		2,690
12.....	133		287	104		174	423		2,200
13.....	115		163	97		162	441		2,410
14.....	113		131	107		166	465		3,420
15.....	106		127	140		437	465		3,540
16.....	107		94	151		519	510		4,300
17.....	96		72	196		1,360	525		4,490
18.....	83		60	224		1,880	555		4,600
19.....	78		54	244		1,850	570		3,810
20.....	50		22	288		2,580	586		3,760
21.....	48		21	309		2,550	586		4,540
22.....	40		15	329		3,300	586		4,850
23.....	32		7	339		2,940	586		4,850
24.....	33		14	339		2,440	601		4,820
25.....	31		11	369		2,610	616		4,940
26.....	35		17	402		3,380	631		4,890
27.....	33		9	398		2,820	646		5,180
28.....	33		9	390		3,120	645		5,960
29.....	38		15	370		2,760	645		5,370
30.....	39		9	380		2,690	630		5,370
31.....	36		8	--		--	645		5,440
Total.	2,979		19,555	5,751		38,114	16,285		126,780

s Computed by subdividing day.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNARDO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	January			February			March		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	646		4,220	767		6,280	540		3,320
2.....	615		3,990	723		5,680	554		3,940
3.....	645		6,310	617		3,710	524		3,540
4.....	615		6,280	556		4,080	644		4,170
5.....	570		4,770	506		2,560	601		4,660
6.....	570		4,320	466		2,050	514		4,520
7.....	540		3,780	555		3,640	590		6,340
8.....	525		2,270	715		6,900	542		5,340
9.....	570		3,070	697		5,890	524		4,590
10.....	585		4,130	630		5,740	417		2,220
11.....	615		5,350	615		5,350	371		1,460
12.....	605		4,520	600		4,420	382		1,580
13.....	595		4,290	584		3,990	356		1,080
14.....	585		4,370	614		4,610	435		1,910
15.....	585		4,560	584		4,310	324		1,100
16.....	600		3,930	585		3,850	287		1,030
17.....	616		4,430	570		3,490	263		625
18.....	645		5,010	570		3,840	238		e 550
19.....	708		6,840	600		4,470	229		494
20.....	686		6,190	555		3,210	219		377
21.....	636		5,170	570		3,330	204		278
22.....	626		4,570	570		3,170	213		368
23.....	676		8,510	565		3,180	208		320
24.....	664		5,210	555		3,940	188		216
25.....	616		3,900	570		3,010	180		216
26.....	631		4,050	615		4,040	166		191
27.....	601		3,690	645		4,490	212		500
28.....	616		4,360	714		5,890	188		311
29.....	616		5,520	645		4,220	344		s 2,120
30.....	716		7,570	--		--	383		2,130
31.....	891		12,500	--		--	393		2,910
Total.	19,408		155,680	17,558		123,320	11,233		61,506
	April			May			June		
1.....	273		1,070	626		3,990	84		58
2.....	414		s 3,000	637		3,980	131		204
3.....	561		4,070	627		3,670	154		200
4.....	658		4,610	600		3,180	185		214
5.....	601		3,600	582		3,430	168		206
6.....	480		2,400	562		2,730	137		120
7.....	348		1,220	705		3,770	144		107
8.....	263		648	638		3,710	113		86
9.....	294		839	562		2,820	153		171
10.....	328		953	532		2,560	162		150
11.....	275		566	594		2,870	180		205
12.....	180		323	535		2,270	212		410
13.....	196		363	448		1,620	84		45
14.....	131		188	692		4,210	63		35
15.....	160		207	412		1,370	49		10
16.....	434		s 3,350	221		365	46		8
17.....	400		2,210	208		268	41		14
18.....	365		1,590	111		65	42		20
19.....	395		1,870	81		37	32		4
20.....	478		2,870	69		37	29		5
21.....	363		1,470	79		41	29		2
22.....	389		1,340	74		23	20		2
23.....	735		s 11,700	71		19	21		2
24.....	413		2,230	72		28	17		e 1
25.....	338		1,170	59		10	18		2
26.....	377		1,350	54		22	18		1
27.....	340		959	68		34	16		1
28.....	327		870	78		68	14		1
29.....	717		7,620	69		34	17		21
30.....	679		10,800	84		99	17		7
31.....	--		--	71		35	--		--
Total.	11,932		75,456	10,211		47,565	2,396		2,312

e Estimated.

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNARDO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	17		3	114		s 17,800			
2.....	18		3	30		s 2,890			
3.....	17		2	74		s 8,240			
4.....	10		1	28		280			
5.....	10		1	16		56			
6.....	8		1	12		27			
7.....	8		1	9		19			
8.....	6		1	7		3			
9.....	8		(t)	5		1			
10.....	6		(t)	3		1			
11.....	6		(t)	3		1			
12.....	5		(t)	2		(et)			
13.....	5		(t)	1		(t)			
14.....	3		(t)	1		(t)			
15.....	3		(t)	2		(t)			
16.....	2		(t)	2		(t)			
17.....	0		0	1		(t)			
18.....	0		0	1		(t)			
19.....	0		0	0		0			
20.....	0		0	0		0			
21.....	77		s 8,050	0		0			
22.....	23		s 614	0		0			
23.....	9		10	0		0			
24.....	8		2	0		0			
25.....	5		1	0		0			
26.....	4		(t)	0		0			
27.....	1		(t)	0		0			
28.....	2		(et)	0		0			
29.....	0		0	0		0			
30.....	0		0	0		0			
31.....	180		s 29,100	0		0			
Total.	441		37,793	311		29,319	0		

Total discharge for year (cfs-days) 98,505
 Total load for year (tons) 717,400

e Estimated.

s Computed by subdividing day.

t Less than 0.50 ton.

RIO GRANDE BASIN--Continued
RIO GRANDE NEAR BERNARDO, N. MEX.--Continued
RIO GRANDE CONVEYANCE CHANNEL NEAR BERNARDO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Suspended sediment											Methods of analysis
						Percent finer than indicated size, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
	Nov. 17, 1955.....	3:30 p.m.	209	--	2,750	3,290	44		61		87	98	100		--	VPWCM	
	Dec. 6.....	3:00 p.m.	505	--	3,200	3,520	33		51		76	92	100		--	VPWCM	
	Jan. 13, 1956.....	3:00 p.m.	a 590	50	2,630	4,350	26		41		61	81	100		--	VPWCM	
	Feb. 9.....	3:00 p.m.	672	--	3,150	2,800	30		46		67	87	100		--	VPWCM	
	Mar. 16.....	11:00 a.m.	265	45	1,370	2,280	42		54		70	87	100		--	VPWCM	
	Mar. 30.....	10:00 a.m.	258	52	1,620	3,400	54		70		84	95	100		--	VPWCM	
	Apr. 20.....	3:30 p.m.	672	61	2,560	3,070	47		69		87	94	100		--	VPWCM	
	Apr. 23.....	3:00 p.m.	910	65	7,740	4,420	35		66		89	94	99	100	100	VPWCM	
	Apr. 30.....	7:00 a.m.	a 660	54	6,900	4,100	26		56		82	89	99	100	100	VPWCM	
	June 12.....	5:00 p.m.	117	82	506	--	--	--	--		92	95	98	100	100	S	
	July 21.....	2:30 p.m.	426	82	42,500	4,050	59		86		99	100	--	--	--	VPWCM	
	July 31.....	7:30 a.m.	149	65	40,200	4,010	58		93		100	--	--	--	--	PWCM	

a Daily mean discharge of conveyance channel.

a Daily mean discharge of conveyance channel.

RIO GRANDE BASIN--Continued

RIO PUERCO BELOW CABEZON, N. MEX.

LOCATION.--One-fourth mile upstream from mouth of Chico Arroyo, 4½ miles southwest of Cabezon, Sandoval County, and 1½ miles downstream from gaging station above Chico Arroyo near Guadalupe.

DRAINAGE AREA.--420 square miles, approximately (above gaging station).

RECORDS AVAILABLE.--Sediment records: April 1948 to June 1956 (discontinued). Intermittent sampling after July 1, 1956.

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 35,200 ppm Apr. 26; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 2,070 tons Apr. 26; minimum daily, 0 tons on many days.

EXTREMES, 1948-56.--Sediment concentrations: Maximum daily, 166,000 ppm July 31, 1953; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 730,000 tons July 27, 1955; minimum daily, 0 tons on many days.

REMARKS.--Records of discharge for Rio Puerco above Chico Arroyo, near Guadalupe, N. Mex. for water year October 1955 to September 1956 given in WSP 1442. Flow affected by ice Dec. 3-12, Feb. 2-12, 21. No appreciable inflow between sampling point and gaging station.

Suspended sediment, October 1955 to June 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....				0			0.1		
2.....				0			.2		
3.....				0			.1		
4.....				0			0		
5.....				0			0		
6.....				0			0		
7.....				0			0		
8.....				0			0		
9.....				0			0		
10.....				0			0		
11.....				0			0		
12.....				0			.1		
13.....				0			.1		
14.....				0			.1		
15.....				0			0		
16.....				0			0		
17.....				0			0		
18.....				0			.1		
19.....				0			0		
20.....				0			0		
21.....				0			.1		
22.....				0			.1		
23.....				0			.1		
24.....				0			.1		
25.....				0			.2		
26.....				.1			.2		
27.....				.1			.2		
28.....				.1			.2		
29.....				.1			.1		
30.....				.1			.1		
31.....				.1			.1		
Total.	0		0	0.5		(t)	2.3		e1

e Estimated.

t Less than 0.50 ton.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO PUERCO BELOW CABEZON, N. MEX.--Continued

Suspended sediment, October 1955 to June 1956--Continued

Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....				0			0.2	--	(et)
2.....				0			0	--	0
3.....				0			0	--	0
4.....				0			1	--	a20
5.....				0			2	--	a50
6.....				.1			3	--	a100
7.....				0			4	--	a180
8.....				.1			.6	1,810	3
9.....				0			.7	--	a15
10.....				0			.7	6,000	11
11.....				0			0	--	0
12.....				0			0	--	0
13.....				0			0	--	0
14.....				0			0	--	0
15.....				0			0	--	0
16.....				0			0	--	0
17.....				0			0	--	0
18.....				0			0	--	0
19.....				0			0	--	0
20.....				0			0	--	0
21.....				.1			0	--	0
22.....				.1			0	--	0
23.....				.1			0	--	0
24.....				.1			0	--	0
25.....				.1			0	--	0
26.....				0			0	--	0
27.....				0			0	--	0
28.....				0			0	--	0
29.....				0			0	--	0
30.....				--			0	--	0
31.....				--			2	--	--
Total.	0		0	0.7		(t)	14.2	--	379
Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	5	a250		1	a10		0.3		e1
2.....	8	a500		.5	a2		.2		(et)
3.....	10	a800		.2	(et)		.1		(et)
4.....	9	a600		.1	(et)		.1		(et)
5.....	9	a600		0	0		0		0
6.....	6	a300		3	a100		0		0
7.....	5	a250		15	a1,300		0		0
8.....	4	a200		13	a1,000		.1		(et)
9.....	3	a100		5	a250		0		0
10.....	2	a40		1	a10		0		0
11.....	2	a40		.5	a2		0		0
12.....	3	a100		.2	(et)		0		0
13.....	5	a250		0	0		0		0
14.....	10	a800		0	0		0		0
15.....	15	a1,300		0	0		0		0
16.....	10	a800		.1	(et)		0		0
17.....	5	a250		.1	(et)		0		0
18.....	10	a800		0	0		.1		(et)
19.....	7	a400		.1	(et)		.1		(et)
20.....	8	a500		.1	(et)		.1		(et)
21.....	5	a250		.1	(et)		0		0
22.....	4	a200		0	0		0		0
23.....	5	a250		0	0		0		0
24.....	10	a800		.1	(et)		.1		(et)
25.....	14	a1,000		0	0		0		0
26.....	21	35,200	2,070	0	0		0		0
27.....	20	a1,900	0	0	0		3		a100
28.....	10	a800	0	0	0		14		a1,200
29.....	4	a200	0	0	0		3		a150
30.....	2	a40	0	0	0		1		a15
31.....	--	--	0	0	0		--		--
Total.	231		16,390	40.1		2,676	22.2		1,467

e Estimated.

t Less than 0.50 ton.

a Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

RIO PUERCO BELOW CABEZON, N. MEX.--Continued

Periodic determinations of suspended-sediment discharge, July to August, 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
July 30, 1956.....	2	5,080	27
Aug. 1.....	130	187,000	72,900
Aug. 4.....	2	48,700	273

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

CHICO ARROYO NEAR GUADALUPE, N. MEX.

LOCATION.--At gaging station a quarter of a mile upstream from mouth, 4½ miles northwest of Guadalupe, Sandoval County, and 5½ miles southwest of Cabezón.

DRAINAGE AREA.--1,390 square miles, approximately.

RECORDS AVAILABLE.--Sediment records: July 1948 to June 1956 (discontinued). Intermittent sampling after July 1, 1956.

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 47,700 ppm Oct. 3; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 5,570 tons Oct. 3; minimum daily, 0 tons on many days.

EXTREMES, 1948-56.--Sediment concentrations: Maximum daily, 113,000 ppm July 23, 1949; minimum daily, no flow on many days each year.

Sediment loads: Maximum daily, 1,220,000 tons July 17, 1953; minimum daily, 0 tons on many days each year.

REMARKS.--Flow affected by ice Dec. 3-6, 9-13, Jan. 2-5, 29-31, Feb. 3-4, 10-11, 15-17.

Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Suspended-sediment, October to June 1956

Month	Mean discharge (cfs)	Suspended sediment (tons)
November	0.2	(t)
December	.5	(t)
January	1.0	e1
February	8.5	e20
April	1.5	e8
May	1.8	e7

e Estimated.

t Less than 0.50 ton.

✓ No samples obtained during November to February, April, May 7
Suspended-sediment, October 1955 to June 1956

Day	October			March			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	0	--	0	0	--	0	6		a 300
2.....	.1	--	(et)	0	--	0	.8		e11
3.....	32	47,700	s 5,570	0	--	0	.3		e3
4.....	8	32,200	s 820	0	--	0	.1		e1
5.....	1	13,500	36	0	--	0	0		0
6.....	0	--	0	0	--	0	0		0
7.....	0	--	0	.1	--	e3	0		0
8.....	0	--	0	.4	--	e5	0		0
9.....	0	--	0	.3	--	e3	0		0
10.....	0	--	0	.1	6,850	2	0		0
11.....	0	--	0	.1		0	0		0
12.....	0	--	0	.1		0	0		0
13.....	0	--	0	.1		0	0		0
14.....	0	--	0	.1	--	e1	0		0
15.....	0	--	0	.1		0	0		0
16.....	0	--	0	.1		0	0		0
17.....	0	--	0	.1	4,290	1	0		0
18.....	0	--	0	.1		0	0		0
19.....	0	--	0	.1	--	e1	0		0
20.....	0	--	0	.1		0	0		0
21.....	0	--	0	0	--	0	0		0
22.....	0	--	0	0	--	0	0		0
23.....	0	--	0	0	--	0	0		0
24.....	0	--	0	0	--	0	0		0
25.....	0	--	0	0	--	0	0		0
26.....	0	--	0	0	--	0	0		0
27.....	0	--	0	0	--	0	3		a 200
28.....	0	--	0	0	--	0	57		a 5,500
29.....	0	--	0	0	--	0	17		a1,200
30.....	0	--	0	0	--	0	.2		e2
31.....	0	--	0	0	--	0	--		--
Total.	41.1	--	6,426	1.9	--	23	84.4		7,217

Total discharge for period (cfs-days)..... 140.9

Total load for period (tons)..... 13,702

e Estimated.

t Less than 0.50 ton.

s Computed by subdividing day.

a Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

CHICO ARROYO NEAR GUADALUPE, N. MEX.--Continued

Periodic determinations of suspended-sediment discharge, July to August 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
July 30, 1956	5.6	36,300	569
Aug. 1	435	132,000	167,000
Aug. 1	330	125,000	120,000
Aug. 4	7.4	34,100	707
Aug. 22	1.9	1,230	6

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO SAN JOSE AT CORREO, N. MEX.

(Formerly published as San Jose River at Correo, N. Mex.)

LOCATION.--At gaging station 0.6 mile upstream from U. S. Highway 66, 0.7 mile northeast of Correo, Valencia County, and 13 miles upstream from mouth.

DRAINAGE AREA.--2,610 square miles, approximately.

RECORDS AVAILABLE.--Sediment records: July 1948 to June 1956 (discontinued).

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 30,000 ppm Oct. 4; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 7,500 tons Oct. 4; minimum daily, 0 tons on many days.

EXTREMES, 1948-56.--Sediment concentrations: Maximum daily, 120,000 ppm May 11, 1955; minimum daily, no flow on many days each year.

Sediment loads: Maximum daily, 364,000 tons Aug. 11, 1955; minimum daily, 0 tons on many days each year.

REMARKS.--No flow during period April to June; tabulation omitted for that period.

Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Flow affected by ice Feb. 4-5, 10-13.

REVISIONS.--Revised figures of mean discharge, mean concentration, and tons per day, for water years 1948, 1951 and 1952, superseding figures published in WSP 1133, 1199, and 1252 are given herewith:

WSP 1133 - 1948 Water Year

Date	Mean discharge (cfs)	Mean concentration (percent)	Tons per day
Aug. 6, 1948...	319	3.96	sb60,400
Total.....	494.1	--	66,870
Sept. 25, 1948.	138	2.14	sa36,200
Sept. 26.....	463	4.63	sf74,000
Total.....	818	--	118,200
Total discharge for period July 1-Sept. 30 (cfs-days) 1,330.8			
Total load for period July 1-Sept. 30 (tons)..... 185,100			

EXTREMES, 1947-48.--Sediment loads: Maximum, 74,000 tons per day Sept. 26.

WSP 1199 - 1951 Water Year

Date	Mean discharge (cfs)	Mean concentration (percent)	Tons per day
July 24, 1951..	315	36,000	sb38,000
Total.....	542.3	--	54,528
Aug. 24, 1951..	224	8,720	sb6,670
Aug. 25.....	445	32,500	sb39,700
Total.....	1,792.5	--	145,689
Total discharge for year (cfs-days)..... 2,529.0			
Total load for year (tons)..... 216,012			

EXTREMES, 1950-51.--Sediment loads: Maximum daily, 39,700 tons August 25.

WSP 1252 - 1952 Water Year

Date	Mean discharge (cfs)	Mean concentration (percent)	Tons per day
July 7, 1952 ...	261	33,000	sb40,000
Total.....	518.4	--	84,975
Aug. 29, 1952 ..	132	58,800	sb30,800
Total.....	287.4	--	48,128
Sept. 22, 1952 .	302	23,000	sa60,000
Total.....	321	--	61,952
Total discharge for year (cfs-days)..... 1,237.1			
Total load for year (tons)..... 222,556			

EXTREMES, 1951-52.--Sediment loads: Maximum daily 60,000 tons Sept. 22.

WSP 1133, 1163, 1188, 1199, and 1252: Maximum sediment load for period 1948-52 is 74,000 tons September 26, 1948.

s Subdivided day.

a Computed from estimated concentration graph.

b Computed from partly estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO SAN JOSE AT CORREO, N. MEX.--Continued

Suspended sediment, October 1955 to June 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	0	--	0	2.3			0		
2.....	0	--	0	3.1			0		
3.....	54	22,900	s 6,820	3.9			0		
4.....	69	30,000	s a 7,500	4.3			0		
5.....	15	--	e 300	5.2			0		
6.....	4.7	2,670	34	6.2		e 3	0		
7.....	3.1	--	e 8	4.3			0		
8.....	3.1	--	e 4	2.0			0		
9.....	2.3			2.0			0		
10.....	3.1			1.0			0		
11.....	3.1			.1		(et)	0		
12.....	3.1			0		0	0		
13.....	3.1			.5		(et)	0		
14.....	3.1			.1		(et)	0		
15.....	3.1			0		0	0		
16.....	3.5			0		0	0		
17.....	3.5			0		0	0		
18.....	3.9			0		0	0		
19.....	3.5	--	e 2	0		0	0		
20.....	3.5			0		0	0		
21.....	3.5			0		0	0		
22.....	3.9			0		0	0		
23.....	3.1			0		0	0		
24.....	3.1			0		0	0		
25.....	1.0			0		0	0		
26.....	.2			0		0	.1		
27.....	3.1			0		0	.3		
28.....	1.4			0		0	.6		
29.....	2.3			0		0	.6		(et)
30.....	1.4			0		0	.6		
31.....	1.7	298	1	--		--	.6		
Total.	212.4	--	14,711	35.0		30	2.8		1
Day	January			February			March		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	0.4			7.9	450	10	6.0	--	e 6
2.....	1.2			.2	--	(et)	5.2	--	e 6
3.....	.7	--	(et)	0	--	0	4.7	380	5
4.....	.2			.2	--	(et)	4.7		
5.....	.2			0	--	0	4.3		
6.....	2.0			2.0			3.5		
7.....	7.3			3.8			1.0		
8.....	4.3			10			2.0		
9.....	4.0			7.4			5.0		
10.....	4.3			5			4.7		
11.....	3.2	--	e 4	8	--	e 9	3.9		e 4
12.....	3.5			12			2.7		
13.....	4.3			15			2.0		
14.....	3.9			12			3.5		
15.....	1.5			7.4			3.0	450	4
16.....	2.4	280	2	7.3	420	8	2.8		
17.....	5.2	--	e 5	5.2			3.4		
18.....	3.1	240	2	4.7	--	e 4	3.9		
19.....	4.1	--	e 4	5.7			3.1		e 3
20.....	7.1	360	7	5.6			2.0		
21.....	8.5	--	e 8	5.3	300	4	1.4		
22.....	7.9	--	e 8	5.2			2		
23.....	7.2	360	7	3.5	--	e 4	0	--	0
24.....	6.7	--	e 6	4.7			0	--	0
25.....	6.2	280	5	2.3	440	3	0	--	0
26.....	6.2	--	e 5	3.5	--	e 4	0	--	0
27.....	6.2	--	e 5	2.7	460	3	0	--	0
28.....	5.7	320	5	4.3	--	e 5	0	--	0
29.....	7.3	--	e 6	6.3	340	6	0	--	0
30.....	7.9	260	6	--	--	--	0	--	0
31.....	6.8	--	e 6	--	--	--	0	--	0
Total.	139.6	--	129	157.2	--	161	73.0	--	86

Total discharge for period (cfs-days) 620
 Total load for period (tons) 15,118

e Estimated.

s Computed by subdividing day.

t Less than 0.50 ton.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO PUERCO AT RIO PUERCO, N. MEX.

LOCATION.--At gaging station, at Atchison, Topeka, and Santa Fe Railway bridge, 7 miles downstream from San Jose River, and 15 miles west of Los Lunas, Valencia County.

DRAINAGE AREA.--5,160 square miles, approximately.

RECORDS AVAILABLE.--Water temperatures: October 1949 to September 1952 (discontinued).

Sediment records: July 1948 to June 1956 (discontinued).

EXTREMES, 1955-56.--Sediment concentrations: minimum daily, no flow on many days.

Sediment loads: Maximum daily, 14,000 tons Oct. 4; minimum daily, 0 tons on many days.

EXTREMES, 1948-56.--Sediment concentrations: Maximum daily, 210,000 ppm July 14, 1955; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 1,800,000 tons July 24, 1954; minimum daily, 0 tons on many days.

REMARKS.--No flow during December, April to June; tabulation omitted for these months.

Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Suspended sediment, October 1955 to June 1956

Day	October			November			January		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	0	--	0	0			0	--	0
2.....	49	--	a 5,000	0			0	--	0
3.....	38	--	a 2,700	0			0	--	0
4.....	108	--	a 14,000	0			0	--	0
5.....	36	--	a 2,500	.4			0	--	0
6.....	8	8,090	175	1			0	--	0
7.....	2	7,000	b 38	1			0	--	0
8.....	1	6,000	b 16	1			0	--	0
9.....	1	--	a 16	.8			0	--	0
10.....	.6	--	a 8	.3			0	--	0
11.....	.1	--	e 1	.4			0	--	0
12.....	0	--	0	0			0	--	0
13.....	.2		0	0			0	--	0
14.....	.4		0	0			.7	220	(bt)
15.....	.3		0	0			.4	200	(bt)
16.....	.3		0	0			.7	175	(t)
17.....	.4		0	0			.1	150	(bt)
18.....	.5		0	0			0	--	0
19.....	.6		0	0			.3	130	(bt)
20.....	.6	--	e 2	0			1	150	(t)
21.....	.5		0	0			2	270	b 1
22.....	.4		0	0			3	570	b 5
23.....	.6		0	0			3	580	5
24.....	.5		0	0			3	510	b 4
25.....	.6		0	0			2	440	2
26.....	.3		0	0			2	400	b 2
27.....	0	--	0	0			2	370	2
28.....	0	--	0	0			3	420	3
29.....	0	--	0	0			3	280	b 2
30.....	0	--	0	0			1	240	1
31.....	0	--	0	--			3	480	b 4
Total.	249.9	--	24,452	4.9	--	e 10	30.2	--	32

e Estimated.

t Less than 0.50 ton.

a Computed from water-sediment discharge curve.

b Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO PUERCO AT RIO PUERCO, N. MEX.--Continued

Suspended sediment, October 1955 to June 1956--Continued

Suspended sediment, October 1969 to June 1970 - Continued

Day	February			March			Mean discharge (cfs)	Suspended sediment		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment			Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day			Mean concentration (ppm)	Tons per day
1.....	3	650	5	0.6	--	(et)				
2.....	0	--	0	2	--	e 4				
3.....	0	--	0	2	480	3				
4.....	0	--	0	1	410	b 1				
5.....	0	--	0	1	310	b 1				
6.....	0	--	0	.5	130	(bt)				
7.....	0	--	0	0	--	0				
8.....	0	--	0	0	--	0				
9.....	0	--	0	.5	--	(et)				
10.....	2	--	a 3	.7	--	(et)				
11.....	4	--	a 10	.5	--	(et)				
12.....	6	--	a 20	.2	--	(et)				
13.....	6	--	a 20	.1	--	(et)				
14.....	6	--	a 40	.5	--	(et)				
15.....	6	--	a 20	.2	--	(et)				
16.....	4	790	9	0	--	0				
17.....	3	700	b 6	.2	--	(et)				
18.....	2	490	b 3	.6	--	(et)				
19.....	2	380	b 2	.6	--	(et)				
20.....	1	270	b 1	.4	--	(et)				
21.....	2	150	1	.1	--	(et)				
22.....	2	70	(bt)	.1	--	(et)				
23.....	2	70	(bt)	0	--	0				
24.....	.8	40	(bt)	0	--	0				
25.....	0	--	0	0	--	0				
26.....	.5	--	(et)	0	--	0				
27.....	0	--	0	0	--	0				
28.....	0	--	0	0	--	0				
29.....	0	--	0	0	--	0				
30.....	--	--	--	0	--	0				
31.....	--	--	--	0	--	0				
Total.	54.3	--	141	12.1	--	12				

Total discharge for period (cfs-days) 351.4
 Total load for period (tons) 24,677

e Estimated.

t Less than 0.50 ton.

a Computed from water-sediment discharge curve.

b Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO PUERCO NEAR BERNARDO, N. MEX.

LOCATION.--At gaging station at bridge on U. S. Highway 85, 1.2 miles southwest of Bernardo, Socorro County, 3 miles upstream from mouth, and 16 miles south of Belen.

DRAINAGE AREA.--5,860 square miles, approximately.

RECORDS AVAILABLE.--Sediment records: October 1947 to September 1956.

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 200,000 ppm Aug. 3; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 1,320,000 tons Aug. 18; minimum daily, 0 tons on many days.

EXTREMES, 1947-56.--Sediment concentrations: Maximum daily, 215,000 ppm July 22, 1949; minimum daily, no flow on many days each year.

Sediment loads: Maximum daily, 2,120,000 tons July 28, 1955; minimum daily, 0 tons on many days each year.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. No flow during periods November to May and September; tabulation omitted for these periods. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, July to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium	Sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate				
July 23, 1956.....	16	23	0.69	173	32	175	8.9	266	593	84	1.1	1.2	0.29	1,220	1.66	563	345	40	3.2	1,700	7.2
Aug. 1.....	686					371		575	1,630	84						1,460	1,010	35	4.2	3,450	7.0
Aug. 2 (1:00 a. m.)	a 2,430					335		348	1,670	74						1,400	1,120	34	3.9	3,250	6.9
Aug. 2 (3:00 a. m.)	a 2,190					316		150	1,860	98						1,260	1,140	33	3.9	3,350	6.9
Aug. 2 (12:00 m.)	a 1,360					339		433	1,630	74						1,420	1,060	34	3.9	3,270	6.8
Aug. 21.....	a 277					235		366	941	42						630	328	36	3.5	2,220	7.1

a Discharge at time of measurement.

RIO GRANDE BASIN--Continued

RIO PUERCO NEAR BERNARDO, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			July			August		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	0	--	0	0	--	0	686	140,000	370,000
2.....	0	--	0	0	--	0	1,120	159,000	534,000
3.....	122	--	a 50,000	0	--	0	927	200,000	575,000
4.....	182	--	a 68,000	0	--	0	218	180,000	c 120,000
5.....	118	94,000	32,200	0	--	0	33	120,000	c 11,000
6.....	32	38,000	3,400	0	--	0	5	95,000	1,380
7.....	7	32,000	b 630	0	--	0	1	78,000	218
8.....	2	26,000	c 140	0	--	0	.3	17,000	14
9.....	.4	21,000	c 23	0	--	0	0	--	0
10.....	0	--	0	0	--	0	0	--	0
11.....	0	--	0	0	--	0	0	--	0
12.....	0	--	0	0	--	0	0	--	0
13.....	0	--	0	0	--	0	0	--	0
14.....	0	--	0	0	--	0	0	--	0
15.....	0	--	0	0	--	0	0	--	0
16.....	0	--	0	0	--	0	0	--	0
17.....	0	--	0	0	--	0	0	--	0
18.....	0	--	0	0	--	0	1,830	171,000	s 1,320,000
19.....	0	--	0	0	--	0	236	104,000	71,200
20.....	0	--	0	0	--	0	216	118,000	s 110,000
21.....	0	--	0	0	--	0	277	128,000	s 118,000
22.....	0	--	0	0	--	0	100	72,500	20,300
23.....	0	--	0	16	--	a 5,000	29	66,000	5,360
24.....	0	--	0	16	--	a 4,000	5	55,000	c 770
25.....	0	--	0	9	79,400	2,000	.4	42,000	c 47
26.....	0	--	0	5	--	a 1,000	.1	37,000	c 10
27.....	0	--	0	.4	--	a 40	0	--	0
28.....	0	--	0	.1	--	a 7	0	--	0
29.....	0	--	0	0	--	0	0	--	0
30.....	0	--	0	0	--	0	0	--	0
31.....	0	--	0	0	--	0	0	--	0
Total.	463.4	--	154,393	46.5	--	12,047	5,683.8	--	3,257,299

Total discharge for year (cfs-days)..... d 6,194.7

Total load for year (tons)..... f 3,423,769

s Computed by subdividing day.

a Computed from water-sediment discharge curve.

b Computed from partially estimated concentration graph.

c Computed from estimated concentration graph.

d Includes total discharge of 1 cfs for June.

f Includes total suspended sediment of 30th tons for June.

RIO GRANDE BASIN--Continued
RIO PUERTO NEAR BERNARDO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water
W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (° F)	Suspended sediment										Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250		0.350	0.500	1.000
Aug. 1, 1956	11:30 p. m.	3,200	75	173,000	3,440	52	69	83	92	100	SPWCM				
Aug. 2,	5:00 a. m.	1,340	75	163,000	3,660	50	65	81	91	100	SPWCM				
Aug. 18,	12:00 m.	1,410	--	184,000	3,560	43	57	78	90	98	100	SPWCM			
Aug. 21,	8:50 a. m.	380	65	133,000	5,190	49	65	84	91	99	100	SPWCM			

RIO SALADO NEAR SAN ACACIA, N. MEX.

LOCATION.--At gaging station, 1 mile upstream from mouth, 2 miles northeast of San Acacia, Socorro County, 1.7 miles downstream from bridge on U. S. Highway 85, and 15 miles north of Socorro.

DRAINAGE AREA.--1,380 square miles, approximately.

RECORDS AVAILABLE.--Sediment records: July 1948 to June 1956 (discontinued). Intermittent sampling after July 1, 1956.

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 125,000 ppm Oct. 3; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 149,000 tons, Oct. 3; minimum daily, 0 tons on many days.

EXTREMES, 1948-56.--Sediment concentrations: Maximum daily, 182,000 ppm Aug. 13, 1953; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 793,000 tons Aug. 13, 1953; minimum daily, 0 tons on many days.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, period July to August 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Per-cent so-dium	So-dium ad-sorption ratio	Specific conduct-ance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate					
July 30, 1956	138	27	0.37	431	82	234	12	790	970	172	1.2	1.7	0.33	2,320	3.16	864	1,410	765	26	2.7	2,980	7.1
July 31	43					226	226	1,060	239	191							895	26	35	3.3	2,340	7.3
Aug. 2	505					118	118	751	43	50							475	0	35	2.3	1,290	7.2

RIO GRANDE BASIN--Continued

RIO SALADO NEAR SAN ACACIA, N. MEX.--Continued

Suspended sediment, October 1955 to June 1956

/Flow only on days indicated/

Date	Water discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Oct. 2, 1955	100	69,700	s 35,600
Oct. 3	360	125,000	s 149,000
Oct. 4	25	76,500	s 5,550
Oct. 5	12	---	a 2,400
Oct. 6	3	--	a 480
Oct. 7 .....	.1	--	e 10
October Total	500.1	--	193,040
June 17, 1956 .....	.4	--	e 30
June Total .....	.4	--	30
Total discharge for period (cfs-days)			500.5
Total load for period (tons)			193,070

e Estimated.

s Computed by subdividing day.

a Computed from water-sediment discharge curve.

Periodic determinations of suspended-sediment discharge July to August 1956

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
July 30, 1956	174	136,000	66,600
July 30	17	148,000	7,550
July 31	132	177,000	70,100
Aug. 2	495	130,000	187,000
Aug. 2	555	120,000	193,000
Aug. 2	660	121,000	232,000
Aug. 16	102	120,000	35,500
Aug. 21	1,050	204,000	664,000

RIO GRANDE BASIN--Continued

RIO SALADO NEAR SAN ACACIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (° F)	Suspended sediment										Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250		0.350	0.500	1.000
Oct. 3, 1955	9:00 a. m.	378	--	144,000	4,350	45	64	82	91	98	100	SPWCM			
July 30, 1956	10:30 a. m.	174	72	136,000	4,800	61	88	96	98	99	100	SPWCM			
Aug. 2	9:00 a. m.	555	78	120,000	3,800	47	67	83	93	99	100	SPWCM			
Aug. 16	12:30 p. m.	102	80	120,000	4,970	69	90	97	99	100	--	VPWCM			
Aug. 21	10:45 p. m.	1,050	63	204,000	4,960	39	55	70	79	92	100	SPWCM			

RIO GRANDE BASIN--Continued

SOCORRO MAIN CANAL NORTH AT SAN ACACIA, N. MEX.

LOCATION.--At San Acacia diversion dam, half a mile upstream from canal gaging station, and 0.7 mile east of San Acacia, Socorro County.

RECORDS AVAILABLE.--Sediment Records: October 1947 to June 1956 (discontinued).

EXTREMES, 1955-56.--Sediment loads: Maximum daily, 9,310 tons Oct. 2; minimum daily, less than 0.50 ton Jan. 22, Feb. 14.

EXTREMES, 1947-56.--Sediment loads: Maximum daily, 47,900 tons Aug. 12, 1953; minimum daily, 0 tons on many days each year.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Monthly and period summary of suspended-sediment discharge, October 1955 to June 1956

Month	Discharge (cfs-days)	Suspended sediment (tons)
1955		
October	2,582	44,297
November	1,433.5	12,527
December	6.6	104
1956		
January	4.9	47
February	3.3	43
March	3,360.2	25,850
April	5,477	50,416
May	4,094	35,812
June	2,422	7,258
Total for period	19,383.5	a 176,354

a Total suspended load for Rio Grande at San Acacia diversion dam is the sum of the load for the Rio Grande at San Acacia and the load for Socorro main canal north, or 1,653,934 tons. Suspended-sediment records for Rio Grande at San Acacia are given on page 389.

RIO GRANDE BASIN--Continued
SOCORRO MAIN CANAL NORTH AT SAN ACACIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, October 1955 to June 1956
(Methods of analysis: P, pipette; S, sedimentation; F, centrifuge; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis			
				Concentration of sample analyzed (ppm)		Concentration of suspension analyzed (ppm)		Percent finer than indicated size, in millimeters										
								0.002	0.004	0.008	0.016	0.031	0.062	0.125		0.250	0.350	0.500	1.000
Oct. 3, 1955 ...	3:30 p. m.	107	76	43,700	3,920				86			99	100	--				VPWCM
Oct. 5,	8:00 a. m.	98	66	36,100	4,600		74		91			97	100	--				VPWCM
Oct. 7,	13:00 a. m.	130	82	5,440	3,620		67		84			98	100	--				VPWCM
Oct. 17,	9:00 a. m.	106	51	1,280	2,560		37		50			75	97	100				VPWCM
Oct. 21,	10:00 a. m.	66	62	2,410	2,140		15		20			38	89	100				VPWCM
Nov. 4,	4:00 p. m.	69	64	1,490	1,880		16		23			49	82	100				VPWCM
Nov. 15,	9:00 a. m.	107	40	878	2,370		53		73			95	98	100				SPWCM
Nov. 16,	10:00 a. m.	109	45	1,410	3,700		63		77			97	99	100				SPWCM
Nov. 18,	10:00 a. m.	104	49	4,510	3,860		45		56			82	96	100				VPWCM

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.

LOCATION. --At San Acacia diversion dam, 0.7 mile above gaging station, 0.7 mile east of San Acacia, Socorro County, and 1.8 miles downstream from Rio Salado.

DRAINAGE AREA. --26,770 square miles, approximately (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

RECORDS AVAILABLE. --Chemical analyses: July to December 1937, March 1939 to September 1956 (discontinued).

Water temperatures: July 1946 to June 1956 (discontinued). Periodic sampling after July 1, 1956.

SEDIMENT RECORDS: July 1946 to June 1956 (discontinued). Periodic sampling after July 1, 1956.

EXTREMES, 1935-56. --Dissolved solids: Maximum, 2,940 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

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Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

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Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

Hardness: Maximum, 1,780 ppm July 30; minimum, 209 ppm Mar. 5-6, 8-9, 13, 31, May 1-16.

Specific conductance: Maximum daily, 3,270 micromhos July 30; minimum daily, 374 micromhos May 1, 12.

Water temperature: Maximum, 85°F June 28; minimum, 33°F Feb. 3, 4.

Sediment concentration: Maximum, 85 F June 28; minimum, 33 F Feb. 3, 4.

Sediment loads: Maximum, 1,780 ppm July 30; minimum, 406 ppm Apr. 3-6, 24, Apr. 30 to May 16.

REMARKS. --Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Socorro main canal heads at San Acacia diversion dam and by-passes the gaging station. Data reported do not include flow in canal. Monthly sediment records for the canal are given on page 384. Records of discharge for water year October 1955 to September 1956 given in WSP 1442. No appreciable inflow between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo- trate (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Per- cent sodium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25°C)
														Parts per mil- lion	Tons per acre- foot per day	Calcium, mag- nesium	Non- carbon- ate		
Oct. 1-10, 1955	237	34	103	20	101	245	272	49	1.4	700	0.95	448	339	138	39	2.4	1,030	2.4	7.9
Oct. 11-19	a 20.3	42	84	19	99	248	221	50	1.0	638	.87	35.0	288	84	43	2.5	932	2.5	8.1
Oct. 21, 27, 29-31	a 3.4	44	92	20	118	261	250	64	.4	716	.97	6.57	312	98	45	2.9	1,050	2.9	7.9
Nov. 1-10	15.1	46	90	21	121	256	256	65	.3	725	.99	29.6	311	101	46	3.0	1,070	3.0	8.2
Nov. 11-20	146	40	85	19	100	245	221	53	1.5	640	.87	252	290	89	43	2.6	952	2.6	8.0
Nov. 21-30	334	40	78	15	78	230	170	37	2.6	534	.73	482	256	68	40	2.1	798	2.1	8.2
Dec. 1-10	466	35	78	14	70	230	158	34	2.7	505	.69	635	252	64	38	1.9	761	1.9	8.0
Dec. 11-20	506	36	77	14	69	228	155	33	2.4	498	.68	660	250	62	38	1.9	748	1.9	7.9
Dec. 21-31	632	36	75	14	65	228	144	32	6.8	485	.66	828	244	58	37	1.8	735	1.8	7.7
Jan. 1-10, 1956	605	38	67	14	65	b 206	140	32	2.3	459	.62	750	224	56	39	1.9	682	1.9	8.3
Jan. 11-20	638	36	71	15	70	210	145	40	2.9	483	.66	832	238	66	39	2.0	718	2.0	8.0
Jan. 21-31	661	33	72	16	73	211	155	53	3.2	514	.70	917	246	72	41	2.2	761	2.2	7.7
Feb. 1-10	665	32	70	15	72	203	150	46	2.5	488	.66	876	236	70	40	2.0	742	2.0	8.1
Feb. 11-20	617	31	72	15	73	206	132	46	2.6	493	.67	821	241	72	40	2.1	751	2.1	7.7
Feb. 21-29	619	31	71	14	68	205	147	40	2.4	474	.64	792	234	66	39	1.9	718	1.9	7.9

a No flow Oct. 20, 22-26, 28, July 6-17, 19-24, 26-29, Sept. 1-30.

b Includes 3 parts per million of carbonate (CO₃).

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Bo-ron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Per-cent so-lid-ratio	So-lid-ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium					Non-magnesium
Mar. 1-4, 7, 11-12, 14, 16-18, 20, 30, 1956	382	33		69	14	67		206	153	38		2.4	477	0.65	492	230	60	39	1.9	736	8.1
Mar. 5-6, 8-9, 15, 31	524	31		64	12	58		c 179	137	29		2.1	421	.57	596	209	62	38	1.7	647	8.5
Mar. 10, 13, 19, 21-29	172	36		82	15	75		236	170	41		1.8	537	.73	249	266	72	38	2.0	826	7.7
Apr. 1-2, 7-11, 17-23, 25-29	294	30		69	13	63		206	143	33		2.1	454	.62	360	226	56	38	1.8	703	7.8
Apr. 3-6, 24, 30	567	29		66	12	52		199	120	26		3.3	406	.55	622	214	51	35	1.5	636	7.8
Apr. 12-16	115	35		79	18	82		231	183	44		2.1	557	.76	173	271	82	40	2.2	848	8.0
May 1-16	485	28		64	12	56		196	118	29		2.8	406	.55	532	209	48	37	1.7	625	7.9
May 17-31	11.3	38		88	17	108		249	229	60		.8	683	.90	20.2	280	96	45	2.7	981	8.1
June 1-12	40.1	39		76	16	81		d 230	180	40		1.1	646	.74	59.1	256	67	41	2.2	810	8.3
June 13-17	7.4	35		84	19	105		246	230	56		.7	651	.89	13.0	288	96	44	2.7	969	8.0
June 18-21	2.25	39		88	21	123		248	265	70		1.3	729	.99	4.43	306	103	47	3.1	1,090	7.9
June 22-30	.29	40		74	21	120		d 212	261	66		.6	687	.93	.54	271	98	49	3.2	1,020	8.3
July 1-5	a. 30	38		79	21	130		221	275	71		.9	724	.98	.59	284	102	50	3.4	1,080	8.1
July 6-10	a. 2.0	--		222	67	304		726	212	478		--	1,640	2.23	8.66	830	235	44	4.6	2,900	7.2
July 15	10	25		242	53	270		283	984	106		1.9	1,820	2.46	49	822	590	42	4.1	2,370	7.7
July 25	25	21		516	119	243		250	1,670	197		2.3	2,940	4.00	198	1,780	1,490	22	2.5	3,570	7.1
July 30	160	20		20	286	27		123	770	15		1.9	2,220	1.66	527	1,769	6	4	1,480	7.5	
Aug. 1	640	19		136	18	76		191	361	35		1.9	741	1.01	1,280	414	257	29	1.6	1,070	8.2
Aug. 2-5	684	21		294	58	244		307	1,100	69		.4	1,940	2.64	3,580	972	720	35	3.4	2,420	7.7
Aug. 6-9	3.2	25		176	37	181		335	592	58		.2	1,230	1.87	10.6	591	316	40	3.2	1,690	7.5
Aug. 10-17	.78	33		202	23	134		262	322	72		.7	823	1.12	1.73	366	152	44	3.1	1,220	7.6
Aug. 18-22	448	23		202	43	251		367	775	72		.6	1,550	2.11	1,870	881	380	44	4.2	2,070	7.5
Aug. 23-25	3.7	23		197	40	168		258	686	55		3.5	1,300	1.77	13.0	656	444	36	2.9	1,730	7.5
Aug. 26-31	a. 1.70	45		79	18	113		197	275	53		1.0	681	.93	3.13	271	110	48	3.0	1,000	8.0
Weighted average	e 314	33		83	16	79		218	196	40		2.7	557	0.76	472	273	94	39	2.1	820	--

a No flow Oct. 20, 22-26, 28, July 6-17, 19-24, 26-29, Sept. 1-30.

c Includes 5 parts per million of carbonate (CO₃).d Includes 2 parts per million of carbonate (CO₃).

e Average for 307 days of flow.

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Temperature (°F) of water, October 1955 to August 1956

Once-daily measurement, generally between 11 a. m. and 6 p. m.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	61	50	50	38	48	64	67	70	a66	a64	
2	a66	50	48	53	35	55	a41	b67	70	a67	a64	
3	76	50	48	48	33	55	65	b67	a71	a65	a65	
4	68	55	--	50	33	a41	65	69	73	a65	a68	
5	a66	62	43	49	34	55	67	a60	75	a64	a70	
6	a62	a43	45	50	40	50	a48	b68	b78	--	a70	
7	61	45	48	50	42	50	62	70	78	--	a64	
8	65	47	45	--	38	52	64	b65	b76	--	a67	
9	68	50	40	50	38	58	a48	68	78	--	a65	
10	70	54	48	50	40	b58	65	68	b76	--	a70	
11	68	64	--	51	a37	60	67	b65	78	--	--	
12	70	55	a34	48	40	51	67	67	78	--	a57	
13	68	52	48	50	45	55	a50	--	80	--	a68	
14	67	55	50	49	45	50	64	b62	b80	--	a70	
15	70	40	50	55	44	50	60	65	81	--	a70	
16	a56	48	51	48	46	55	--	b70	--	--	a67	
17	71	50	50	45	48	60	--	71	77	--	a70	
18	70	51	50	60	48	a44	--	73	b76	--	--	
19	68	50	50	45	a38	60	62	73	78	--	a70	
20	--	--	48	50	48	60	62	b70	b78	--	a71	
21	68	51	48	48	50	62	65	68	80	--	a70	
22	--	a40	50	52	52	60	68	73	82	--	a64	
23	--	48	54	50	48	65	70	74	b78	--	a67	
24	--	a34	55	48	50	62	66	74	76	--	a64	
25	--	48	--	50	50	65	68	a70	b80	--	a70	
26	--	48	54	51	--	60	71	--	85	--	a71	
27	57	50	48	48	50	b65	a55	--	b75	--	a65	
28	--	54	54	49	53	62	--	--	81	--	a70	
29	60	48	55	40	53	64	a55	b73	a64	--	a64	
30	60	50	50	52	--	65	b63	74	b84	a65	a60	
31	60	--	a40	48	--	b60	--	b74	--	77	a65	
Average	--	50	48	50	43	57	62	69	77	--	67	

a Measurement before 11 a. m.

b Measurement after 6 p. m.

Suspended sediment, October 1955 to June 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	82	4,000	866	2	1,050	6	416	5,350	6,010
2.....	212	43,200	s27,700	5	921	s19	428	4,050	4,680
3.....	636	88,300	s109,000	8	888	s25	464	5,050	6,330
4.....	700	57,700	s139,000	2	1,280	7	500	7,300	a9,900
5.....	299	31,000	25,000	16	1,410	61	515	9,300	12,900
6.....	156	20,000	8,420	50	1,360	184	515	9,800	13,600
7.....	102	5,500	1,510	21	1,380	78	488	9,700	12,800
8.....	68	3,350	615	9	1,420	s47	440	7,100	8,430
9.....	62	2,330	390	10	1,030	s24	416	6,600	7,410
10.....	55	2,150	319	28	780	59	476	4,950	6,360
11.....	47	2,450	311	110	750	223	476	6,000	a7,700
12.....	50	2,550	344	132	710	253	428	8,900	10,300
13.....	25	2,100	142	136	1,400	514	440	5,300	6,300
14.....	13	2,200	77	69	1,020	s129	452	7,200	8,790
15.....	12	2,200	71	50	1,160	s180	476	7,800	10,000
16.....	13	1,270	s84	65	1,500	263	500	7,500	10,100
17.....	8	1,490	s84	123	2,840	943	530	5,400	7,730
18.....	5	1,950	26	198	6,300	3,370	562	3,900	5,920
19.....	10	1,910	s119	270	9,350	6,820	590	7,300	11,600
20.....	0	--	0	304	4,800	a3,900	605	9,150	14,900
21.....	4	408	s39	229	5,480	s3,070	615	6,370	s10,200
22.....	0	--	0	232	7,450	4,670	605	5,150	8,410
23.....	0	--	0	248	7,650	5,120	605	6,650	10,900
24.....	0	--	0	285	7,300	5,620	620	2,750	4,600
25.....	0	--	0	380	6,400	6,570	635	2,700	a4,600
26.....	0	--	0	392	6,450	6,830	635	3,050	5,230
27.....	3	333	s20	404	5,350	5,840	650	3,300	5,790
28.....	0	--	0	404	6,200	6,760	650	5,100	8,950
29.....	3	392	s16	370	6,850	6,840	620	4,950	8,290
30.....	2	1,070	6	392	9,700	10,300	650	4,650	8,160
31.....	5	1,340	s26	--	--	--	670	3,500	6,330
Total.	2,572	--	404,185	4,944	--	78,725	16,672	--	263,220

s Computed by subdividing day.

a Computed from estimated concentration graph.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Suspended sediment, October 1955 to June 1956--Continued

Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day
1.....	650	3,650	6,410	790	3,200	6,830	590	2,550	4,060
2.....	635	4,650	7,970	690	7,050	13,100	564	4,600	7,000
3.....	650	3,750	6,580	635	10,700	s 20,100	546	2,950	4,350
4.....	650	3,450	6,050	620	5,450	9,120	650	6,300	11,100
5.....	590	2,550	4,060	605	2,300	3,760	675	5,300	9,660
6.....	575	4,900	7,610	545	8,340	s 12,900	546	4,350	6,410
7.....	575	1,900	2,950	575	5,600	8,690	564	4,350	6,620
8.....	560	1,550	2,340	730	6,300	12,400	650	4,250	7,480
9.....	575	2,550	3,960	770	3,150	6,550	600	3,950	6,400
10.....	590	4,050	6,450	690	5,000	9,320	510	3,600	4,960
11.....	620	3,750	6,280	650	6,000	10,500	394	5,200	5,530
12.....	620	4,000	6,700	635	2,800	4,800	272	3,100	2,280
13.....	605	3,400	5,550	620	3,450	5,780	281	8,100	6,150
14.....	620	4,300	7,200	575	1,750	2,720	368	5,150	5,120
15.....	605	4,500	7,350	620	2,700	4,520	290	4,050	3,170
16.....	605	3,600	5,880	605	5,600	9,150	236	3,700	2,360
17.....	620	3,700	6,190	605	8,050	13,100	194	1,750	917
18.....	670	3,750	6,780	605	5,300	8,660	170	1,050	482
19.....	710	3,750	7,190	635	3,750	6,430	182	1,800	885
20.....	710	2,700	5,180	620	3,600	6,030	146	3,150	1,240
21.....	670	3,150	5,700	575	3,300	5,120	122	1,450	478
22.....	650	1,600	2,810	590	2,300	3,660	131	1,900	672
23.....	690	2,550	4,750	575	5,500	9,080	122	1,500	a 490
24.....	670	2,450	4,430	560	3,600	5,440	131	1,600	566
25.....	650	2,050	3,600	560	4,650	7,030	95	1,300	333
26.....	635	3,850	6,600	620	3,700	a 6,200	113	2,350	717
27.....	605	2,000	3,270	670	5,900	s 12,400	108	5,250	1,530
28.....	590	2,100	3,350	750	4,600	9,320	85	3,150	723
29.....	590	2,250	3,580	670	2,200	3,980	188	2,450	1,240
30.....	620	3,700	6,190	--	--	--	272	2,650	1,950
31.....	900	5,700	13,900	--	--	--	381	3,150	3,240
Total.	19,705	--	176,860	18,390	--	236,690	10,176	--	108,093
Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Suspended sediment Mean concentration (ppm)	Tons per day
1.....	236	3,750	2,390	546	7,150	10,500	2	1,050	6
2.....	218	4,500	2,650	528	5,150	7,340	13	1,150	40
3.....	510	4,700	6,470	528	4,450	6,340	21	950	54
4.....	600	4,200	6,800	528	5,300	7,560	32	850	73
5.....	582	4,150	6,520	525	5,900	8,360	60	900	146
6.....	438	4,650	5,500	492	5,750	7,640	55	930	138
7.....	329	5,650	5,020	582	4,050	6,360	20	1,010	55
8.....	200	1,850	999	546	3,250	4,790	23	2,070	129
9.....	176	2,250	1,070	492	3,350	4,450	41	850	94
10.....	200	2,150	1,160	438	3,500	4,140	67	1,050	s 601
11.....	245	3,100	2,050	510	4,250	5,850	40	1,030	111
12.....	112	1,900	575	492	3,950	5,250	107	1,480	s 475
13.....	60	2,050	332	416	2,200	a 2,500	15	1,150	47
14.....	51	2,850	392	510	5,600	7,710	6	660	11
15.....	40	1,550	167	446	4,650	5,600	6	708	11
16.....	312	2,840	s 3,440	188	2,650	1,350	5	510	7
17.....	316	3,600	2,990	75	2,300	466	5	722	10
18.....	281	2,850	2,160	36	1,200	117	3	490	4
19.....	355	3,200	3,070	11	650	19	3	1,060	9
20.....	394	3,250	3,460	10	700	19	2	1,910	10
21.....	381	2,850	2,930	7	630	12	1	830	2
22.....	272	2,350	1,730	7	810	15	.8	3,380	7
23.....	610	6,000	s 14,400	6	540	9	.4	3,980	4
24.....	440	4,310	s 5,620	4	430	5	.4	1,580	2
25.....	254	2,650	1,820	3	950	8	.3	630	1
26.....	263	2,680	1,900	2	--	e 5	.2	1,110	1
27.....	290	3,250	2,540	2	--	e 4	.1	780	(t)
28.....	245	3,000	a 2,000	1	--	e 2	.2	1,130	1
29.....	329	3,240	s 3,370	1	590	2	.1	640	(t)
30.....	830	7,590	s 17,800	2	930	5	.1	330	(t)
31.....	--	--	--	2	740	4	--	--	--
Total.	9,569	--	111,325	7,936	--	96,432	529.6	--	2,050

Total discharge for period (cfs-days) 90,493.6

Total load for period (tons) 1,477,580

e Estimated.

s Computed by subdividing day.

t Less than 0.50 ton.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued
RIO GRANDE AT SAN ACACIA, N. MEX.--Continued
Periodic determinations of suspended-sediment discharge, October to August 1956

Date of collection	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
July 31, 1956	95	19,000	4,870
Aug. 16		150,000	135
Aug. 19	326.3	100,000	94,500
Aug. 22	140	87,300	28,400

Particle-size analyses of suspended sediment, October 1955 to June 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water tem- per- ature (° F)	Suspended sediment										Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250		0.350	0.500	1.000
Oct. 5, 1955	8:00 a.m.	283	66	36,600	3,500		72		88		97	100	--	--	VPWCM
Nov. 23	10:00 a.m.	218	50	8,750	3,900	24	24		33		71	99	100	--	VPWCM
Jan. 13, 1956 . .	4:00 p.m.	650	52	5,820	3,710	21	21		30		60	91	100	--	VPWCM
Feb. 16	11:00 a.m.	590	50	15,200	2,820	8	8		10		25	67	97	100	SPWCM
Mar. 9	4:00 p.m.	825	56	7,760	3,350	24	24		33		60	81	97	100	VPWCM
Mar. 30	12:00 m.	272	65	3,350	3,610	34	34		46		78	99	100	100	VPWCM
Apr. 19	11:30 a.m.	355	58	4,500	4,000	29	29		39		68	97	100	100	VPWCM
May 18	12:00 m.	32	75	4,460	2,800	10	10		13		25	71	98	100	VPWCM
June 1	11:00 a.m.	2.0	70	1,870	--	--	--		--		26	67	100	--	V
July 31	4:00 p.m.	95	77	19,000	5,250	66	66		96		100	--	--	--	PWCM
Aug. 16	12:00 m.	0.3	82	150,000	3,480	70	70		92		97	99	100	--	VPWCM
Aug. 19	7:00 a.m.	326	87	160,000	3,400	72	72		86		97	98	100	--	VPWCM
Aug. 22	7:30 a.m.	140	80	67,300	2,970	68	68		85		94	98	100	--	VPWCM

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL BELOW HEADING NEAR SAN MARCIAL, N. MEX.

LOCATION.--At heading structure, 1,250 feet upstream from gaging station, 6 miles upstream from former site of San Marcial, Socorro County, and 13.4 miles southwest of San Antonio.

RECORDS AVAILABLE.--Water temperatures: March 1954 to September 1956.

Sediment records: March 1954 to September 1956.

EXTREMES, 1955-56.--Water temperatures: Maximum, 88°F Aug. 7; minimum, freezing point, Feb. 3.

Sediment concentrations: Maximum daily, 138,000 ppm Aug. 4; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 282,000 tons Aug. 3; minimum daily, 0 tons on many days.

EXTREMES, 1954-56.--Water temperatures: Maximum, 90°F June 12, 1955; minimum, freezing point, Feb. 3, 1956.

Sediment concentrations: Maximum daily, 138,000 ppm Aug. 4, 1956; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 294,000 tons July 28, 1955; minimum daily, 0 tons on many days.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, August 1956

Date of collection	Mean discharge (cfs)	Chloride (Cl)	Specific conductance (micromhos at 25°C)
Aug. 2, 1956 (9:00 p.m.)	a 613	40	887
Aug. 2 (10:00 p.m.)	a 733	67	2,020
Aug. 2 (11:00 p.m.)	a 871	67	2,020
Aug. 3 (9:30 a.m.)	a1,270	75	2,460
Aug. 3 (10:30 a.m.)	a1,150	72	2,510
Aug. 3 (4:00 p.m.)	a 736	58	2,460
Aug. 4	548	68	2,830
Aug. 5	148	68	2,070
Aug. 6	25	68	2,630
Aug. 7	11	75	2,610
Aug. 16	2.5	183	1,580
Aug. 19	516	58	2,630
Aug. 20	153	54	2,320
Aug. 21	95	20	1,020
Aug. 22 (8:50 a.m.)	a 312	57	1,830
Aug. 22 (11:00 a.m.)	a 249	52	1,830
Aug. 22 (3:05 p.m.)	a 364	48	1,880
Aug. 23	104	104	1,730
Aug. 24	16	160	2,120
Aug. 25	4.6	166	2,170

a Discharge at time of measurement.

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	--	48	47	41	48	61	70			--	
2	a 64	--	45	45	33	52	a 48	75			74	
3	65	--	42	44	31	55	59	59			83	
4	67	--	36	45	34	--	61	87			80	
5	72	--	38	44	--	58	64	76			83	
6	72	--	41	47	40	53	67	70			a 80	
7	65	--	45	a 42	43	50	60	73			88	
8	68	--	40	45	37	52	a 59	72			--	
9	65	--	37	46	38	55	65	69			--	
10	70	--	34	46	41	a 50	62	72			--	
11	74	--	36	52	44	58	65	68			--	
12	78	--	40	45	52	54	65	a 58			--	
13	75	a 51	43	45	51	54	65	72			--	
14	70	61	45	a 39	b 54	55	60	69			--	
15	75	50	45	a 41	48	52	a 55	a 57			--	
16	70	51	45	47	50	53	69	75			--	
17	75	43	42	45	49	52	65	82			--	
18	73	45	a 37	45	47	65	61	81			--	
19	68	45	42	45	44	62	64	a 75			73	
20	72	46	45	48	49	61	67	--			a 74	
21	--	48	45	51	51	66	a 51	--			a 70	
22	--	43	45	51	52	63	73	--			79	
23	--	41	a 38	50	55	68	70	--			a 69	
24	--	40	51	50	41	64	67	--			84	
25	--	38	a 41	49	a 41	65	71	--			a 70	
26	--	40	a 40	50	49	69	67	--			--	
27	--	36	44	50	51	61	67	--			--	
28	--	47	49	45	52	65	66	--			--	
29	--	45	50	45	52	56	a 65	--			--	
30	--	43	41	48	--	56	a 63	--			--	
31	--	--	a 40	48	--	a 59	--	--			--	
Average	--	--	42	46	45	58	63	--			--	

a Measurement before 11:00 a. m.

b Measurement after 6:00 p. m.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL BELOW HEADING NEAR SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	62	10,400	1,740	0	--	0	251	10,200	6,910
2.....	185	15,400	s 7,960	0	--	0	272	11,200	8,230
3.....	278	35,700	s 36,000	0	--	0	295	11,100	8,840
4.....	801	52,800	s 119,000	0	--	0	312	9,000	7,580
5.....	405	35,500	s 73,200	0	--	0	366	12,000	11,900
6.....	235	33,500	22,000	0	--	0	360	12,000	11,700
7.....	117	28,200	8,280	0	--	0	356	11,700	11,200
8.....	86	15,100	3,510	0	--	0	332	10,500	9,410
9.....	84	8,500	1,930	0	--	0	299	10,100	8,150
10.....	81	6,600	1,440	0	--	0	308	10,800	8,980
11.....	82	5,100	854	0	--	0	336	12,700	11,500
12.....	42	3,900	442	0	--	0	335	11,000	9,950
13.....	36	4,500	437	5	1,590	21	318	10,000	8,590
14.....	32	3,300	285	15	2,980	121	314	10,000	8,480
15.....	19	2,040	105	26	4,000	281	342	10,700	9,880
16.....	19	1,600	82	41	4,800	531	342	9,300	8,590
17.....	22	900	a 53	58	4,200	658	362	9,400	9,190
18.....	11	600	18	89	7,700	1,850	384	10,000	10,400
19.....	5	440	6	132	10,100	3,600	398	11,000	11,800
20.....	1	290	1	153	10,000	4,130	410	11,000	12,200
21.....	0	--	0	169	10,000	4,560	410	10,200	11,300
22.....	0	--	0	186	11,000	5,520	412	10,400	11,600
23.....	0	--	0	188	10,200	5,180	427	9,200	10,600
24.....	0	--	0	201	12,100	6,570	451	10,000	12,200
25.....	0	--	0	196	11,000	5,820	442	10,600	12,700
26.....	0	--	0	224	12,800	7,740	445	9,350	11,200
27.....	0	--	0	243	12,900	8,460	462	10,000	12,500
28.....	0	--	0	239	12,200	7,870	480	12,000	15,600
29.....	0	--	0	239	11,200	7,230	487	13,900	18,300
30.....	0	--	0	230	11,000	8,830	464	13,500	16,900
31.....	0	--	0	--	--	--	476	13,000	16,700
Total.	2,563	--	277,343	2,634	--	76,972	11,648	--	343,080
Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	501	13,000	17,600	778	23,200	48,700	553	13,300	19,900
2.....	507	12,600	17,200	538	14,600	21,200	448	10,200	12,300
3.....	510	12,000	16,500	220	16,200	9,620	438	11,000	13,000
4.....	519	11,000	15,400	499	13,100	17,600	379	9,800	10,000
5.....	512	10,300	14,200	440	29,000	34,500	475	12,000	15,400
6.....	467	10,000	12,600	539	24,600	35,800	475	11,000	14,100
7.....	466	9,100	11,400	638	15,900	27,400	443	10,600	12,700
8.....	448	9,700	11,700	418	14,500	16,400	482	12,700	16,500
9.....	442	11,100	13,200	614	19,800	32,800	532	12,300	17,700
10.....	444	10,800	12,900	627	15,600	26,400	482	9,950	12,900
11.....	456	11,000	13,500	579	10,700	16,700	341	8,500	7,830
12.....	481	10,600	13,800	548	10,000	14,800	246	7,900	5,250
13.....	492	9,700	12,900	489	10,000	13,200	257	8,000	5,550
14.....	477	10,700	13,800	451	12,000	14,600	281	7,600	5,770
15.....	483	9,000	11,700	447	11,200	13,500	287	10,100	7,830
16.....	473	10,000	12,800	461	10,200	12,700	271	10,100	7,390
17.....	489	11,000	14,500	473	10,700	13,700	237	10,200	6,530
18.....	483	9,800	12,800	461	10,200	12,700	198	8,400	4,490
19.....	516	8,900	12,400	505	10,400	14,200	176	7,000	3,330
20.....	574	8,450	13,100	511	12,600	17,400	185	7,000	3,500
21.....	591	10,600	16,900	475	11,700	15,000	153	6,000	2,480
22.....	526	8,300	11,800	457	11,000	13,600	113	6,900	2,110
23.....	489	9,700	12,800	458	11,300	14,000	111	6,900	2,070
24.....	501	7,500	10,100	424	12,000	13,700	101	5,800	1,580
25.....	526	6,700	9,520	401	11,100	12,000	86	3,500	813
26.....	490	6,200	8,200	435	13,000	15,300	85	4,300	987
27.....	471	7,100	9,030	479	14,700	19,000	71	6,000	1,150
28.....	471	5,000	6,360	541	14,100	20,600	38	2,740	281
29.....	458	5,800	7,170	620	13,900	23,300	39	1,480	156
30.....	426	7,150	8,220	--	--	--	64	3,520	s 741
31.....	482	14,000	18,200	--	--	--	166	8,000	3,590
Total.	15,171	--	392,300	14,526	--	560,420	8,213	--	217,928

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL BELOW HEADING NEAR SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	251	10,200	6,910	707	11,300	21,600			
2.....	164	6,500	2,880	408	9,900	10,900			
3.....	194	7,000	3,670	388	10,100	10,600			
4.....	437	12,400	14,600	345	9,000	8,380			
5.....	442	10,000	11,900	364	10,000	9,830			
6.....	449	10,200	12,400	369	9,000	8,970			
7.....	337	8,400	7,640	357	9,100	8,770			
8.....	240	6,900	4,470	366	9,800	9,680			
9.....	128	5,800	2,000	348	9,700	9,110			
10.....	114	4,900	1,510	307	8,900	7,380			
11.....	145	5,900	2,310	273	9,000	6,630			
12.....	149	5,990	2,410	280	8,300	6,270			
13.....	78	4,400	927	306	9,000	7,440			
14.....	42	1,800	204	180	5,600	2,720			
15.....	32	1,900	164	280	9,500	7,180			
16.....	33	1,900	169	253	8,300	s 6,110			
17.....	139	6,440	s 4,880	80	2,200	475			
18.....	256	9,300	6,500	38	780	80			
19.....	202	7,000	3,820	9	440	11			
20.....	262	7,100	5,020	0	--	0			
21.....	284	8,200	6,290	0	--	0			
22.....	288	8,500	6,610	0	--	0			
23.....	226	6,500	3,970	0	--	0			
24.....	477	9,180	s 13,200	0	--	0			
25.....	293	6,300	4,980	0	--	0			
26.....	154	4,000	1,660	0	--	0			
27.....	194	5,000	2,620	0	--	0			
28.....	186	4,600	2,310	0	--	0			
29.....	167	3,800	1,710	0	--	0			
30.....	269	7,550	s 6,030	0	--	0			
31.....	--	--	--	0	--	0			
Total.	6,635	--	143,764	5,658	--	142,136	0	--	0
	July			August			September		
1.....				0		0	3.1		
2.....				236	22,800	s 28,500	3.3		
3.....				932	108,000	s 262,000	3.5		
4.....				548	138,000	s 218,000	3.5		
5.....				148	118,000	s 55,800	3.8		
6.....				25	85,000	5,950	4.1		
7.....				11	19,000	564	4.5		
8.....				2			4.7		
9.....				2			4.9		
10.....				2			4.3		
11.....				2.2			4.7		
12.....				2.2			4.1		
13.....				2.1	--	e 1	3.6		
14.....				1.9			3.5	--	e 1
15.....				1.3			4.0		
16.....				2.5			4.2		
17.....				2.7			4.2		
18.....				2.8			3.7		
19.....				516	80,500	s 195,000	3.8		
20.....				153	83,200	s 41,200	4.0		
21.....				95	43,300	13,200	3.7		
22.....				424	106,000	s 132,000	3.8		
23.....				104	74,300	s 24,700	4.1		
24.....				16	24,200	s 1,230	2.0		
25.....				4.6	1,550	19	4.3		
26.....				5.3			3.4		
27.....				3.7			0	--	0
28.....				2.2	--	e 1	0	--	0
29.....				2.7			6.4	2,000	a 35
30.....				2.9			5.6	1,500	a 23
31.....				3.1			--	--	--
Total.	0	--	0	3,256.2	--	998,180	112.8	--	84

Total discharge for year (cfs-days)..... 70,417

Total load for year (tons)..... 3,152,207

e Estimated.

a Computed from estimated concentration graph.

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL BELOW HEADING NEAR SAN MARCIAL, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (° F)	Suspended sediment										Methods of analysis			
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250		0.350	0.500	1.000
Oct. 4, 1955.....	1:30 p. m.	929	67	56,100	3,240	64		88		98		99	100				VPWCM
Nov. 15.....	5:00 p. m.	265	46	4,520	3,710	53		92		98		97	100				VPWCM
Dec. 15.....	5:00 p. m.	320	45	9,580	2,660	38		84		90		95	100				VPWCM
Jan. 20, 1956.....	3:00 p. m.	594	57	7,440	3,300	46		60		93		99	100				VPWCM
Feb. 12.....	3:30 p. m.	534	52	9,440	3,720	29		41		83		98	100				VPWCM
Mar. 16.....	3:00 p. m.	243	57	9,300	4,030	24		34		80		96	100				VPWCM
Apr. 3.....	4:00 p. m.	206	59	6,340	4,330	28		36		70		91	100				VPWCM
Apr. 20.....	10:00 a. m.	278	83	6,790	4,400	28		39		69		91	100				VPWCM
May 16.....	5:30 p. m.	136	75	3,070	4,120	41		51		83		97	100				VPWCM
Aug. 3.....	8:30 a. m.	1,300	76	95,800	3,970	83		99		100		--	--				PWCM
Aug. 5.....	11:55 a. m.	124	83	103,000	3,720	83		96		97		99	100				VPWCM
Aug. 22.....	8:50 a. m.	391	66	96,000	3,980	78		90		92		94	100				SPWCM

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL AT SAN MARCIAL, N. MEX.

LOCATION.--At gaging station 440 feet downstream from grade control at outlet of San Marcial Lake, 150 feet downstream from mouth of drain entering from left side, 1,800 feet west of San Marcial gage on railway bridge, about 18½ miles southwest of San Antonio, and about 1 mile south of the site of the former village of San Marcial, Socorro County.

RECORDS AVAILABLE.--Chemical analyses: March 1954 to September 1956.

Water temperatures: March 1954 to September 1956.

Sediment records: March 1954 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,010 ppm Aug. 2-8; minimum, 541 ppm Jan. 1-10.

Hardness: Maximum, 948 ppm Aug. 2-8; minimum, 240 ppm May 1-13.

Specific conductance: Maximum daily, 2,790 micromhos Aug. 4; minimum daily, 776 micromhos Oct. 2.

Water temperatures: Maximum, 94° F July 7; minimum, 33° F Dec. 10, Feb. 2.

Sediment concentrations: Maximum daily, 76,600 ppm Aug. 22; minimum daily, no flow on several days.

Sediment loads: Maximum daily, 162,000 tons Aug. 3; minimum daily, 0 tons on several days.

EXTREMES, 1954-56.--Dissolved solids: Maximum, 2,010 ppm Aug. 2-8, 1956; minimum, 528 ppm Sept. 26, 1954.

Hardness: Maximum, 948 ppm Aug. 2-8, 1956; minimum, 222 ppm Sept. 26, 1954.

Specific conductance: Maximum daily, 2,790 micromhos Aug. 4, 1956; minimum daily, 622 micromhos May 28, 1954.

Water temperatures: Maximum, 95° F June 21, 22, July 8, 15, 1955; minimum, 33° F Dec. 28, 30, 31, 1954, Dec. 10, 1955, Feb. 2, 1956.

Sediment concentrations: Maximum daily, 76,600 ppm Aug. 22, 1956; minimum daily, no flow on several days in 1956.

Sediment loads: Maximum daily 234,000 tons July 29, 1955; minimum daily, 0 tons on several days in 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 furnished by Surface Water Branch, district office at Santa Fe, N. Mex. Records of composite discharge for Rio Grande conveyance channel at San Marcial, and Rio Grande floodway at San Marcial given under Rio Grande at San Marcial in WSP 1442. Quality of water records for Rio Grande floodway given on page 401.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (residue at 180°C)			Hardness as CaCO ₃		Per- cent so- dium ad- sor- p- tion ratio	So- dium ad- sor- p- tion ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-10, 1955.	299	27	0.01	109	23	115	7.0	222	315	78	0.6	3.7	0.29	806	1.10	651	366	184	40	2.6	1,150	7.7
Oct. 11-20	84.1	--	--	96	22	150	--	247	--	--	--	--	--	850	1.16	193	330	128	50	3.6	1,260	7.7
Oct. 21-31	54.8	--	--	100	24	170	--	254	--	--	--	--	--	916	1.25	136	348	140	52	4.0	1,370	7.8
Nov. 1-10	48.1	--	--	95	22	165	--	244	--	--	--	--	--	876	1.19	114	328	128	52	4.0	1,310	8.0
Nov. 11-20	84.1	--	--	100	24	150	--	263	--	--	--	--	--	863	1.17	196	348	132	48	3.5	1,280	7.9
Nov. 21-30	241	--	--	87	19	100	--	241	--	--	--	--	--	650	.88	423	295	98	42	2.5	962	7.7
Dec. 1-10	339	--	--	86	18	92	--	232	--	--	--	--	--	617	.84	565	288	98	41	2.3	912	7.8
Dec. 11-20	381	--	--	80	17	85	--	222	--	--	--	--	--	578	.79	595	270	88	41	2.3	855	7.9
Dec. 21-31	509	--	--	76	16	85	--	216	--	--	--	--	--	570	.78	783	256	78	42	2.3	863	7.9
Jan. 1-10, 1956 ..	534	29	.01	76	15	78	5.0	208	173	53	.6	1.6	.19	541	.74	780	251	80	40	2.1	813	8.0
Jan. 11-20	556	--	--	75	18	97	--	214	--	--	--	--	--	595	.81	893	261	86	45	2.6	875	8.1
Jan. 21-31	573	--	--	75	18	98	--	218	--	--	--	--	--	586	.80	907	261	82	45	2.6	885	8.0
Feb. 1-10	605	--	--	75	17	95	--	216	--	--	--	--	--	584	.79	954	287	80	45	2.6	871	8.1
Feb. 11-20	570	--	--	77	19	103	--	218	--	--	--	--	--	612	.83	942	270	82	45	2.7	921	7.8
Feb. 21-29	557	--	--	77	18	102	--	220	--	--	--	--	--	609	.83	916	266	86	45	2.7	913	7.8
Mar. 1-10	548	--	--	77	18	91	--	217	--	--	--	--	--	598	.81	885	266	106	44	2.4	894	7.9
Mar. 11-21	326	--	--	84	19	106	--	222	--	--	--	--	--	660	.80	581	288	106	44	2.7	1,000	7.8
Mar. 22-30	163	--	--	86	19	123	--	229	--	--	--	--	--	726	.99	320	292	105	48	3.1	1,100	7.8

Mar. 31-Apr. 10, 1956	368	31	.02	82	16	104	6.9	217	205	76	.7	1.5	.19	642	.87	638	270	92	45	2.8	970	7.8
Apr. 11-17	179	--	--	91	20	135	--	233	--	--	--	--	--	776	1.06	375	309	118	49	3.3	1,170	8.0
Apr. 18-30	364	--	--	77	17	105	--	207	--	--	--	--	--	628	.85	617	262	92	47	2.8	963	7.7
May 1-13	459	--	--	70	16	85	--	196	--	--	--	--	--	543	.74	673	240	80	43	2.4	834	7.6
May 14-21	212	--	--	86	19	119	--	224	--	--	--	--	--	702	.95	402	292	109	47	3.0	1,070	7.6
May 22-31	57.0	--	--	103	23	172	--	252	--	--	--	--	--	928	1.26	143	352	145	52	4.0	1,400	7.6
June 1-30	40.3	--	--	95	24	191	--	247	--	--	--	--	--	970	1.32	106	336	133	55	4.5	1,440	8.0
July 1-10	15.1	33	.01	100	22	191	8.4	243	314	176	.6	1.7	.26	984	1.34	40.1	340	141	54	4.5	1,500	7.7
July 11-17	a 4.7	--	--	96	28	204	--	229	--	--	--	--	--	1,050	1.43	13.3	354	167	56	4.7	1,570	8.1
Aug. 2-8	225	--	--	278	62	268	--	303	--	--	--	--	--	2,010	2.73	1,220	948	700	38	3.8	2,490	7.5
Aug. 9-18	7.5	--	--	87	27	239	--	239	--	--	--	--	--	1,090	1.47	21.9	328	132	61	5.7	1,640	8.0
Aug. 19-25	167	--	--	181	45	238	--	302	--	--	--	--	--	1,460	2.01	667	636	389	45	4.1	1,990	7.5
Aug. 26-31	5.3	--	--	98	27	202	--	238	--	--	--	--	--	1,040	1.41	14.9	356	160	55	4.7	1,540	8.0
Sept. 1-10	5.0	--	--	91	25	191	--	260	--	--	--	--	--	947	1.29	12.8	330	117	56	4.6	1,440	7.9
Sept. 11-20	6.7	--	--	91	29	258	--	274	--	--	--	--	--	1,160	1.58	21.0	346	122	62	6.0	1,800	8.0
Sept. 21-27, 30 ..	a 5.9	--	--	98	29	296	--	277	--	--	--	--	--	1,280	1.74	20.4	364	136	64	6.7	2,000	7.9
Weighted average	b 253	--	--	85	19	106	--	221	--	--	--	--	--	665	0.90	454	290	109	44	2.7	985	--

a No flow July 18 to Aug. 1, Sept. 28-29.

b Average for 349 days of flow.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL AT SAN MARCIAL, N.MEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
 [Once-daily measurement, generally between 11 a.m. and 6 p.m.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	63	46	51	41	48	--	70	85	89	--	a 70
2	a 62	61	70	45	33	52	a 48	75	a 71	a 78	--	a 64
3	73	60	46	44	34	55	60	a 59	92	a 84	83	b 74
4	71	60	37	45	34	58	61	87	a 74	a 81	87	74
5	74	64	42	b 44	35	58	64	75	a 77	a 84	85	83
6	67	a 60	43	47	b 40	58	67	70	a 77	a 83	83	a 63
7	68	41	46	a 42	43	50	60	73	a 79	94	86	a 70
8	71	50	41	45	37	52	59	72	a 75	89	b 92	a 68
9	a 67	55	39	46	38	55	65	69	a 72	86	a 80	80
10	69	57	a 33	46	41	50	66	75	a 82	a 83	75	a 72
11	72	a 65	41	46	44	53	65	68	82	a 78	a 77	a 68
12	75	57	38	45	41	54	65	a 58	a 76	a 80	83	a 64
13	71	a 53	44	45	51	54	65	72	a 79	a 77	89	a 68
14	69	65	47	a 39	b 54	55	60	b 69	a 78	a 76	89	a 67
15	72	53	47	41	48	52	a 55	a 57	a 75	93	82	a 72
16	68	52	47	47	50	58	69	75	82	82	81	72
17	71	42	46	45	49	52	65	b 82	a 82	87	a 72	a 64
18	69	42	a 38	45	47	63	61	b 81	89	--	a 75	a 65
19	69	44	45	45	44	62	64	a 75	84	--	75	70
20	71	47	48	48	49	62	67	60	a 82	--	a 79	68
21	68	46	47	51	51	66	a 57	a 73	85	--	a 74	a 62
22	70	40	47	50	52	63	73	a 75	a 82	--	84	77
23	68	39	a 40	50	55	68	70	a 72	90	--	a 79	75
24	64	42	57	50	41	64	67	a 74	92	--	80	66
25	65	38	a 39	49	a 41	65	71	a 73	93	--	a 68	79
26	69	43	a 40	50	58	69	67	78	a 79	--	82	a 64
27	61	40	47	50	51	61	67	a 68	a 79	--	a 70	a 64
28	62	48	52	a 45	b 51	65	66	71	a 77	--	74	--
29	64	47	53	45	52	56	65	a 67	92	--	74	--
30	65	46	50	40	--	a 56	a 63	91	a 78	--	73	68
31	64	--	a 42	48	--	a 59	--	a 77	--	--	a 68	--
Average	68	51	45	46	45	58	64	72	81	84	79	70

a Measurement before 11 a.m.

b Measurement after 6 p.m.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL AT SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1955

Day	October			November			December		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1.....	108	6,000	1,750	60	320	52	273	4,050	2,990
2.....	279	11,200	s 12,200	59	306	49	297	5,100	4,090
3.....	292	18,400	s 19,000	52	244	34	321	4,420	3,830
4.....	780	46,400	s 98,200	50	204	28	315	4,450	3,780
5.....	544	21,800	s 32,900	50	220	30	380	4,800	4,920
6.....	332	24,600	s 22,200	49	250	33	400	3,840	4,150
7.....	201	15,800	8,570	44	930	110	390	4,360	4,590
8.....	162	7,200	3,150	38	260	27	377	4,070	4,140
9.....	149	3,600	1,450	40	250	27	316	2,860	s 2,470
10.....	140	2,800	1,060	39	250	26	321	2,960	s 2,710
11.....	119	1,890	607	24	225	15	360	2,740	s 2,720
12.....	99	1,280	342	33	290	26	381	2,780	s 2,900
13.....	93	1,080	271	41	375	42	365	2,430	2,390
14.....	87	1,090	256	49	850	112	337	2,490	2,270
15.....	78	710	150	57	1,960	302	365	2,750	2,710
16.....	86	620	144	78	1,760	371	365	2,860	2,820
17.....	87	670	157	92	1,530	380	377	2,920	2,970
18.....	76	470	96	117	2,030	641	405	3,210	3,510
19.....	62	358	60	164	3,490	1,550	415	3,000	3,360
20.....	54	335	49	186	4,100	2,060	442	3,100	3,700
21.....	52	308	43	207	4,740	2,650	452	3,140	3,830
22.....	50	380	51	206	5,200	2,890	522	2,660	3,750
23.....	51	330	45	201	5,150	2,790	541	2,750	4,020
24.....	52	240	34	220	5,110	3,040	532	2,760	3,960
25.....	58	235	37	214	4,900	2,830	498	3,000	4,030
26.....	59	240	38	250	4,900	3,310	488	3,050	4,020
27.....	62	330	55	277	4,800	3,590	492	2,800	3,720
28.....	58	290	45	291	4,240	3,330	517	3,030	4,230
29.....	55	235	35	285	4,330	3,330	539	3,020	4,390
30.....	52	270	38	263	4,220	3,000	509	2,910	4,000
31.....	54	294	43	--	--	--	513	2,860	3,960
Total.	4,431	--	203,076	3,736	--	36,675	12,805	--	110,930
	January			February			March		
1.....	543	2,870	4,210	851	6,560	s 15,000	640	2,520	4,350
2.....	565	2,810	4,290	625	3,850	6,500	532	2,100	3,020
3.....	570	2,640	4,060	301	1,050	s 1,150	513	2,230	3,090
4.....	565	2,400	3,660	565	738	s 1,290	469	1,990	2,520
5.....	567	2,420	3,700	520	862	s 1,420	534	2,890	4,170
6.....	522	2,460	3,470	595	1,710	s 3,280	530	4,340	s 6,370
7.....	517	2,610	3,640	719	3,460	s 7,450	530	2,830	4,050
8.....	507	2,430	3,330	494	3,150	4,200	543	2,290	3,360
9.....	494	2,560	3,410	665	2,380	s 4,460	620	2,820	4,720
10.....	488	2,300	3,030	716	2,620	s 5,220	565	2,530	3,860
11.....	503	1,980	2,690	647	1,980	3,460	469	2,480	3,140
12.....	534	2,140	3,090	627	2,690	4,550	349	2,090	1,970
13.....	552	2,150	3,200	570	2,090	3,220	313	1,590	1,340
14.....	539	2,110	3,070	528	1,890	2,690	357	2,910	2,800
15.....	545	2,270	3,340	517	2,860	3,990	387	2,590	2,710
16.....	541	2,650	3,870	547	3,270	s 4,950	369	1,880	1,870
17.....	550	2,580	3,800	561	2,300	3,480	311	1,590	1,340
18.....	548	1,840	2,720	543	2,100	3,080	283	1,340	1,020
19.....	592	2,460	3,930	574	1,900	2,940	259	1,600	1,120
20.....	651	2,440	4,290	585	1,890	2,990	256	1,940	1,340
21.....	677	2,530	4,620	561	1,970	2,980	238	1,430	919
22.....	618	2,420	4,040	532	1,860	2,670	195	1,100	s 600
23.....	572	2,570	3,970	534	2,900	4,180	198	1,120	599
24.....	576	2,710	4,210	508	3,650	s 5,640	196	1,620	857
25.....	596	2,850	4,590	511	2,600	3,590	171	1,360	628
26.....	576	2,220	3,450	515	2,900	4,030	168	1,530	694
27.....	563	1,980	3,010	548	2,200	3,260	156	2,650	1,120
28.....	563	2,420	3,680	616	2,100	3,490	129	1,860	648
29.....	539	2,540	3,700	688	2,390	4,440	120	900	292
30.....	496	1,850	2,480	--	--	--	132	1,130	403
31.....	530	2,350	3,360	--	--	--	255	1,740	1,200
Total.	17,199	--	111,910	16,763	--	119,600	10,787	--	66,120

s Computed by subdividing day.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL AT SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

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Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	349	3,500	3,300	795	4,290	s 9,250	8	290	6
2.....	271	2,620	s 2,030	566	1,790	s 2,730	16	220	10
3.....	285	2,260	1,740	507	1,710	2,340	26	310	22
4.....	534	2,500	3,600	446	2,500	3,010	38	490	50
5.....	567	2,600	3,980	425	2,630	3,020	47	530	67
6.....	554	2,330	3,490	433	2,440	2,850	50	480	65
7.....	436	2,040	2,400	444	3,300	3,960	43	400	46
8.....	353	2,000	1,810	419	3,400	3,850	47	380	48
9.....	226	1,640	1,000	418	3,350	3,780	40	300	32
10.....	214	1,680	971	385	3,250	3,380	33	400	36
11.....	238	1,800	1,160	348	2,900	2,720	34	430	39
12.....	251	1,340	s 913	363	2,300	2,250	73	1,000	197
13.....	172	1,000	464	423	2,210	2,520	92	690	221
14.....	134	1,100	398	291	2,130	s 1,690	87	710	167
15.....	133	740	266	375	2,190	2,220	66	710	127
16.....	137	750	277	402	2,950	s 3,360	79	700	149
17.....	188	1,360	s 911	196	1,730	916	76	700	144
18.....	389	2,390	2,510	142	1,300	498	58	600	91
19.....	333	1,430	1,290	102	720	198	41	600	66
20.....	377	1,200	1,220	93	640	161	36	490	48
21.....	395	1,290	1,380	96	600	156	31	410	34
22.....	429	1,690	1,960	88	590	140	35	517	s 53
23.....	331	990	885	82	800	177	22	300	18
24.....	488	2,600	s 4,480	79	890	190	20	380	21
25.....	485	2,980	s 4,350	77	500	104	20	340	18
26.....	281	1,580	s 1,210	74	600	120	20	270	15
27.....	309	2,220	1,850	72	720	140	20	270	15
28.....	305	1,710	1,410	63	700	119	18	249	12
29.....	281	1,290	970	24	362	s 26	18	264	13
30.....	325	1,820	1,600	5	270	4	18	290	14
31.....	--	--	--	6	250	4	--	--	--
Total.	9,770	--	53,934	8,239	--	55,883	1,210	--	1,844
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	25	321	s 25	0	--	0	4	156	2
2.....	20	310	17	36	11,100	s 3,130	4	120	1
3.....	18	236	11	760	70,300	s 162,000	7	190	4
4.....	17	239	11	505	72,500	s 106,000	11	458	14
5.....	16	260	11	214	75,600	s 48,400	5	395	5
6.....	15	270	11	43	51,200	s 4,460	4	460	5
7.....	13	305	11	12	30,000	972	3	330	3
8.....	10	270	7	8	6,400	138	4	320	3
9.....	9	261	6	33	1,720	s 164	4	308	3
10.....	8	210	5	8	490	11	4	395	4
11.....	7	174	3	4	380	4	5	440	6
12.....	6	221	4	4	230	2	4	403	4
13.....	5	180	2	4	160	2	5	378	5
14.....	5	182	2	4	170	2	10	542	s 16
15.....	5	275	4	3	150	1	11	458	14
16.....	4	308	3	6	217	s 3	7	418	8
17.....	1	80	(t)	6	283	s 4	6	435	7
18.....	0	--	0	3	260	2	6	385	6
19.....	0	--	0	333	66,200	s 113,000	6	300	5
20.....	0	--	0	218	68,000	s 46,400	7	468	9
21.....	0	--	0	101	54,000	14,700	4	379	s 5
22.....	0	--	0	309	76,600	s 69,500	6	388	s 6
23.....	0	--	0	174	74,400	s 40,100	6	320	5
24.....	0	--	0	24	39,100	s 2,830	4	256	3
25.....	0	--	0	8	1,170	25	5	271	s 4
26.....	0	--	0	9	495	12	6	320	5
27.....	0	--	0	6	339	5	1	262	s 1
28.....	0	--	0	4	218	2	0	--	0
29.....	0	--	0	5	210	3	0	--	0
30.....	0	--	0	4	190	2	15	746	s 34
31.....	0	--	0	4	160	2	--	--	--
Total.	184	--	133	2,852	--	611,876	164	--	187

Total discharge for year (cfs-days) 88,140

Total load for year (tons) 1,372,168

s Computed by subdividing day.

t Less than 0.50 ton.

RIO GRANDE BASIN--Continued
RIO GRANDE CONVEYANCE CHANNEL AT SAN MARCIAL, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis		
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350		0.500	1.000
Oct. 4, 1955 . . .	6:00 p. m.	985	71	33,500	4,020		81		99		100	--	--			PWCM	
Dec. 11	1:30 p. m.	461	41	2,660	2,400		81		97		99	99	100			SPWCM	
Dec. 19	5:30 p. m.	425	45	2,850	5,140		85		99		100	--	--			PWCM	
Jan. 4, 1956 . . .	3:43 a. m.	585	45	2,390	4,010		80		98		100	--	--			PWCM	
Jan. 20	3:00 p. m.	662	53	2,710	5,010		76		98		100	--	--			PWCM	
Feb. 26	11:00 a. m.	534	58	2,450	4,300		57		90		100	--	--			PWCM	
Apr. 5	6:00 p. m.	581	64	2,590	2,460		67		89		99	100				SPWCM	
Apr. 20	11:00 a. m.	393	--	1,240	2,300		73		92		100	--	--			PWCM	
May 6	3:50 p. m.	401	74	3,220	4,120		57		81		97	99	100			SPWCM	
May 13	1:30 p. m.	427	72	2,190	3,800		60		80		99	100	--			SPWCM	
May 20	4:00 p. m.	92	60	586	--		--		--		98	100	--			S	
Aug. 3	4:40 p. m.	1,140	83	79,000	4,170		87		98		100	--	--			PWCM	
Aug. 5	12:25 p. m.	171	85	74,300	4,220		90		99		100	--	--			PWCM	
Aug. 22	10:30 a. m.	393	74	83,300	4,220		86		99		100	--	--			PWCM	
Sept. 30	11:25 a. m.	14	68	744	1,320		79		93		94	96	100			SPWCM	

RIO GRANDE FLOODWAY AT SAN MARCIAL, N. MEX.

LOCATION:--At gaging station at Atchison, Topeka, and Santa Fe Railway bridge, 1.1 miles downstream from former site of San Marcial, Socorro County, and 18.1 miles from Santa Fe, N. Mex.
DRAINAGE AREA: 27,700 square miles, approximately (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).
RECORDS AVAILABLE:--Chemical analyses: July 1946 to September 1956.

Water temperatures: January 1949 to September 1956.

Sediment records: July 1946 to September 1956.

EXTREMES: 1946-56.--Dissolved solids: Maximum 1,950 ppm Aug. 3-10, 1954; minimum, 233 ppm June 11-20, 1952.

Hardness: Maximum 1,010 ppm Aug. 3-10, 1954; minimum, 138 ppm June 11-20, 1952.

Specific conductance: Maximum daily, 2,730 microhos Apr. 8, 1953; minimum daily, 311 microhos June 14, 1952.

Water temperatures (1949-56): Maximum, 97°F Aug. 11, 1951; minimum, freezing point on many days.

Sediment concentrations: Maximum daily, 98,300 ppm Aug. 8, 1955; minimum daily, no flow on many days each year.

Sediment loads: Maximum daily, 366,000 tons July 25, 1949; minimum daily, 0 tons on many days each year.

REMARKS.--Records of chemical analyses and sediment loads for years prior to 1946 have been published in Water Bulletins of International Boundary and Water Commission. Records of discharge for water year October 1955 to September 1956 furnished by Water Branch, district office at Santa Fe, N. Mex. Records of composite discharge for Rio Grande conveyance channel at San Marcial and Rio Grande floodway at San Marcial given under Rio Grande at San Marcial in WSP 1442. Quality of Water records for Rio Grande conveyance channel at San Marcial on page 396. No flow during 1955-56 water year.

RIO GRANDE BASIN--Continued

PECOS RIVER AT PUERTO DE LUNA, N. MEX.

LOCATION.--At bridge at Puerto de Luna, Guadalupe County, 9 miles northwest of gaging station near Puerto de Luna which is 17½ miles upstream from mouth of Rio Grande, 970 square miles, approximately (contributing area above gaging station).

DRAINAGE AREA.--1,970 square miles, approximately (contributing area above gaging station).

RECORDS AVAILABLE.--Chemical analyses: July 1930 to September 1941, November 1946 to September 1956.

Water temperatures: June, 1940 to September 1954.

Sediment records: January 1949 to September 1956.

EXTREMES, 1955-56:--Dissolved solids: Maximum, 2,740 ppm July 1-9; minimum, 401 ppm Oct. 2-4.

Hardness: Maximum, 1,880 ppm July 1-9; minimum, 306 ppm Oct. 2-4.

Specific conductance: Maximum daily, 3,120 micromhos Apr. 27, May 19; minimum daily, 536 micromhos Oct. 3.

Sediment concentrations: Maximum daily, 49,100 ppm July 31; minimum daily, 26 ppm Apr. 10-18.

Sediment loads: Maximum daily, 258,000 tons July 30; minimum daily, 3 tons July 10, 1955; July 1-9, 1956; minimum, 287 ppm May 11-16, 18-20, 1941.

EXTREMES, 1939-41, 1946-56:--Dissolved solids: Maximum, 2,740 ppm July 1-9; minimum, 401 ppm Oct. 2-4.

Hardness: Maximum, 1,910 ppm Apr. 21-30, 1954; minimum, 240 ppm May 11-16, 18-20, 1941.

Specific conductance: Maximum daily, 3,810 micromhos Dec. 14, 1951; minimum daily, 344 micromhos Sept. 21, 1941.

Sediment concentrations: Maximum daily, 59,200 ppm July 28, 1955; minimum daily, 20 ppm Apr. 21-30, 1955.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for gaging station near Puerto de Luna for water year October 1955 to September 1956 given in WSP 1442. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

REVISION.--(WSP 1292, Water year 1953): Weighted average for sulfate has been revised to 1,140 ppm.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent adsorption	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./l.	Non-carbonate			
Oct. 1, 5-10, 1955.	184	20		457	69	81		170	1,240	109		1.0		2,060	2.80	1,020	1,420	1,280	11	2,370	7.7
Oct. 2-4.	1,487	16		101	13	10		183	153	16		1.8		2,401	.55	1,590	306	158	7	2,607	7.7
Oct. 11-20.	80.0	20		560	78	98		160	1,520	137		.4		2,480	3.39	538	1,720	1,590	11	2,770	7.9
Oct. 21-31.	79.7	19		568	78	98		135	1,560	134		.4		2,520	3.43	542	1,740	1,630	11	2,790	7.8
Nov. 1-10.	81.0	21		576	78	101		159	1,570	138		.4		2,560	3.48	560	1,760	1,630	11	2,840	7.8
Nov. 11-20.	87.9	22		568	78	108		167	1,550	150		.4		2,560	3.48	608	1,740	1,600	12	2,840	7.9
Nov. 21-30.	93.4	21		564	78	106		178	1,540	153		.6		2,550	3.47	643	1,730	1,580	12	2,870	7.9
Dec. 1-10.	96.9	20		564	71	106		164	1,530	152		.5		2,520	3.43	659	1,700	1,560	12	2,860	8.0
Dec. 11-20.	92.9	20		564	74	108		167	1,540	155		.5		2,540	3.45	637	1,710	1,570	12	2,860	8.0
Dec. 21-31.	97.0	20		572	73	108		166	1,550	157		.3		2,560	3.48	674	1,730	1,590	12	2,880	7.9
Jan. 1-10, 1956.	97.5	20		572	73	108		172	1,550	158		.4		2,570	3.50	673	1,730	1,590	12	2,910	7.8
Jan. 11-20.	96.3	24		584	57	106		147	1,530	155		1.1		2,530	3.44	658	1,690	1,570	12	2,870	7.9
Jan. 21-31.	93.9	23		592	64	109		180	1,550	161		1.2		2,590	3.52	657	1,740	1,590	12	2,940	7.7
Feb. 1-10.	90.0	20		580	71	110		169	1,530	161		1.5		2,560	3.48	622	1,740	1,600	12	2,900	7.7
Feb. 11-20.	90.5	19		588	71	107		163	1,560	156		1.3		2,580	3.51	630	1,760	1,630	12	2,910	7.7
Feb. 21-29.	85.1	19		599	69	110		168	1,580	163		1.2		2,620	3.56	602	1,780	1,640	12	2,960	7.5
Mar. 1-10.	84.2	19		596	66	108		160	1,590	159		1.1		2,620	3.56	596	1,760	1,630	12	2,960	7.7
Mar. 11-20.	77.5	21		599	66	106		143	1,590	154		1.1		2,610	3.55	546	1,770	1,650	12	2,930	7.9
Mar. 21-31.	77.8	22		607	83	105		172	1,650	156		.4		2,710	3.69	569	1,860	1,720	11	3,020	7.8

Apr. 1-30, 1-56...	71.7	22	603	85	113	166	1,650	162	0.4	2,720	3.70	527	1,950	1,720	12	1.1	3,040	7.6
May 1-23, 26-31...	67.6	20	603	81	112	156	1,670	164	1.1	2,730	3.70	488	1,840	1,700	12	1.1	3,050	7.6
June 1-8	67.2	23	611	83	111	156	1,680	155	1.2	2,720	3.70	484	1,870	1,740	11	1.1	3,000	7.8
June 9-12	120	23	401	50	58	176	1,040	72	3.1	1,730	2.35	561	1,210	1,080	9	1.7	2,050	7.7
June 13-14	87.5	18	476	66	89	135	1,300	128	2.3	2,150	2.92	508	1,460	1,350	12	1.0	2,490	7.7
June 15-30	66.8	22	603	90	111	159	1,650	159	1.3	2,720	3.70	491	1,870	1,740	11	1.1	3,020	7.6
July 1-9	58.3	24	596	95	118	143	1,670	170	1.3	2,740	3.73	431	1,880	1,760	12	1.2	3,060	7.8
July 10-11	289.3	24	328	53	43	250	804	52	3.0	1,430	1.94	1,120	1,040	1,832	8	.6	1,760	7.3
July 12-18	71.1	22	560	81	103	170	1,530	146	.7	2,530	3.44	486	1,730	1,590	11	1.1	2,820	7.7
July 19	1,680	21	145	13	13	245	225	12	.3	549	.75	2,480	416	214	6	.3	786	7.3
July 20	324	23	266	44	44	526	398	57	.8	1,090	1.48	954	844	414	10	.7	1,470	7.7
July 21	314	22	170	30	26	229	346	31	.4	738	1.00	626	548	360	9	.5	1,010	7.2
July 22	243	18	337	43	50	198	815	68	1.8	1,430	1.94	938	1,020	856	10	.7	1,750	7.2
July 23-28	78.7	23	552	83	99	177	1,500	142	.9	2,480	3.37	527	1,720	1,570	11	1.0	2,800	7.5
July 29-30	954	19	314	32	29	141	761	32	.5	1,260	1.71	3,250	915	800	6	.4	1,520	7.2
July 31	1,080	24	508	52	15	169	1,250	21	.7	1,950	2.65	5,740	1,480	1,340	2	.2	2,100	7.1
Aug. 1-3	565	20	250	32	24	202	557	28	1.1	1,010	1.37	1,540	756	590	6	.4	1,290	7.4
Aug. 4-5	176	18	421	57	68	152	1,110	96	2.5	1,850	2.52	879	1,280	1,160	10	.8	2,160	7.8
Aug. 6-18	67.2	20	592	90	105	159	1,630	153	1.2	2,670	3.63	484	1,850	1,720	11	1.1	2,950	7.7
Aug. 19	288	13	151	19	31	136	339	31	4.3	655	.89	509	454	343	13	.6	943	7.6
Aug. 20	115	16	480	57	85	161	1,230	120	1.0	2,070	2.82	643	1,430	1,300	11	1.0	2,370	7.4
Aug. 21-22	221	16	306	44	47	161	784	57	2.6	1,340	1.82	800	944	812	10	.7	1,650	7.3
Aug. 23-24	110	17	445	69	81	171	1,200	111	2.7	2,010	2.73	597	1,390	1,250	11	.9	2,340	7.4
Aug. 25-31	62.4	19	588	90	106	168	1,620	149	.5	2,660	3.62	448	1,840	1,700	11	1.1	2,940	7.7
Sept. 1-30	57.5	22	607	81	105	154	1,650	155	.6	2,700	3.67	419	1,850	1,720	11	1.1	2,990	7.8
Weighted average	all 13	20	462	60	78	174	1,210	111	1.0	2,030	2.76	619	1,400	1,260	11	0.9	2,320	--

a Mean for 364 days of flow which includes 99 percent of runoff.

RIO GRANDE BASIN--Continued

PECOS RIVER AT PUERTO DE LUNA, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1.....	102	560	154	79			101		
2.....	2,350	18,800	s214,000	77			94		
3.....	1,410	38,300	s184,000	81			90		
4.....	640	9,000	15,600	79			100		
5.....	348	1,070	1,010	81			98		
6.....	242	1,040	679	81	198	43	100	144	38
7.....	199	230	124	79			96		
8.....	168	220	100	87			96		
9.....	135	292	106	83			96		
10.....	96	223	58	83			98		
11.....	85	234	54	83			96		
12.....	83	163	38	83			100		
13.....	81	195	43	90			96		
14.....	81	166	36	83	150	34	90		
15.....	79	140	30	87			90		
16.....	79	94	20	85			98		
17.....	79	114	24	90			98		
18.....	79			92			90		
19.....	77			90			90		
20.....	77			96			92		
21.....	79	84	18	94	128	32	94		
22.....	79			92			94		
23.....	81			96			94		
24.....	81			94			96		
25.....	83			96			94		
26.....	79	300	64	96			100	92	24
27.....	77			92			100		
28.....	75			92	147	37	102		
29.....	77	319	66	92			100		
30.....	83	426	95	90			100		
31.....	83	--	--	--	--	--	98		
Total.	7,367	--	416,760	2,623	--	1,112	2,970	--	874
Day	January			February			March		
	Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment		Mean dis-charge (cfs)	Suspended sediment	
		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day		Mean concen-tration (ppm)	Tons per day
1.....	95			93			82		
2.....	97			90			86		
3.....	95			90			84		
4.....	97			85			84		
5.....	97			85			84		
6.....	99	98	26		98	24		105	24
7.....	99			80			84		
8.....	99			80			84		
9.....	95			101			86		
10.....	97			99			86		
				97			82		
11.....	104			97			80		
12.....	99			97			78		
13.....	97			97			78		
14.....	99			90			78	47	10
15.....	101	64	17	90	71	17	80		
16.....	101			90			76		
17.....	97			86			75		
18.....	93			86			76		
19.....	84			86			76		
20.....	88			86			78		
21.....	93			86				105	21
22.....	97			90			78		
23.....	99			88			76		
24.....	95			84			73		
25.....	95			84			75		
26.....	95	105	27		101	23			
27.....	93			80			76		
28.....	90			84			75		
29.....	90			86			78	57	12
30.....	93			84			84		
31.....	93			--			84		
				--			84		
Total.	2,966	--	727	2,571	--	617	2,473	--	552

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

PECOS RIVER AT PUERTO DE LUNA, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	84			87			69	--	e 150
2.....	75			71			71	739	142
3.....	76			69			65	1,190	209
4.....	80			87	81	15	65	250	44
5.....	76	38	8	64			62	--	e 50
6.....	76			62			59	--	e 50
7.....	75			65			61	--	e 50
8.....	73			64			86	1,690	s 601
9.....	75			62			82	490	108
10.....	76			65	210	35	140	10,100	s 5,240
11.....	73			61			156	7,950	3,350
12.....	73			62			101	4,100	1,120
13.....	69			56			95	1,650	423
14.....	67	26	5	59			80	1,000	216
15.....	71			65			71	611	117
16.....	73			65			61	520	86
17.....	73			67			61	386	64
18.....	73			65	299	51	64	341	59
19.....	75			62			58	300	47
20.....	73			64			151	377	154
21.....	75	35	7	64			94	377	96
22.....	75			57			62	585	98
23.....	75			62			57	335	52
24.....	65			233	3,430	s 21,600	53	360	52
25.....	64			389	18,000	s 25,400	56	380	57
26.....	61			110	7,340	s 2,300	57	456	70
27.....	62	77	13	90	620	150	53	250	36
28.....	59			80	539	116	56	240	36
29.....	65			73	639	126	56	--	e 40
30.....	65			73	507	100	59	280	41
31.....	--	--	--	69	1,010	188	--	--	--
Total.	2,152	--	237	2,580	--	50,825	2,261	--	12,858
	July			August			September		
1.....	57	264	41	715	43,100	s 96,600	52	208	29
2.....	67	200	36	565	39,900	s 64,200	55	--	e 30
3.....	62	147	25	414	15,000	16,800	57	212	33
4.....	61	121	20	217	8,200	4,800	56	177	27
5.....	56	--	e 24	134	2,350	850	58	228	36
6.....	57	169	26	95	589	151	62	211	35
7.....	51	236	32	76	328	67	63	426	72
8.....	56	278	42	71	390	75	60	252	41
9.....	58	190	30	68	406	75	61	241	40
10.....	374	9,410	s 12,800	68	251	46	59	501	80
11.....	204	10,200	s 6,130	65	285	50	57	418	64
12.....	98	2,000	529	62	270	45	55	464	69
13.....	65	308	54	63	223	38	57	247	38
14.....	61	--	e 50	63	162	27	59	335	53
15.....	64	303	52	60	211	34	57	253	39
16.....	69	248	46	61	173	28	59	225	36
17.....	71	203	39	61	404	67	60	315	51
18.....	70	367	69	61	479	79	54	340	50
19.....	1,680	34,600	s 193,000	288	14,100	s 18,900	56	--	e 50
20.....	324	17,500	s 16,100	115	850	264	57	128	20
21.....	314	20,800	s 17,400	193	5,260	s 3,800	56	100	15
22.....	243	8,800	5,770	249	17,500	s 13,700	57	132	20
23.....	121	3,000	980	133	6,000	2,150	59	205	33
24.....	84	550	125	88	2,800	665	59	173	27
25.....	73	389	77	82	1,000	221	59	305	49
26.....	62	398	67	68	144	26	57	132	20
27.....	61	400	a 70	56	249	38	57	138	21
28.....	71	405	78	61	94	15	56	115	17
29.....	398	6,280	s 77,500	64	188	32	56	170	26
30.....	1,510	42,400	s 258,000	56	187	28	54	95	14
31.....	1,090	49,100	s 204,000	50	235	32	--	--	--
Total.	7,632	--	793,212	4,422	--	223,903	1,724	--	1,135

Total discharge for year (cfs-days) 41,743

Total load for year (tons) 1,502,812

e Estimated.

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued
PECOS RIVER AT PUERTO DE LUNA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs) a	Water temperature (° F)	Suspended sediment												Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters											
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500		1.000
Oct. 2, 1955 ...	6:40 a.m.		60	31,900	3,570	--	28	--	42	--	77	91	99		99	100	SPWCM
Oct. 2 ...	3:00 p.m.		--	27,200	3,340	--	31	--	43	--	71	87	98		100		SPWCM
Oct. 3 ...	1:00 p.m.		65	13,000	3,180	--	46	--	65	--	85	91	100		--	--	SPWCM
May 24, 1956...	7:15 p.m.		65	39,300	4,530	--	31	--	54	--	96	100			--	--	VPWCM
June 10 ...	5:05 p.m.		72	11,700	3,420	51	65	75	86	93	99	100			--	--	SPWCM
June 10 ...	5:05 p.m.		75	11,700	3,180	0	1	10	84	93	99	100			--	--	SPN
July 10 ...	11:30 a.m.		86	32,600	3,780	--	39	--	66	--	87	98	100				VPWCM
July 10 ...	9:00 p.m.		80	22,400	3,190	--	47	--	72	--	91	99	100				VPWCM
July 18 ...	9:00 p.m.		64	54,200	3,980	23	33	39	53	72	98	100			--	--	VPWCM
July 30 ...	6:10 a.m.		64	51,900	3,790	1	2	11	48	72	98	100			--	--	VDN
July 30 ...	6:10 a.m.		65	60,300	3,430	--	39	--	62	--	92	100			--	--	VPWCM
July 31 ...	8:00 p.m.		65	60,300	3,430	--	32	--	50	--	90	99	100			--	VPWCM
July 31 ...	5:00 p.m.		70	98,000	4,710	--	32	--	46	--	81	97	100			--	SPWCM
Aug. 1 ...	5:25 p.m.		74	24,800	3,550	43	56	63	75	86	98	100			--	--	VPWCM
Aug. 1 ...	5:25 p.m.		74	24,800	3,570	3	3	14	77	86	98	100			--	--	VDN
Aug. 19 ...	6:30 a.m.		65	15,600	4,720	--	55	--	80	--	97	100			--	--	VPWCM
Aug. 22 ...	4:00 p.m.		80	15,000	3,550	--	65	--	85	--	97	100			--	--	VPWCM

a Discharge omitted because of lack of correlation of discharges at sampling point and at gaging station.

RIO GRANDE BASIN--Continued
PECOS RIVER BELOW ALAMOGORDO DAM, N. MEX.

LOCATION.--At gaging station, 1,200 feet downstream from Alamogordo Dam, 1½ miles downstream from Alamogordo Creek, and 4½ miles northeast of Guadalupe, De Baca County.

DRAINAGE AREA.--4,390 square miles, approximately (contributing area).

RECORDS AVAILABLE.--Chemical analyses: June 1937 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 2,550 ppm Sept. 11-30; minimum, 849 ppm Oct. 1-10.

Hardness: Maximum, 1,740 ppm Sept. 11-30; minimum, 594 ppm Oct. 1-10.

Specific conductance: Maximum daily, 2,920 micromhos Sept. 23, 25, 27, 29-30; minimum daily, 1,070 micromhos Oct. 1.

EXTREMES, 1937-56.--Dissolved solids: Maximum, 2,730 ppm May 11-20, 1954; minimum, 294 ppm Oct. 1-8, 12-20, 1941.

Hardness: Maximum, 1,910 ppm May 1-10, 1954; minimum, 294 ppm Oct. 1-8, 12-20, 1941.

Specific conductance: Maximum daily 3,200 micromhos Jan. 14, 1948; minimum daily 513 micromhos July 22, 1937.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nesium	Non-carbonate				
Oct. 1-10, 1955...	104	13		192	28	34		122	483	38		0.8		849	1.15	238	594	494	11	0.6	1,130	7.5
Oct. 11-20, 1955...	92.9	14		201	28	36		126	506	41		.8		869	1.21	223	616	513	11	.6	1,180	7.6
Oct. 21-31, 1955...	92.8	13		206	30	38		131	528	43		.8		927	1.26	232	642	535	11	.6	1,230	7.7
Nov. 1-10, 1955...	77	15		222	37	40		139	597	52		.8		1,040	1.41	216	706	582	13	.8	1,360	7.7
Nov. 11-20, 1955...	1.32	16		238	49	57		156	658	64		1.1		1,160	1.43	196	765	653	15	.9	1,500	7.7
Nov. 21-25, 27-30	a. 39	21		278	61	77		171	816	88		1.6		1,430	1.94	1.51	944	797	15	1.1	1,800	7.7
Dec. 1-30, 1955...	a. 60	21		280	58	78		172	816	88		.9		1,420	1.98	2.30	937	796	15	1.1	1,800	7.8
Dec. 21-30, 1955...	a. 11	20		274	58	71		188	785	82		.9		1,380	1.88	.41	922	768	14	1.0	1,770	7.7
Jan. 4-10, 1956...	.39	17		312	55	67		164	863	80		.7		1,480	2.01	1.56	1,000	870	13	.9	1,840	7.9
Jan. 11-31, 1956...	64.0	14		377	50	66		153	1,000	88		.5		1,670	2.27	289	1,150	1,020	11	.8	2,020	7.9
Feb. 1-10, 1956...	.32	17		324	47	64		158	857	78		.6		1,470	2.00	1.27	1,000	872	12	.9	1,830	7.5
Feb. 11-20, 1956...	.35	16		320	52	67		159	872	82		.5		1,490	2.03	1.41	1,010	882	13	.9	1,860	7.5
Feb. 21-29, 1956...	.33	19		318	57	70		168	878	84		.4		1,510	2.05	1.35	1,030	890	13	.9	1,880	7.4
Mar. 1-10, 1956...	13.4	19		310	58	68		167	860	79		.6		1,480	2.01	53.5	1,010	875	13	.9	1,860	7.6
Mar. 11-20, 1956...	83.8	15		326	46	58		133	872	78		.9		1,460	1.99	330	1,000	894	11	.8	1,810	7.5
Mar. 21-31, 1956...	67.0	15		316	49	56		138	869	72		.5		1,450	1.97	262	990	877	11	.8	1,770	7.6
Apr. 1-30, 1956...	72.4	15		320	51	58		138	891	72		.5		1,480	2.01	289	1,010	895	11	.8	1,800	7.5
May 1-31, 1956...	61.5	15		335	52	61		133	932	78		.3		1,540	2.09	256	1,050	941	11	.8	1,880	7.6
June 1-30, 1956...	477	15		357	51	68		129	979	85		.2		1,620	2.20	2,090	1,100	994	12	.9	1,970	7.4

a No flow Nov. 26, Dec. 31 to Jan. 3.

RIO GRANDE BASIN--Continued
 PECOS RIVER BELOW ALAMOGORDO DAM, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.—Continued																						
Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH		
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate					
July 1-31, 1956..	483	16		367	58	70	133	133	1,030	79		0.7		1,690	2.30	2,200	1,150	1,040	12	0.9	2,030	7.5
Aug. 1-31.....	796	17		373	53	60	135	135	1,010	75		1.4		1,660	2.26	3,570	1,160	1,050	10	0.8	1,970	7.4
Sept. 1-10.....	66.8	18		492	69	90	171	171	1,340	112		2.4		2,210	3.01	399	1,510	1,370	11	1.0	2,510	7.4
Sept. 11-30.....	55.3	16		560	83	103	135	135	1,560	141		2.1		2,550	3.47	381	1,740	1,630	11	1.1	2,840	7.4
Weighted average	b 163	16		360	54	64	134	134	988	78		0.9		1,630	2.22	805	1,120	1,010	11	0.8	1,960	--

^b Average for 361 days of flow.

RIO GRANDE BASIN--Continued
PECOS RIVER NEAR ACME, N. MEX.

LOCATION.--At gaging station 1 mile southeast of Melena railroad station, 3½ miles downstream from Salt Creek, 5 miles southwest of Acme, Chaves County, and 13 miles northeast of Roswell.

DRAINAGE AREA.--11,380 square miles, approximately (contributing area).

RECORDS AVAILABLE.--Chemical analyses: July 1937 to September 1956.

Water temperatures: May 1952 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 9,250 ppm May 12-24, 27; minimum, 1,220 ppm Aug. 1-2.

Hardness: Maximum, 3,580 ppm May 12-24, 27; minimum, 716 ppm Aug. 1-2.

Specific conductance: Maximum daily, 14,800 micromhos May 24; minimum daily, 1,500 micromhos Oct. 2.

Water temperatures: Maximum, 92° F Aug. 4, 5; minimum, 33° F Feb. 5-7.

EXTREMES, 1937-56.--Dissolved solids: Maximum, 19,870 ppm May 23 to June 2, 1938; minimum, 806 ppm May 24, 1941.

Hardness: Maximum, 5,320 ppm May 23 to June 2, 1938; minimum, 528 ppm May 24, 1941.

Specific conductance: Maximum daily, 39,300 micromhos Aug. 9, 1945; minimum daily, 955 micromhos Aug. 21, 1941.

Water temperatures: (1932-56).--Maximum, 95° F July 19, 1955; minimum, 33° F Jan. 4, 1955; Feb. 5-7, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)		Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium carbonate	So-dium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
						Parts per million	Tons per acre-foot								Tons per day	Calcium, mg./l.	Non-carbonate						
Oct. 1-10, 1955..	51.9	18	18	272	53	123	132	132	769	180	1.7		1.7	1,480	2.01	2,070	896	788	23	1.8	2,030	7.8	
Oct. 11-20	92.1	17	17	351	80	191	135	135	1,070	280	.4		.4	2,060	2.80	512	1,200	1,090	26	2.4	2,700	7.5	
Oct. 21-31	51.6	19	19	419	103	284	134	134	1,350	405	.5		.5	2,650	3.60	369	1,470	1,360	30	3.2	3,380	7.6	
Nov. 1-10	38.3	20	20	437	115	323	142	142	1,420	475	.5		.5	2,860	3.89	296	1,560	1,450	31	3.5	3,740	7.8	
Nov. 11-20	21.8	17	17	510	151	485	137	137	1,690	770	.6		.6	3,680	5.00	217	1,890	1,780	36	4.8	4,900	7.7	
Nov. 21-30	17.5	17	17	552	140	591	144	144	1,770	905	1.4		1.4	4,050	5.51	191	1,950	1,830	40	5.8	5,310	7.9	
Dec. 1-10	16.7	18	18	560	145	629	164	164	1,790	965	1.2		1.2	4,190	5.70	189	1,990	1,860	41	6.1	5,540	7.7	
Dec. 11-20	14.2	16	16	560	152	664	156	156	1,770	1,060	2.0		2.0	4,300	5.85	165	2,020	1,900	42	6.4	5,890	7.6	
Dec. 21-31	13.4	15	15	576	157	713	163	163	1,870	1,110	1.5		1.5	4,510	6.13	163	2,080	1,960	43	6.8	5,940	7.6	
Jan. 1-10, 1956..	12.3	14	14	593	160	772	146	146	1,930	1,210	1.6		1.6	4,760	6.47	158	2,160	2,040	44	7.2	6,370	7.7	
Jan. 11-20	13.4	16	16	596	150	722	182	182	1,910	1,100	1.8		1.8	4,580	6.23	166	2,100	1,970	43	6.8	6,050	7.6	
Jan. 21-30	24.6	17	17	556	131	520	151	151	1,780	765	1.3		1.3	3,840	5.22	255	1,930	1,800	37	5.2	4,930	7.7	
Feb. 1-9-10	20.7	14	14	520	147	585	133	133	1,670	940	1.0		1.0	3,940	5.36	220	1,900	1,790	40	5.8	5,430	7.9	
Feb. 11-20	18.4	19	19	556	207	1,310	153	153	1,930	2,160	--		--	6,300	8.36	313	2,340	2,210	55	12	8,980	7.9	
Feb. 21-30	36.1	16	16	488	138	815	139	139	2,130	790	1.6		1.6	3,630	4.94	354	1,780	1,670	39	5.3	4,910	7.7	
Feb. 31-29	13.3	16	16	623	200	877	145	145	2,130	1,380	1.4		1.4	5,300	7.21	190	2,380	2,260	45	7.8	7,140	7.8	
Mar. 1-10	9.9	15	15	746	242	1,210	160	160	2,420	2,010	1.2		1.2	6,720	9.14	107	2,860	2,730	48	9.8	9,000	7.8	
Mar. 11-15	2.2	16	16	811	308	1,620	168	168	2,670	2,770	--		--	8,280	11.3	49.2	3,290	3,150	52	12	11,500	7.6	
Mar. 16-20	20.2	17	17	615	175	574	135	135	2,090	865	.9		.9	4,400	5.98	240	2,260	2,150	36	5.3	5,590	7.8	
Mar. 21-31	22.8	15	15	588	142	527	127	127	1,940	760	1.1		1.1	4,040	5.49	249	2,050	1,950	36	5.1	5,050	7.6	

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ACNE, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)		Hardness as CaCO ₃	Percent sodium, carbonates	Sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
													Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate			
Apr. 1-15, 1956..	12.2	17		691	195	858		142	2,330	1,310		1.8	5,470	7.44	2,530	2,410	42	7,050	7.6
Apr. 16-30.....	9.2	17		715	195	879		132	2,440	1,310		2.5	5,620	7.64	2,390	2,460	42	7,220	7.6
May 1.....	1,740	15		318	38	107		146	538	135		.7	1,320	2.97	1,360	530	20	1,920	7.5
May 2.....	135	11		405	171	132		108	1,210	200		4.0	2,110	4.43	1,860	1,700	20	2,800	7.5
May 3-6.....	4.8	13		943	119	342		118	1,060	1,200		1.0	3,100	6.99	1,800	1,700	20	4,140	7.6
May 7.....	12.4	18		710	170	174		116	1,190	1,200		2.1	3,100	6.94	2,400	2,370	23	6,150	7.5
May 12-24, 27	41.6	12		510	312	1,860		166	2,800	3,170		3.9	9,250	12.6	3,560	3,440	53	12,500	7.6
May 28-31.....	11.5	14		421	100	412		95	1,360	610		3.9	2,970	4.04	1,460	1,380	38	4,040	7.4
June 1.....	31.0	15		603	185	777		74	2,060	1,240		1.8	4,920	6.69	2,260	2,220	43	6,570	7.3
June 11-17.....	12.9	8.8		385	59	143		66	1,080	252		1.6	1,940	2.64	1,200	1,150	21	2,520	7.4
June 21-24.....	714	20		468	93	101		134	1,380	156		3.3	2,230	3.11	1,440	1,420	12	2,690	7.4
June 25-30.....	739	17		411	75	59		133	1,150	110		2.4	1,890	2.57	1,330	1,220	9	2,290	7.4
July 1-10.....	646	16		415	70	68		121	1,170	108		1.8	1,910	2.60	1,320	1,220	10	2,260	7.6
July 11-14.....	172	17		433	85	102		102	1,280	166		1.6	2,130	2.90	1,430	1,350	13	2,590	7.4
July 15-26.....	418	16		413	74	62		116	1,160	118		2.0	1,900	2.58	1,340	1,240	9	2,320	7.7
July 27-29.....	53.0	18		445	95	149		98	1,410	195		1.2	2,360	3.21	1,500	1,420	18	2,810	7.5
July 30-31.....	50.5	22		238	55	145		202	775	114		3.2	1,450	1.97	820	654	28	1,800	7.6
Aug. 1-2.....	27.5	19		216	43	107		115	666	114		2.1	1,220	1.66	716	622	25	1,660	7.7
Aug. 3.....	56	15		468	74	365		93	1,330	568		4.0	2,870	3.90	1,470	1,400	35	3,780	7.3
Aug. 4-31.....	607	17		393	66	81		126	1,120	112		2.0	1,850	2.52	1,250	1,150	12	2,230	7.5
Sept. 1-10.....	94.7	20		451	80	122		103	1,360	154		2.2	2,240	3.05	1,450	1,370	15	2,660	7.4
Sept. 11-15.....	34.20	22		552	116	214		95	1,780	274		1.6	3,010	4.09	1,850	1,780	20	3,510	7.7
Weighted average	b 148	17		402	75	129		127	1,160	195		1.9	2,040	2.77	815	622	18	1,660	7.3

a No flow May 25-26, June 2-10, 18-20, Sept. 16-30.

b Average for 337 days of flow.

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ACME, N. MEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

/Once-daily measurement, generally between 3:30 p.m. and 7 p.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	--	60	46	49	34	52	a 61	64	82	76	83	76
2	71	59	49	51	--	56	54	71	--	83	82	80
3	68	58	46	49	--	53	62	74	--	86	86	80
4	71	58	43	51	--	64	66	74	--	85	92	83
5	73	61	46	51	33	62	68	75	--	86	92	82
6	70	62	48	50	33	60	73	80	--	84	75	78
7	66	58	51	49	33	53	73	70	--	85	75	79
8	67	54	49	48	35	50	--	78	--	87	73	78
9	67	52	48	48	35	58	70	75	--	85	70	81
10	68	56	50	48	35	--	68	76	--	86	72	80
11	68	--	50	49	39	60	71	74	--	85	80	82
12	68	62	49	48	46	46	75	70	86	86	80	81
13	70	61	50	46	48	50	71	79	88	86	72	80
14	78	58	50	49	46	49	65	81	--	--	70	82
15	69	56	44	49	43	48	64	80	--	85	72	86
16	69	--	45	45	53	41	76	76	--	87	75	--
17	70	53	48	35	52	60	68	82	--	85	75	--
18	70	54	47	34	54	70	54	86	--	87	83	--
19	71	55	49	37	55	62	64	86	--	75	80	--
20	71	57	50	54	55	62	65	72	--	83	76	--
21	70	52	51	48	56	62	70	80	86	83	80	--
22	68	51	49	42	59	60	69	85	85	85	82	--
23	68	54	55	52	60	62	74	76	84	82	80	--
24	68	55	53	47	59	72	72	86	78	85	78	--
25	64	50	--	48	60	66	71	--	86	83	78	--
26	66	54	57	50	57	a 65	69	--	86	79	77	--
27	66	50	53	54	54	60	74	78	83	79	79	--
28	61	45	55	53	56	60	74	76	86	83	80	--
29	60	44	50	48	58	66	62	83	83	85	80	--
30	60	40	45	43	--	60	72	90	85	82	78	--
31	60	--	48	43	--	65	--	87	--	86	76	--
Average	68	55	49	47	48	58	68	78	--	84	78	--

a Measurement before 3:30 p.m.

RIO GRANDE BASIN--Continued

RIO HONDO AT DIAMOND A RANCH, NEAR ROSWELL, N. MEX.

LOCATION.--At gaging station on downstream side of road bridge at Diamond A Ranch, 8 miles upstream from Rocky Arroyo, and 18 miles west of Roswell, Chaves County.

DRAINAGE AREA.--947 square miles (contributing area).

RECORDS AVAILABLE.--Water temperatures: September 1951 to September 1955.

Sediment records: September 1951 to September 1956.

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 64,900 ppm July 19; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 30,000 (estimated) tons May 26; minimum daily, 0 tons on many days.

EXTREMES, 1951-56.--Sediment concentrations: Maximum daily, 64,900 ppm July 19, 1956; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 630,000 tons Oct. 6, 1954; minimum daily, 0 tons on many days.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Suspended sediment, water year October 1955 to September 1956

Date	Discharge (cfs-days)	Suspended sediment (tons)
Nov. 1-30, 1955.....	4	(et)
Dec. 1-31.....	7	e1
Jan. 1-31, 1956.....	0	0
Feb. 1-29.....	0	0
Mar. 1-31.....	2	(et)
Apr. 1-30.....	0	0
May 26.....	345	a 30,000
May 27.....	232	a 12,000
May 28.....	32	a 120
May 29.....	2	(at)
May 1-31.....	611	42,120
June 1-30.....	2	2

e Estimated.

t Less than 0.50 ton.

a Computed from water-sediment discharge curve.

Suspended sediment water year October 1955 to September 1956

Day	October			Mean dis- charge (cfs)	July		Mean dis- charge (cfs)	August		
	Mean dis- charge (cfs)	Mean con- cen- tration (ppm)	Tons per day		Mean con- cen- tration (ppm)	Tons per day		Mean dis- charge (cfs)	Mean con- cen- tration (ppm)	Tons per day
1.....	3	--	e 60	0	--	0	42	7,930	s 1,630	
2.....	152	14,600	s 16,400	0	--	0	71	28,600	s 6,730	
3.....	92	4,560	s 2,180	0	--	0	22	10,700	s 673	
4.....	45	--	a 350	0	--	0	13	2,800	98	
5.....	41	--	a 270	0	--	0	8	600	13	
6.....	29	--	a 110	0	--	0	4	500	5	
7.....	23	--	a 60	0	--	0	1	100	(t)	
8.....	19	--	a 40	0	--	0	0	--	0	
9.....	17	--	a 30	0	--	0	0	--	0	
10.....	14	--	a 17	0	--	0	0	--	0	
11.....	14	--	a 17	0	--	0	0	--	0	
12.....	14	--	a 17	0	--	0	0	--	0	
13.....	14	--	a 17	0	--	0	0	--	0	
14.....	12	--	a 12	0	--	0	0	--	0	
15.....	13	--	a 15	0	--	0	0	--	0	
16.....	23	--	a 60	0	--	0	0	--	0	
17.....	19	--	a 40	0	--	0	0	--	0	
18.....	20	--	a 44	5	1,000	s 104	0	--	0	
19.....	15	--	a 20	93	64,900	s 17,900	0	--	0	
20.....	13	--	a 15	8	17,800	s 535	0	--	0	
21.....	12	--	a 12	2	2,220	s 21	191	38,800	s 27,300	
22.....	13	--	a 15	0	--	0	42	7,980	s 1,060	
23.....	9	--	a 6	0	--	0	13	1,300	46	
24.....	16	--	a 25	59	10,800	s 2,930	4	600	6	
25.....	17	--	a 28	18	11,800	s 665	2	100	1	
26.....	17	--	a 28	2	1,370	s 9	0	--	0	
27.....	13	--	a 15	0	--	0	0	--	0	
28.....	11	--	a 10	0	--	0	0	--	0	
29.....	12	--	a 12	0	--	0	0	--	0	
30.....	13	--	a 15	0	--	0	0	--	0	
31.....	9	--	a 6	0	--	0	0	--	0	
Total.	734	--	19,946	187	--	22,164	413	--	37,562	
Total discharge for year (cfs-days).....										1,960
Total load for year (tons).....										121,795

e Estimated.

t Less than 0.50 ton.

s Computed by subdividing day.

a Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued
RIO HONDO AT DIAMOND A RANCH, NEAR ROSWELL, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; F, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment											Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350		0.500	1.000
July 18, 1956	9:10 p. m.	43	76	10,900	3,310		73		98		100	--	--		PWCM
July 19	7:45 a. m.	103	68	78,800	3,570		64		91		99	99	100		VPWCM
July 21	12:00 m.	1	80	794	2,010		99		100		--	--	--		PWCM
July 24	8:20 a. m.	175	68	22,200	3,250		57		85		98	99	100		VPWCM
July 24	4:00 p. m.	73	78	9,410	4,380		56		93		99	99	100		SPWCM
Aug. 1	12:30 p. m.	103	73	10,400	3,450		52		89		98	99	100		VPWCM
Aug. 2	4:00 a. m.	118	66	32,400	4,550		64		93		99	99	100		VPWCM
Aug. 21	6:30 a. m.	397	62	68,900	4,140		39		65		94	96	98	100	VPWCM

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.

LOCATION.--At gaging station at bridge on State Highway 83, 4.3 miles east of Artesia, Eddy County, 7.0 miles north of mouth of Rio Pecos, and 17 miles north of McMillan Dam.

DRAINAGE AREA.--15,300 square miles, approximately (contributing area).

RECORDS AVAILABLE.--Chemical analyses: July 1937 to September 1956.

Water temperatures: April 1949 to September 1956.

Sediment records: January 1949 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 9,480 ppm Sept. 26-30; minimum, 1,460 ppm Oct. 1-5.

Hardness: Maximum, 3,140 ppm Sept. 26-30; minimum, 841 ppm Oct. 1-5.

Specific conductance: Maximum daily, 14,700 microhmhos Sept. 28; minimum daily, 1,300 microhmhos Oct. 4.

Water temperatures: Maximum, 89°F July 15; minimum, freezing point Feb. 2.

Sediment concentrations: Maximum daily, 10,300 ppm May 2; minimum daily, 21 ppm Dec. 3.

EXTREMES, 1937-56.--Dissolved solids: Maximum, 14,100 ppm Sept. 9, 1953; minimum, 479 ppm Oct. 7-8, 1954.

Hardness: Maximum, 3,370 ppm Sept. 9, 1953; minimum, 270 ppm Oct. 7-8, 1954.

Specific conductance: Maximum daily, 20,700 microhmhos Sept. 10, 1953; minimum daily, 745 microhmhos Oct. 8, 1954.

Water temperatures: Maximum, 92°F June 30, 1953; minimum, freezing point Feb. 2, 1956.

Sediment concentrations (1949-56): Maximum daily, 20,800 ppm July 22, 1953; minimum daily, no flow on many days.

Sediment loads (1949-56): Maximum daily, 183,000 tons Sept. 26, 1955; minimum daily, 6 tons on many days.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	
													Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate			
Oct. 1-5, 1955	2,092	17	268	42	134	42	134	115	751	185		2.2	1,460	1.99	8,250	841	747	28	1,950	7.9
Oct. 6-10	446	21	393	81	400	158	158	158	1,170	610		3.1	2,760	3.75	3,320	1,310	1,180	40	3,820	7.5
Oct. 11-20	212	20	468	128	602	150	150	150	1,540	910		2.5	3,740	5.09	2,140	1,690	1,570	44	5,070	7.6
Oct. 21-31	128	21	524	171	825	143	143	143	1,790	1,290		2.7	4,690	6.38	1,620	2,010	1,890	47	8,470	7.4
Nov. 1-10	114	25	540	188	900	163	163	163	1,880	1,410		2.9	5,030	6.84	1,550	2,120	1,960	48	8,550	7.9
Nov. 11-20	98.1	19	564	219	1,040	197	197	197	1,990	1,650		2.9	5,580	7.59	1,480	2,310	2,150	50	9.4	7.7
Nov. 21-30	91.5	16	588	223	1,150	186	186	186	2,060	1,790		1.4	5,920	8.05	1,460	2,390	2,230	51	10	7.8
Dec. 1-10	100	14	584	226	1,160	202	202	202	2,050	1,790		1.1	5,920	8.05	1,600	2,390	2,230	51	10	7.9
Dec. 11-20	111	14	564	212	1,090	192	192	192	1,940	1,730		2.2	5,650	7.68	1,690	2,280	2,120	51	9.9	7.5
Dec. 21-31	102	13	560	221	1,130	204	204	204	1,940	1,780		1.5	5,750	7.82	1,580	2,310	2,140	52	10	7.7
Jan. 1-10, 1956	81.9	23	560	247	1,220	161	161	161	2,080	1,950		1.9	6,180	8.40	1,370	2,460	2,330	52	11	7.8
Jan. 11-20	89.2	23	599	240	1,230	159	159	159	2,100	1,980		2.2	6,270	8.53	1,370	2,480	2,330	52	11	7.9
Jan. 21-30	86.3	21	568	240	1,130	180	180	180	2,030	1,840		2.6	5,910	8.04	1,380	2,400	2,270	51	10	7.9
Jan. 31-Feb. 10	115	23	508	214	980	160	160	160	1,800	1,620		4.0	5,230	7.11	1,620	2,150	2,020	50	9.2	7.8
Feb. 11-20	136	21	540	216	1,100	197	197	197	1,850	1,770		3.2	5,600	7.62	2,060	2,240	2,070	52	10	7.8
Feb. 21-29	90.4	17	592	240	1,130	174	174	174	2,080	1,820		2.2	5,970	8.12	1,460	2,460	2,320	50	9.9	7.4
Mar. 1-10	67.7	14	611	290	1,290	152	152	152	2,260	2,120		--	6,660	9.06	1,220	2,720	2,590	51	11	7.4
Mar. 11-20	65.9	15	627	295	1,360	159	159	159	2,360	2,250		--	6,960	9.47	1,240	2,780	2,650	52	11	7.4
Mar. 21-31	51.8	17	623	297	1,320	169	169	169	2,360	2,180		--	6,880	9.36	962	2,760	2,640	51	11	7.6

Apr. 1-May 1, 1956	43.0	13	856	303	1,490	157	2,470	2,450	--	7,460	10.1	866	2,880	2,750	53	12	10,500	7.1
May 2.....	839	18	960	121	638	120	1,660	980	.5	4,060	3.52	9,520	1,890	1,600	42	6.4	3,610	7.3
May 3-4.....	284	16.9	433	173	285	117	1,350	585	.5	2,840	3.16	1,520	1,590	1,470	34	3.1	3,990	7.9
May 5.....	274	15	470	184	285	117	1,350	585	2.3	2,840	3.16	1,520	1,590	1,470	34	3.1	3,990	7.9
May 6-10.....	37.5	10	540	123	668	120	1,350	1,090	2.0	4,400	5.98	693	2,100	2,000	41	6.3	5,920	7.2
May 11-31.....	37.7	20	693	276	1,280	165	2,410	1,090	--	6,890	9.37	701	2,790	2,650	50	1.1	9,480	7.3
June 1-22.....	20.2	22	668	315	1,710	155	2,510	2,710	--	8,010	10.9	437	2,980	2,840	56	14	11,100	7.4
June 23-30.....	54.2	21	508	95	218	140	1,510	285	2.7	2,710	3.89	3,970	1,680	1,540	22	2.3	3,290	7.4
July 1-10.....	655	18	449	74	125	124	1,280	155	1.9	2,160	2.94	3,820	1,420	1,320	16	1.5	2,570	7.4
July 11-12.....	107	18	468	83	218	121	1,370	310	2.3	2,530	3.44	731	1,510	1,410	24	2.4	3,130	7.3
July 13-15.....	72.7	18	510	115	368	99	1,600	545	1.6	3,210	4.37	630	1,750	1,660	31	3.8	4,110	7.1
July 16-24.....	523	18	445	71	153	125	1,290	200	2.5	2,240	3.05	3,160	1,400	1,300	19	1.8	2,740	7.4
July 25-31.....	82.9	17	502	118	404	104	1,550	615	2.0	3,260	4.43	554	1,710	1,630	34	4.2	4,250	7.3
Aug. 1-8.....	51.0	22	546	165	706	122	1,840	1,100	3.8	4,440	6.04	611	2,040	1,940	43	6.8	5,910	7.8
Aug. 9.....	294	24	647	207	1,120	156	2,100	1,830	4.0	6,010	8.17	4,770	2,470	2,340	50	9.8	8,150	7.4
Aug. 10-31.....	581	16	431	70	114	124	1,220	152	3.3	2,070	2.82	3,250	1,360	1,260	15	1.3	2,450	7.6
Sept. 1-7.....	217	20	425	83	246	123	1,270	350	2.1	2,460	3.35	1,440	1,400	1,300	28	2.9	3,140	7.8
Sept. 8-13.....	34.8	28	532	157	693	133	1,760	1,060	1.1	4,320	5.88	406	1,970	1,860	43	6.8	5,810	7.8
Sept. 14-17.....	21.0	27	603	226	1,150	134	2,150	1,760	1.4	5,990	8.15	340	2,430	2,320	51	10	8,140	7.5
Sept. 18-25.....	10.2	31	647	259	1,410	142	2,390	2,160	--	6,970	9.48	192	2,680	2,560	53	12	9,470	7.8
Sept. 26-30.....	10.6	24	735	317	2,190	126	2,710	3,440	--	9,480	12.9	271	3,140	3,040	60	17	13,200	7.7
Weighted average	182	18	456	119	466	139	1,440	720	--	3,290	4.47	1,620	1,630	1,520	38	5.0	4,370	--

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956
 /Once-daily measurement, generally between 11 a. m. and 6 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	--	47	48	39	a52	65	75	79	76	80	73
2	70	--	47	48	32	55	56	a58	82	79	81	73
3	67	--	49	46	34	53	55	71	a80	82	78	78
4	69	--	44	45	34	55	a53	78	a79	82	81	82
5	70	--	45	45	35	58	64	75	80	82	85	83
6	69	57	47	48	39	a55	51	a70	85	82	84	71
7	a60	a52	42	44	44	50	61	71	85	84	82	78
8	a61	--	45	43	40	50	a59	75	82	82	83	a69
9	a62	--	45	47	38	54	57	76	87	80	84	78
10	64	a50	45	a40	--	56	64	74	a75	a76	83	78
11	65	--	47	44	43	54	a62	70	85	a80	81	77
12	66	--	a45	44	45	49	66	75	81	a80	a73	a66
13	66	--	48	42	a47	51	65	74	83	86	a73	a66
14	--	58	44	45	52	a46	65	74	85	85	80	80
15	a62	56	42	45	48	52	60	70	85	89	80	a71
16	68	--	44	40	50	52	66	75	84	85	80	--
17	68	50	44	a38	50	37	a55	a70	79	84	82	75
18	67	53	48	37	49	a54	56	a64	a79	82	81	75
19	68	50	45	43	52	60	57	a64	84	82	a74	78
20	68	48	a43	45	51	50	61	73	--	a76	76	73
21	a60	55	47	46	a48	58	65	--	b80	80	78	76
22	69	55	49	45	57	61	68	--	83	83	78	a66
23	65	52	49	a46	54	62	69	77	a79	76	78	78
24	62	52	53	51	57	a55	--	79	a82	76	80	75
25	--	48	51	a45	51	61	75	a70	80	80	77	a64
26	--	48	52	50	53	63	74	73	83	79	79	77
27	--	a47	54	55	53	61	75	75	80	79	79	72
28	64	45	53	50	52	59	70	77	80	a75	76	--
29	--	--	50	50	52	a54	69	83	b80	82	76	a74
30	57	42	45	45	--	61	a64	84	81	a76	a71	74
31	--	--	a44	--	--	--	--	77	--	80	74	--
Average	--	--	47	45	46	55	63	73	79	81	79	74

a Measurement before 11 a. m.

b Measurement after 6 p. m.

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	1,540	3,700	15,400	103	169	47	92	25	6
2.....	1,890	5,610	38,300	105	150	43	92	25	6
3.....	3,920	6,800	72,000	125	185	62	92	21	5
4.....	2,180	4,300	25,300	117	194	61	95	32	8
5.....	931	3,000	7,540	111	177	53	96		
6.....	608	2,000	3,280	109	172	51	99		
7.....	495	1,180	1,580	120	169	55	111		
8.....	431	1,000	1,160	124	168	56	116		
9.....	367	1,000	991	116	152	48	109	27	8
10.....	330	550	490	109	338	99	100		
11.....	290	500	392	105	113	32	100		
12.....	257	420	291	100	111	30	112		
13.....	239	356	230	100	272	73	112		
14.....	223	302	182	105	116	33	112		
15.....	211	244	130	100	57	15	112		
16.....	195	298	157	98	85	22	109		
17.....	193	222	116	93	92	23	114		
18.....	191	226	117	95	100	a 26	111	34	10
19.....	168	135	61	93	113	28	114		
20.....	155	131	55	92	54	13	117		
21.....	152	113	46	93	153	38	117		
22.....	146	169	87	91	98	24	114		
23.....	143	158	61	91	143	35	111		
24.....	141	145	55	93	125	31	108		
25.....	129	141	49	93	60	15	106		
26.....	119	139	45	92	42	10	102	28	7
27.....	119	202	65	91	94	23	103		
28.....	127	168	58	91	43	11	96		
29.....	112	115	35	90	100	24	92		
30.....	112	185	56	90	141	34	88		
31.....	109	155	46	--	--	--	90		
Total.	16,223	--	168,364	3,035	--	1,115	3,239	--	251
Day	January			February			March		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	88			87			76		
2.....	88			90			73		
3.....	86			87			69		
4.....	85			105			67		
5.....	86			152			69		
6.....	80	27	6	143	82	26	61	45	8
7.....	79			127			62		
8.....	76			127			63		
9.....	73			130			64		
10.....	78			132			73		
11.....	78			137			72		
12.....	79			137			69		
13.....	81			127			67		
14.....	85			141			64		
15.....	85			143			63		
16.....	82	28	6	155	37	14	63	44	8
17.....	81			150			62		
18.....	78			136			60		
19.....	82			122			67		
20.....	81			114			72		
21.....	84			105			67		
22.....	85			98			56		
23.....	87			95			57		
24.....	86			90			57		
25.....	85			88	49	12	57	41	6
26.....	90	80	19	90			58		
27.....	88			90			54		
28.....	87			81			47		
29.....	86			77			46		
30.....	87			--	--	--	39		
31.....	87			--	--	--	32		
Total.	2,581	--	329	3,356	--	508	1,906	--	226

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Suspended sediment, water year October 1955 to September 1956--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	30	161	15	56	557	84	37	163	10
2.....	40			859	10,300	23,700	31		
3.....	48			345	4,450	s 4,580	23		
4.....	53			162	940	411	23		
5.....	34			102	460	127	22		
6.....	23	54	6	81	354	77	16	119	6
7.....	23			64	308	53	14		
8.....	25			58	350	55	13		
9.....	30			54	89	12	15		
10.....	46			54			15		
11.....	32	86	11	48			17	199	11
12.....	38			42	104	11	14		
13.....	41			46			17		
14.....	45			47			21		
15.....	53			42			26		
16.....	56	86	11	35	249	25	21	199	11
17.....	48			30			19		
18.....	41			33			21		
19.....	43			36			23		
20.....	46			37			20		
21.....	46	86	11	41	192	19	17	1,200	sa 1,100
22.....	47			43			20		
23.....	54			32			233		
24.....	61			31			468		
25.....	53			34			795		
26.....	43	86	11	39	171	16	501	5,260	7,120
27.....	42			51			422		
28.....	41			42			590		
29.....	46			30			639		
30.....	50			25			685		
31.....	--	--	--	27	--	--	--	--	--
Total.	1,278	--	320	2,626	--	29,466	4,778	--	49,114
Day	July			August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	741	2,970	5,940	92	173	43	532	1,080	1,550
2.....	771	2,540	5,290	65	112	20	431	1,080	1,260
3.....	765	2,390	4,940	48	33	4	218	794	467
4.....	685	2,170	4,010	36	30	a 3	119	404	130
5.....	705	2,100	4,000	37	39	4	69	173	32
6.....	677	2,090	3,820	52	53	7	88	320	76
7.....	696	1,980	3,720	42	42	5	60	230	37
8.....	705	1,830	3,480	36	71	7	46	108	13
9.....	550	1,700	2,520	294	1,360	s 988	36	127	12
10.....	258	1,660	1,160	458	4,050	5,010	38	121	12
11.....	131	795	281	458	2,660	3,290	36	90	9
12.....	83	409	92	405	2,000	2,190	27	76	6
13.....	67	239	43	437	2,600	3,070	26	98	7
14.....	77	242	50	522	2,250	3,170	25	92	6
15.....	74	179	36	520	1,740	2,440	24	84	5
16.....	463	1,750	2,190	554	1,610	2,410	19	84	4
17.....	520	1,800	2,530	554	1,520	2,270	18	105	5
18.....	530	1,900	2,720	549	1,480	2,190	18	70	3
19.....	587	1,740	2,760	534	1,520	2,190	12	24	1
20.....	556	1,700	2,550	600	1,560	2,530	10	56	2
21.....	891	2,700	6,500	719	1,840	3,570	6.4	50	a 1
22.....	651	3,720	6,540	691	1,660	3,100	5.4	156	2
23.....	344	2,100	1,950	719	1,680	3,260	7.7	100	a 2
24.....	169	1,340	611	713	2,320	4,470	12	100	a 3
25.....	110	880	261	618	1,800	3,000	10	128	3
26.....	78	339	71	642	1,920	3,330	12	100	a 3
27.....	53	146	21	699	1,900	3,590	11	103	3
28.....	45	111	13	629	1,720	2,920	10	195	5
29.....	38	70	7	616	1,230	2,050	9.2	58	1
30.....	58	95	15	579	1,370	2,140	11	52	2
31.....	58	72	11	574	1,330	2,060	--	--	--
Total.	12,136	--	68,132	13,492	--	65,331	1,944.7	--	3,662
Total discharge for year (cfs-days)									66,594.7
Total load for year (tons)									385.818

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued
 PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
 (Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
 W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water tem- per- ature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500		1.000
Oct. 2, 1955	10:00 a.m.	1,030	75	3,200	3,370	--	56	--	76	--	90	96	100		SPWCM	
Oct. 3	2:15 p.m.	3,790	70	6,600	2,740	--	32	--	46	--	79	93	100		SPWCM	
Oct. 4	2,230	67	4,400	4,000	--	52	--	69	--	90	96	100		SPWCM		
June 25, 1956	6:15 p.m.	951	80	4,770	3,330	--	62	--	86	--	98	99	100		SPWCM	
June 26	5:30 p.m.	431	83	5,510	3,470	--	71	--	92	--	97	99	100		SPWCM	
June 27	5:40 p.m.	472	80	8,240	4,450	--	77	--	94	--	97	98	100		VPWCM	
July 3	9:25 a.m.	780	79	2,240	5,660	--	60	--	83	--	93	95	100		SPWCM	
July 4	6:35 p.m.	671	82	2,040	4,390	--	59	--	88	--	92	95	100		VPWCM	
July 5	9:25 a.m.	724	79	1,940	4,130	--	59	--	82	--	91	94	100		SPWCM	
July 7	10:35 a.m.	713	80	1,850	4,010	--	62	--	84	--	93	96	100		SPWCM	
July 8	10:30 a.m.	722	82	1,660	1,880	49	60	75	80	89	91	94	100		SPWCM	
July 8	10:30 a.m.	722	82	1,660	1,830	0	5	25	81	90	91	94	100		SPN	
July 9	9:25 a.m.	647	78	1,710	3,780	--	63	--	86	--	94	97	100		SPWCM	
July 19	5:30 p.m.	572	82	1,690	2,210	51	65	75	87	93	97	99	100		SPWCM	
July 19	5:30 p.m.	572	82	1,690	2,200	0	5	20	87	92	97	99	100		SPN	
July 21	5:00 p.m.	1,140	80	3,000	3,640	--	52	--	80	--	98	99	100		SPWCM	

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

PECOS RIVER SEEPAGE INVESTIGATION

Several series of water samples were collected during the months of January, February, and June 1956 on the Pecos River and its tributaries beginning at the gaging station near Acme, N. Mex., and ending at the gaging station near Artesia, N. Mex. Two double series of water samples were collected Jan. 4, 5 and Feb. 26, 27, respectively, and a single series was collected June 3, 1956. Samples were collected for chemical analysis at the time of discharge measurement. Discharge data are given in WSP 1442.

Chemical analyses, in parts per million, of Pecos River and tributaries, New Mexico, water year 1955-56

Date	Streams or diversion	Location	Discharge (cfs)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Hardness as CaCO ₃ calcium, magnesium	Specific conductance (micro-mhos at 25°C)	pH
Jan. 4, 1956	Pecos River.	At gaging station near Acme (regular gage).	11.7	155	--	1,200	2,210	6,260	7.6
4	Bitter Creek ^a	Near mouth, 6½ miles east of Roswell.	11.5	129	--	2,310	2,270	9,660	7.3
4	Hagerman, inc. well.	NE¼NE¼NE¼ sec. 35, T. 10 S., R. 24 E. (empties into Rio Hondo above Hagerman Canal), 3 miles east of Roswell.	5.56	205	--	2,750	--	9,560	7.3
4	.....do.....	.....do.....	6.66	204	--	2,770	--	9,610	7.2
4	Hagerman Canal.	At head, 5 miles east of Roswell (diverts from Rio Hondo).	29.9	236	--	2,000	--	7,760	7.2
4	South Spring Creek.	At entrance to Hagerman Canal, SE¼SE¼SE¼ sec. 8, T. 11 S., R. 25 E., 2½ miles northeast of East Grand Plains.	5.93	266	--	580	1,800	3,880	7.5
4	Pamona main drain.	At entrance to Hagerman Canal, NW¼NW¼SE¼ sec. 22, T. 11 S., R. 25 E., 2¼ miles northeast of East Grand Plains.	3.90	259	--	105	--	2,840	7.3
4	Rio Hondo.	At mouth, 7 miles east of Roswell.	8.22	267	--	1,520	1,920	6,370	7.7
4	Pecos River..	Below mouth of Rio Hondo, 7 miles east of Roswell.	41.1	241	1,520	1,730	--	7,210	7.3
4	Gravel Pit ...	At mouth, 3½ miles east of East Grand Plains.	1.21	289	--	220	1,510	2,670	7.6
4	Pecos River..	Below Bottomless Lake, 4¼ miles east of East Grand Plains.	54.1	212	--	1,760	--	7,780	8.3
4	Oasis-Miller drain.	At mouth, 4¼ miles east of East Grand Plains.	.25	254	--	365	--	4,400	7.5
4	Nine Mile draw.	At mouth, 3 miles north of Dexter.	.82	243	--	590	2,070	4,140	7.5
4	Pecos River..	At Dexter Gridge, 2¼ miles northeast of Dexter.	59.2	220	--	1,670	--	7,580	7.4
4	Berry ditch ..	At mouth, 3 miles east of Dexter.	2.24	185	--	475	--	4,500	7.2
4	Dexter-Greenfield drain, "A" line.	At mouth, 4 miles south-east of Dexter.	.50	312	--	1,220	--	6,420	7.8
4	Dexter-Greenfield drain, "E" line.	.....do.....	.47	253	--	690	2,460	5,330	7.6
5	Pecos River..	½ mile above mouth of Rio Felix and 2½ miles north of Hagerman.	68.1	226	--	1,550	--	7,350	7.8
5	Rio Felix	At gaging station near Hagerman (regular gage).	.27	254	--	1,250	--	5,930	7.4
5	..do.....	½ mile above mouth and 2 miles north of Hagerman.	.19	255	--	1,500	--	7,150	7.4
5	Hagerman drainage district, "D" line.	At mouth, 1½ miles northeast of Hagerman.	.17	801	--	590	--	5,140	7.3

RIO GRANDE BASIN--Continued

PECOS RIVER SEEPAGE INVESTIGATION--Continued

Chemical analyses, in parts per million, of Pecos River and tributaries, New Mexico, water year 1955-56--Continued

Date	Stream or diversion	Location	Dis-charge (cfs)	Bicar-bonate (HCO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Hardness as CaCO ₃ calcium, magne-sium	Specific conductance (micro-mhos at 25°C)	pH
Jan. 5, 1956	Pecos River .	At gaging station near Lake Arthur (regular gage)	73.9	194	1,840	2,120	--	9,010	7.5
5	Walnut Creek.	At road crossing, $\frac{1}{2}$ mile south of Lake Arthur.	.29	187	2,090	120	--	3,450	7.5
5	Lake Arthur drainage district, "B" line.	At mouth, $3\frac{1}{2}$ miles south-east of Lake Arthur.	.10	282	--	1,150	--	9,890	7.4
5	Lawrence Ranch drain.	At mouth, $6\frac{1}{2}$ miles south-east of Lake Arthur.	.08	189	5,180	1,800	--	11,900	7.9
5	Cottonwood Creek.	At gaging station near Lake Arthur (regular gage).	2.48	280	--	225	--	3,940	7.7
5	Artesia sewage line.	At mouth, $2\frac{1}{2}$ miles east of Artesia.	.20	400	--	625	--	5,590	7.1
5	Pecos River..	At gaging station near Artesia (regular gage).	87.3	192	--	2,030	--	8,870	7.5
5	....do.....	At gaging station near Acme (regular gage).	11.8	155	--	1,190	--	6,360	7.7
5	Bitter Creek (and Roswell sewage).	Near mouth, $6\frac{1}{2}$ miles east of Roswell.	11.4	128	--	2,290	2,220	9,660	7.3
5	Hagerman, Inc. well.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 35, T. 10 S., R. 24 E., (empties into Rio Hondo above Hagerman Canal), 3 miles east of Roswell.	5.70	209	--	2,770	--	9,640	7.1
5	....do.....	....do.....	6.75	205	--	2,750	--	9,590	7.2
5	Hagerman Canal.	At head, 5 miles east of Roswell (diverts from Rio Hondo).	32.3	235	1,740	1,990	--	7,720	7.2
5	South Spring Creek.	At entrance to Hagerman Canal, SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 11 S., R. 25 E., $2\frac{1}{2}$ miles northeast of East Grand Plains.	5.80	264	1,040	580	1,810	3,880	7.4
5	Pamona drain	At entrance to Hagerman Canal NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 22, T. 11 S., R. 25 E., $2\frac{1}{2}$ miles east of East Grand Plains.	3.97	268	1,000	110	--	2,820	7.4
5	Rio Hondo....	At mouth, 7 miles east of Roswell.	8.47	276	--	1,540	--	6,490	7.4
5	Gravel Pit drain.	At mouth, $3\frac{1}{2}$ miles east of East Grand Plains.	1.23	294	--	210	1,530	2,660	7.8
5	Pecos River .	Below Bottomless Lakes, $4\frac{1}{2}$ miles east of East Grand Plains.	53.5	218	1,880	1,780	--	7,860	7.2
5	Oasis-Miller drain.	At mouth, $4\frac{1}{2}$ miles east of East Grand Plains.	.25	257	--	350	--	4,400	7.6
5	Nine Mile draw.	At mouth, 3 miles north of Dexter.	.95	247	--	665	1,990	4,340	7.4
5	Pecos River .	At Dexter Bridge, $2\frac{1}{4}$ miles northeast of Dexter.	60.3	224	2,160	1,680	--	7,650	7.3
5	Berry ditch..	At mouth, 3 miles east of Dexter.	2.06	187	--	470	--	4,490	7.1
5	Dexter-Greenfield drain, "A" line.	At mouth, 4 miles southeast of Dexter.	.05	315	--	1,210	--	6,420	7.6
5	Dexter-Greenfield drain, "E" line.	....do.....	.49	255	--	680	2,450	5,270	7.7
5	Pecos River .	$\frac{1}{2}$ mile above mouth of Rio Felix and $2\frac{1}{2}$ miles north of Hagerman.	70.2	222	1,850	1,560	--	7,350	7.2
4	Rio Felix....	At gaging station near Hagerman (regular gage).	.21	236	--	1,240	--	6,000	7.4
4	....do.....	$\frac{1}{2}$ mile above mouth and 2 miles north of Hagerman.	.39	255	1,970	1,400	--	6,790	7.5
4	Pecos River..	At gaging station near Lake Arthur (regular gage).	71.7	193	--	2,090	--	8,960	7.4
4	Walnut.....	At road crossing, $\frac{1}{2}$ mile south of Lake Arthur.	.20	188	--	115	--	3,420	7.4
4	Lake Arthur drainage district, "B" line.	At mouth, $3\frac{1}{2}$ miles southeast of Lake Arthur.	.10	281	--	1,160	--	9,920	7.5

RIO GRANDE BASIN--Continued

PECOS RIVER SEEPAGE INVESTIGATION--Continued

Chemical analyses, in parts per million, of Pecos River and tributaries, New Mexico, water year 1955-56--Continued

Date	Stream or diversion	Location	Dis-charge (cfs)	Bicar-bonate (HCO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Hardness as CaCO ₃ , calcium, magne-sium	Specific conductance (micro-mhos at 25°C)	pH
Jan. 4, 1956	Lawrence Ranch drain.	At mouth, 6 $\frac{1}{2}$ miles southeast of Lake Arthur.	0.07	190	--	1,970	--	12,600	8.2
4	Cottonwood Creek.	At gaging station near Lake Arthur (regular gage).	2.29	279	2,080	225	--	3,950	7.3
4	Artesia sewage line.	At mouth, 2 $\frac{1}{2}$ miles east of Artesia.	.30	426	--	375	--	3,690	7.1
4	Pecos River.	At gaging station near Artesia.	87.5	190	--	2,020	--	8,840	7.4
4	Roswell drainage district, "V" line, at mouth.	NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 5, T. 11 S., R. 25 E.	--	274	4,720	3,420	--	12,300	7.0
5	Pecos River.	Above mouth of Rio Hondo, NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 11 S., R. 25 E.	--	181	1,380	2,260	--	9,380	7.7
Feb. 26	Pecos River.	At regular station near Acme.	11.6	--	--	1,510	--	7,590	--
26	Bitter Creek (and Roswell sewage)	near mouth, 6 $\frac{1}{2}$ miles east of Roswell.	8.48	--	--	2,170	--	9,100	--
26	Pecos River	At mouth of Rio Hondo, 7 miles east of Roswell.	28.9	178	2,020	2,290	--	9,620	7.7
26	Hagerman, inc. well.	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 35, T. 10 S., R. 24 E. (empties into Rio Hondo above Hagerman Canal), 3 miles east of Roswell.	5.86	--	--	2,670	--	9,340	--
26	Hagerman, inc. well.	.....do.....	7.30	--	--	2,250	--	8,140	--
26	Hagerman Canal.	At head, 5 miles east of Roswell (diverts from Rio Hondo).	33.8	--	--	1,720	--	7,140	--
26	South Spring Creek.	At entrance to Hagerman Canal, SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 11 S., R. 25 E., 2 $\frac{1}{2}$ miles northeast of East Grand Plains.	6.31	--	--	580	--	3,870	--
26	Pamona drain	At entrance to Hagerman Canal, NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 22, T. 11 S., R. 25 E., 2 $\frac{1}{2}$ miles east of East Grand Plains.	3.45	--	--	108	--	2,900	--
26	Rio Hondo.	At mouth, 7 miles east of Roswell.	10.4	--	--	1,530	--	6,510	--
26	East Grand Plains drain district, "B" line.	At mouth, 3.1 miles northeast of East Grand Plains.	.97	--	--	240	--	2,460	--
26	East Grand Plains drainage district, "A-B-C" lines.	At mouth, 3.4 miles northeast of East Grand Plains.	1.80	--	--	395	--	3,860	--
26	Gravel Pit drain.	At mouth, 3 $\frac{3}{4}$ miles east of East Grand Plains.	1.07	--	--	204	--	2,500	--
26	Pecos River.	Below Bottomless Lakes, 4 $\frac{1}{4}$ miles east of East Grand Plains.	49.2	199	1,740	1,780	--	7,930	8.2
26	Oasis-Miller drain.	At mouth, 4 $\frac{1}{4}$ miles east of East Grand Plains.	.26	--	--	390	--	4,500	--
26	Nine Mile draw.	At mouth, 3 miles north of Dexter.	.88	--	--	590	--	4,230	--
26	Zuber Hol-low waste-way.	At mouth, 2 miles northeast of Dexter.	1.66	--	--	565	--	4,700	--
26	Pecos River.	At Dexter Bridge, 2 $\frac{1}{4}$ miles northeast of Dexter.	55.3	201	1,880	1,630	--	7,670	7.6
26	Berry ditch.	At mouth, 3 miles east of Dexter.	.77	--	--	215	--	4,140	--
26	Dexter-Greenfield drain, "A" line.	At mouth, 4 miles southeast of Dexter.	.63	--	--	1,790	--	8,910	--
26	Dexter-Greenfield drain, "E" line.	.....do.....	.61	230	2,410	815	--	5,930	8.2
27	Pecos River.	$\frac{1}{2}$ mile above mouth of Rio Felix and 2 $\frac{1}{2}$ miles north of Hagerman.	66.4	--	--	1,570	--	7,590	--

RIO GRANDE BASIN--Continued

PECOS RIVER SEEPAGE INVESTIGATION--Continued

Chemical analyses, in parts per million, of Pecos River and tributaries, New Mexico, water year 1955-56--Continued

Date	Stream or diversion	Location	Dis-charge (cfs)	Bicar-bonate (HCO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Hardness as CaCO ₃ calcium, magne-sium	Specific conductance (micro-mhos at 25° C)	pH
Feb. 27, 1956	Rio Felix . . .	At gaging station near Hagerman (regular gage).	0.40	--	--	1,360	--	6,350	--
27	....do.....	$\frac{1}{2}$ mile above mouth and 2 miles north of Hagerman.	3.64	--	--	1,320	--	6,610	--
27	Hagerman drainage district, "D" line.	At mouth, $\frac{1}{2}$ miles northeast of	.12	--	--	100	--	2,090	--
27	Buffalo Valley Farm diversion.	Pump diversion, 6.3 miles northeast of Lake Arthur.	10.6	--	--	1,680	--	7,850	--
27	Pecos River .	At gaging station near Lake Arthur (regular gage).	77.0	--	--	1,980	--	8,780	--
27	Walnut Creek	At road crossing, $\frac{1}{2}$ mile south of Lake Arthur.	.46	--	--	115	--	3,540	--
27	Lake Arthur drainage district, "B" line.	At mouth, $\frac{3}{4}$ miles southeast of Lake Arthur.	.12	--	--	840	--	8,000	--
27	Lawrence Ranch drain	At mouth, $\frac{6}{7}$ miles southeast of Lake Arthur.	.14	136	3,450	1,030	--	7,800	8.1
27	Cottonwood Creek.	At gaging station near Lake Arthur (regular gage).	2.69	--	--	230	--	4,080	--
27	Artesia sewage line.	At mouth, $2\frac{1}{2}$ miles east of Artesia.	.61	--	--	355	--	4,450	--
27	Pecos River .	At gaging station near Artesia (regular gage).	92.2	--	--	1,900	--	8,580	--
27	....do.....	At gaging station near Acme (regular gage).	8.75	--	--	1,410	--	7,390	--
27	Bitter Creek (and Roswell sewage).	Near mouth, $6\frac{1}{2}$ miles east of Roswell.	9.80	142	1,930	2,220	--	9,340	8.2
27	Pecos River.	Above mouth of Rio Hondo, 7 miles east of Roswell.	28.9	186	2,070	2,410	--	10,000	7.6
27	Hagerman inc. well .	NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 35, T. 10 S., R. 24 E. (empties into Rio Hondo above Hagerman Canal), 3 miles east of Roswell.	5.86	--	--	2,680	--	9,390	--
27	....do.....	....do.....	7.33	--	--	2,250	--	8,120	--
27	Hagerman Canal.	At head, 5 miles east of Roswell (diverts from Rio Hondo).	32.1	238	1,120	1,770	--	7,240	7.8
27	South Spring Creek.	At entrance to Hagerman Canal, SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 11 S., R. 25 E., $2\frac{1}{2}$ miles northeast of East Grand Plains.	5.75	197	1,300	575	--	3,960	7.9
27	Pamona drain.	At entrance to Hagerman Canal, NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 22, T. 11 S., R. 25 E., $2\frac{1}{2}$ miles east of East Grand Plains.	3.58	--	--	104	--	2,870	--
27	Rio Hondo .	At mouth, 7 miles east of Roswell.	9.75	--	--	1,530	--	6,510	--
27	East Grand Plains drainage district, "D" line.	At mouth, 3.1 miles northeast of East Grand Plains.	.94	--	--	234	--	2,440	--
27	East Grand Plains drainage district, "A-B-C" lines.	At mouth, 3.4 miles northeast of East Grand Plains.	1.68	--	--	375	--	3,750	--
27	Gravel Pit drain.	At mouth, $3\frac{1}{2}$ miles east of East Grand Plains.	1.07	--	--	202	--	2,570	--
26	Pecos River.	Below Bottomless Lake, $4\frac{1}{2}$ miles east of East Grand Plains.	47.8	206	1,780	1,790	--	8,030	7.5
27	Oasis-Miller drain.	At mouth, $4\frac{1}{2}$ miles east of East Grand Plains.	.26	--	--	390	--	4,500	--
27	Nine Mile draw.	At mouth, 3 miles north of Dexter.	.64	--	--	605	--	4,250	--

RIO GRANDE BASIN--Continued

PECOS RIVER SEEPAGE INVESTIGATION--Continued

Chemical analyses, in parts per million, of Pecos River and tributaries, New Mexico, water year 1955-56--Continued

Date	Stream or diversion	Location	Dis-charge (cfs)	Bicar-bonate (HCO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Hardness as CaCO ₃ , calcium, magnesium	Specific conductance (micro-mhos at 25°C)	pH
Feb. 27, 1956	Zuber Hollow wasteway.	At mouth, 2 miles northeast of Dexter.	1.66	--	--	550	--	4,680	--
26	Pecos River.	At Dexter Bridge, 2 1/4 miles northeast of Dexter.	54.3	205	1,870	1,550	--	7,680	7.6
27	Berry ditch.	At mouth, 3 miles east of Dexter.	.69	225	2,390	220	--	4,150	8.1
27	Dexter-Greenfield drain, "A" line.	At mouth, 4 miles southeast of Dexter.	.72	221	2,990	1,870	--	9,170	8.0
27	Dexter-Greenfield drain, "E" line.	....do.....	.62	--	--	800	--	5,880	--
26	Pecos River.	1/2 mile above mouth of Rio Felix and 2 1/2 miles north of Hagerman.	66.5	--	--	1,520	--	7,380	--
26	Rio Felix ...	At gaging station near Hagerman (regular gage).	.46	--	--	1,340	--	6,310	--
26	....do.....	1/2 mile above mouth and 2 miles north of Hagerman.	3.57	--	--	1,320	--	6,580	--
26	Hagerman drainage district, "D" line.	At mouth, 1 1/2 miles northeast of Hagerman.	.17	--	--	130	--	1,920	--
26	Pecos River.	At gaging station near Lake Arthur (regular gage).	81.2	--	--	1,900	--	8,590	--
26	Walnut Creek	At road crossing, 1/2 mile south of Lake Arthur.	.55	--	--	120	--	3,520	--
26	Lake Arthur drainage district, "B" line.	At mouth, 3 1/2 miles southeast of Lake Arthur.	.14	--	--	920	--	8,390	--
26	Lawrence Ranch drain.	At mouth, 6 1/2 miles southeast of Lake Arthur.	.18	162	2,220	525	--	4,590	8.1
26	Cottonwood Creek.	At gaging station near Lake Arthur (regular gage).	2.37	--	--	260	--	4,170	--
26	Artesia sewage line.	At mouth, 2 1/2 miles east of Artesia.	.69	--	--	345	--	4,270	--
26	Pecos River.	At gaging station near Artesia.	88.6	--	--	1,870	--	8,460	--
26	Roswell drainage district, "Y" line, at mouth.	NW 1/4 SW 1/4 SE 1/4 sec. 5, T. 11 S., R. 25 E.	--	--	--	2,690	--	11,000	--
27	....do.....	....do.....	--	--	--	3,090	--	10,900	--
June 3	Pecos River.	At gaging station near Acme (regular gage).	.30	75	--	1,240	--	6,530	7.0
3	Bitter Creek (and Roswell sewage).	Near mouth, 6 1/2 miles east of Roswell.	1.33	92	3,130	3,900	3,210	14,800	6.9
3	Hagerman inc. well.	NE 1/4 NE 1/4 NE 1/4 sec. 35, T. 10 S., R. 24 E. (empties into Rio Hondo above Hagerman Canal), 3 miles east of Roswell.	5.44	207	--	3,250	--	11,000	7.2
3	....do.....	....do.....	6.35	203	--	2,870	--	9,830	7.3
3	Hagerman Canal.	At head, 5 miles east of Roswell (diverts from Rio Hondo).	30.4	231	--	2,130	--	8,110	7.0
3	South Spring Creek.	At entrance to Hagerman Canal, SE 1/4 SE 1/4 SE 1/4 sec. 8, T. 11 S., R. 25 E., 2 1/2 miles northeast of East Grand Plains.	4.50	256	1,390	830	1,880	4,740	7.3
3	Pamona drain.	At entrance to Hagerman Canal, NW 1/4 NW 1/4 SE 1/4 sec. 22, T. 11 S., R. 25 E., 2 1/2 miles east of East Grand Plains.	5.27	266	--	102	--	2,960	7.5
3	Rio Hondo ..	At mouth, 7 miles east of Roswell.	6.07	206	1,070	1,380	1,740	5,820	8.0

RIO GRANDE BASIN--Continued

PECOS RIVER SEEPAGE INVESTIGATION--Continued

Chemical analyses, in parts per million, of Pecos River and tributaries, New Mexico, water year 1955-56--Continued

Date	Stream or diversion	Location	Dis-charge (cfs)	Bicar-bonate (HCO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Hardness as CaCO ₃ , calcium, magne-sium	Specific conduct-ance (micro-mhos at 25°C)	pH
June 3, 1956	East Grand Plains drainage district, "D" line.	At mouth, 3.1 miles northeast of East Grand Plains.	0.54	253	--	198	--	2,210	7.3
3	East Grand Plains drainage district, "A-B-C" lines.	At mouth, 3.4 miles northeast of East Grand Plains.	.51	277	--	280	--	2,850	7.5
3	Gravel Pit drain.	At mouth, 3 $\frac{3}{4}$ miles east of East Grand Plains.	.77	256	--	198	--	2,380	7.5
3	Pecos River.	Below Bottomless Lake, 4 $\frac{1}{4}$ miles east of East Grand Plains.	19.3	207	1,520	1,300	1,890	6,250	7.2
3	Oasis-Miller drain.	At mouth, 4 $\frac{1}{4}$ miles east of East Grand Plains.	.35	287	2,100	210	2,300	3,850	7.6
3	Nine Mile draw.	At mouth, 3 miles north of Dexter.	.21	208	--	540	--	3,980	--
3	Pecos River.	At Dexter Bridge, 2 $\frac{1}{4}$ miles northeast of Dexter.	23.0	182	--	1,260	--	6,390	6.9
3	Berry ditch.	At mouth, 3 miles east of Dexter.	.62	277	--	185	--	4,100	7.3
3	Zuber Hollow ditch.	1 mile above mouth and 3 miles east of Dexter.	.89	200	2,760	575	2,990	5,250	7.1
3	Dexter-Greenfield drain, "A" line.	At mouth, 4 miles southeast of Dexter.	.05	258	2,540	1,570	3,450	7,940	7.7
3	Dexter-Greenfield drain, "E" line.	At mouth, 4 miles northeast of Dexter.	.23	263	2,940	1,160	3,380	7,420	7.8
3	Dexter-Greenfield drain, "D" line.	At mouth, 4 miles southeast of Dexter.	.45	259	--	1,810	--	8,920	7.5
3	Pecos River.	$\frac{1}{2}$ mile above mouth of Rio Felix and 2 $\frac{1}{2}$ miles north of Hagerman.	27.2	169	--	1,320	--	6,740	8.2
3	Rio Felix ...	At gaging station near Hagerman (regular gage).	.005	175	--	1,890	--	8,000	6.9
3	....do.....	$\frac{1}{2}$ mile above mouth and 2 miles north of Hagerman.	.06	268	2,120	1,730	2,930	8,010	7.4
3	Hagerman drainage district, "D" line.	At mouth, 1 $\frac{1}{2}$ miles northeast of Hagerman.	.1	259	695	222	1,010	2,210	6.8
3	Pecos River.	At gaging station near Lake Arthur (regular gage).	19.6	171	--	2,520	--	10,400	7.1
3	Walnut Creek	At road crossing, $\frac{1}{2}$ mile south of Lake Arthur.	.04	199	--	152	--	3,270	7.1
3	Lake Arthur drainage district, "B" line.	At mouth, 3 $\frac{1}{2}$ miles southeast of Lake Arthur.	.20	245	2,440	240	2,480	4,350	7.4
3	Lawrence Ranch drain.	At mouth, 6 $\frac{1}{4}$ miles southeast of Lake Arthur.	.29	156	--	1,140	--	7,920	7.1
3	Cottonwood Creek.	At gaging station near Lake Arthur (regular gage).	.90	236	--	260	--	4,380	7.4
3	Pecos River.	At gaging station near Artesia (regular gage).	24.2	166	--	2,490	--	10,300	7.0
3	....do.....	Above mouth of Rio Hondo, NE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 11 S., R. 25 E.	--	183	--	2,570	--	10,500	7.1

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

RIO PENASCO AT DAYTON, N. MEX.

LOCATION.--At gaging station 3 feet upstream from crest of abandoned diversion dam, 1 mile northeast of old Dayton railway station, 3½ miles upstream from mouth, and 7 miles south-east of Artesia, Eddy County.

DRAINAGE AREA.--1,070 square miles, approximately.

RECORDS AVAILABLE.--Sediment records: September 1951 to September 1956.

EXTREMES, 1955-56.--Sediment concentrations: Maximum daily, 10,100 ppm Oct. 2; minimum daily, no flow on many days.

Sediment loads: Maximum daily, 20,300 tons Oct. 2; minimum daily, 0 tons on many days.

EXTREMES, 1951-56.--Sediment concentrations: Maximum, daily, 30,000 ppm (estimated)

Oct. 7, 1954; minimum daily, no flow on many days each year.

Sediment loads: Maximum daily, 600,000 tons Oct. 7, 1954; minimum daily, 0 tons on many days each year.

REMARKS.--Records of discharge for water year October 1955 to September 1956 given in WSP 1442 (May 1 revised in WSP 1512).

Suspended sediment, water year October 1955 to September 1956

/Flow occurred only on days indicated/

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Oct. 1, 1955	32	620	sa 1,280
Oct. 2	626	10,100	sb 20,300
Oct. 3	38	2,200	226
Oct. 4	1	300	1
October Total	697	--	21,807
May 1	c 185	5,640	s 6,240
May 24	18	--	d 150
May Total	201	--	6,390
Aug. 1	20	--	d 250
Aug. 21	4	--	d 30
August Total	24	--	280
Total discharge for year (cfs-days)			c 922
Total load for year (tons)			28,477

s Computed by subdividing day.

a Computed from estimated concentration graph.

b Computed from partly estimated concentration graph.

c Revised.

d Computed from water-sediment discharge relation

RIO GRANDE BASIN--Continued

RIO PENASCO AT DAYTON, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipet; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of Collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment												Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500		1.000
May 1, 1956 ...	5:00 a.m.	399	50	3,140	3,800	67	85	93	98	98	100					PWCM
May 1, 1956 ...	5:00 a.m.	399	50	3,140	4,240	16	49	83	95	98	100					PN
May 1, 1956 ...	9:00 a.m.	104	54	1,430	4,350	--	97	--	99	--	99	100				SPWCM
May 1, 1956 ...	8:00 p.m.	.5	65	2,850	3,620	--	90	--	99	--	100					PWCM

PECOS RIVER (KAISER CHANNEL) NEAR LAKEWOOD, N. MEX.

LOCATION.--At gaging station, 6 miles northeast of Lakewood, Eddy County, 7 1/2 miles northeast of gates in McMillan Dam, and 12 miles southeast of Artesia.
RECORDS AVAILABLE.--Chemical analyses: September to November 1955 (discontinued).
Sediment records: September to November 1955 (discontinued).

REMARKS.--This station was operated for the purpose of determining the difference in suspended load between this station and the Pecos River near Artesia, N. Mex. Chemical analyses for August to September 1955 published under miscellaneous analyses of streams in the Rio Grande basin in New Mexico in WSP 1402. Records of discharge for water years 1954-55 and 1955-56 given in WSP 1392 and 1442 respectively.

Chemical analyses, in parts per million, October to November 1955

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (microhmhos at 25°C)	pH		
														Parts per million	Tons per acre-foot	Tons per day	Calcium				Non-carbonate	
Oct. 5, 1955	1,850	22	121	200	37	143	143	121	601	202		3.8		1,290	1.75	6,440	701	602	31	2.4	1,810	7.9
Oct. 6	978	11	111	233	69	273	273	172	922	430		1.2		2,120	2.88	5,600	1,110	974	35	2.6	3,000	7.8
Oct. 8-11	369	21	140	205	97	402	402	145	1,210	640		4.6		2,850	3.88	2,830	1,410	1,290	38	4.7	3,930	8.2
Oct. 12-20	213	20	124	461	124	586	155	155	1,500	885		2.7		3,650	4.96	2,100	1,660	1,540	43	6.3	4,960	7.9
Oct. 21-31	136	17	171	510	160	762	131	131	1,710	1,200		1.1		4,430	6.02	1,630	1,930	1,820	46	7.5	6,100	8.0
Nov. 1-30	101	15	156	556	207	988	139	139	1,950	1,590		.7		5,370	7.30	1,460	2,240	2,120	49	9.1	7,460	8.0

RIO GRANDE BASIN--Continued

PECOS RIVER (KAISER CHANNEL) NEAR LAKEWOOD, N. MEX.--Continued

Suspended sediment, September to November 1955

Day	September			October			November		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1.....	--	--	--	1,590	1,540	8,610	111	40	a12
2.....	--	--	--	1,420	1,900	a7,300	109	36	11
3.....	--	--	--	1,480	1,600	a8,300	116	--	
4.....	--	--	--	2,040	680	3,640	121	--	
5.....	--	--	--	1,850	850	4,250	112	--	
6.....	--	--	--	978	2,250	5,940	108	--	b8
7.....	--	--	--	587	1,480	2,310	111	--	
8.....	--	--	--	463	900	1,130	116	--	
9.....	--	--	--	382	650	670	114	18	6
10.....	--	--	--	332	500	448	111	--	
11.....	330	990	s970	296	380	304	104	--	
12.....	430	2,070	2,400	269	300	218	103	--	
13.....	463	2,050	2,580	251	230	156	100	--	
14.....	479	2,280	2,950	234	185	117	98	--	
15.....	507	2,190	3,000	220	190	113	96	--	
16.....	539	2,140	3,110	207	195	109	94	--	
17.....	563	2,140	3,250	194	160	84	94	--	
18.....	669	2,450	4,430	196	130	89	92	--	
19.....	664	2,400	a4,300	179	90	43	94	--	
20.....	669	2,100	3,790	164	60	27	95	--	b3
21.....	660	1,870	3,330	160	30	13	95	--	
22.....	664	1,780	3,180	156	35	a15	95	--	
23.....	678	1,680	3,440	150	41	17	92	--	
24.....	954	3,100	7,980	144	27	10	94	--	
25.....	1,060	2,300	6,580	140	44	17	94	--	
26.....	1,280	1,600	a5,500	128	51	16	95	--	
27.....	1,410	1,100	a4,200	127	--	--	94	--	
28.....	2,100	750	4,250	130	--	--	94	--	
29.....	2,140	1,000	5,780	125	--	e17	94	--	
30.....	1,670	1,060	5,350	119	--	--	92	7	2
31.....	--	--	--	116	--	--	--	--	--
Total	18,129	--	80,330	14,807	--	40,013	3,038	--	139

Total discharge for Sept. 11 to Nov. 30 (cfs-days)..... 35,974
 Total load for Sept. 11 to Nov. 30 (tons)..... 120,482

e Estimated.

s Computed by subdividing day.

a Computed from estimated concentration graph.

b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued
 PECOS RIVER (KAISER CHANNEL) NEAR LAKEWOOD, N. MEX.--Continued

Particle-size analyses of suspended sediment, September to November 1955
 (Methods of analysis: B, bottom withdrawal tube; D, decantation; F, pipet; S, sieve; N, in native water;
 W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of Collection	Time	Discharge (cfs)	Water temperature (° F)	Suspended sediment										Methods of analysis	
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters									
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250		0.350	0.500	1.000
Sept. 13, 1955 . . .	11:20 a. m.	460	76	1,980	4,060		47		61		79	99	100		VPWCM
Oct. 6	3:40 p. m.	830	70	2,600	3,060		68		92		97	100			SPWCM

RIO GRANDE BASIN--Continued

PECOS RIVER AT DAM SITE 3, NEAR CARLSBAD, N. MEX.

LOCATION.--At gaging station at dam site 3 of Carlsbad project of Bureau of Reclamation, about 1 mile upstream from flow line of Lake Avalon, 1.3 miles downstream from Rocky Arroyo, and 8 miles northwest of Carlsbad, Eddy County.

DRAINAGE AREA.--17,620 square miles, approximately (contributing area).

RECORDS AVAILABLE.--Chemical analyses: July 1951 to September 1956.

REMARKS.--Samples collected at approximately weekly intervals. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Bicarbonate (HCO ₃)	Chloride (Cl)	Specific conductance (micromhos at 25°C)	pH
Oct. 2, 1955.....	5,560	145	108	1,530	7.4
Oct. 13.....	168	167	890	5,330	7.4
Oct. 21.....	126	137	910	5,440	7.9
Nov. 1.....	119	120	935	5,480	7.7
Nov. 9.....	106	159	815	5,060	7.6
Nov. 16.....	96	164	925	5,510	7.8
Nov. 22.....	92	164	920	5,490	7.4
Dec. 1.....	88	166	920	5,500	7.1
Dec. 9.....	83	164	895	5,460	6.8
Dec. 19.....	79	96	895	5,380	7.7
Dec. 27.....	79	157	900	5,410	7.1
Jan. 4, 1956.....	76	159	880	5,380	7.0
Jan. 5.....	76	111	885	5,330	7.7
Jan. 24.....	81	130	860	5,240	7.7
Feb. 7.....	76	159	835	5,230	7.4
Feb. 9.....	79	113	835	5,180	7.7
Feb. 15.....	81	144	870	5,230	7.8
Feb. 21.....	91	157	860	5,240	7.9
Mar. 1.....	79	110	830	5,130	7.8
Mar. 8.....	83	88	830	5,100	7.8
Mar. 16.....	81	156	830	5,140	7.6
Mar. 24.....	78	156	810	5,130	7.6
Apr. 2.....	394	163	1,210	6,190	7.4
Apr. 9.....	214	158	1,180	6,180	7.3
Apr. 14.....	240	160	1,250	6,360	7.1
Apr. 22.....	103	158	1,080	5,910	6.9
May 1.....	141	157	1,270	6,540	7.4
May 7.....	105	152	1,170	6,200	7.2
May 24.....	148	146	1,320	6,750	7.2
June 1.....	55	146	1,260	6,600	7.0
June 15.....	151	127	1,610	7,800	7.1
June 20.....	310	121	1,930	9,000	7.0
July 2.....	302	96	435	3,800	7.6
July 8.....	254	97	320	3,250	6.2
July 16.....	83	118	400	3,620	7.1
July 26.....	310	96	295	3,190	--
Aug. 1.....	211	106	340	3,360	--
Aug. 17.....	370	89	350	3,440	--
Sept. 4.....	378	92	245	2,840	7.2
Sept. 12.....	178	108	345	3,270	7.3
Sept. 18.....	151	116	395	3,530	7.1
Sept. 24.....	129	104	405	3,580	7.4

RIO GRANDE BASIN--Continued
CARLSBAD MAIN CANAL AT HEAD, NEAR CARLSBAD, N. MEX.

LOCATION --At gaging station 220 feet downstream from headgates in Avalon Dam and 5.0 miles north of Carlsbad, Eddy County.

RECORDS AVAILABLE --Chemical analyses: February 1959 to September 1956.

EXTREMES 1955-56 --Dissolved solids: Maximum, 6,900 ppm June 19-27; minimum, 1,560 ppm Oct. 2-3, 7-10.

Hardness: Maximum, 2,980 ppm June 19-27; minimum, 934 ppm Oct. 2-3, 7-10.

SPECIFIC CONDUCTANCE: Maximum daily, 10,100 microhos June 27; minimum daily, 1,800 microhos Oct. 3.

EXTREMES 1939-56 --Dissolved solids: Maximum, 7,430 ppm June 21-28, 1955; minimum, 552 ppm Aug. 24-31, 1954.

Hardness: Maximum, 3,100 ppm June 11-20, 1955; minimum, 338 ppm Aug. 24-31, 1954.

SPECIFIC CONDUCTANCE: Maximum daily, 11,100 microhos June 24, 1955; minimum daily, 401 microhos June 3, 1948.

REMARKS --Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Monthly diversions to canal below Lake Avalon for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent sodium adsorp- tion ratio	So- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25° C)	pH
														Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, mag- nesium	Non-carbon- ate				
Oct. 1, 11-20, 1955	84.6	18	425	102	295	126	1,280	485	1.0	2,670	3.63	610	1,480	1,380	30	3.3	3,520	7.4				
Oct. 2-3, 7-10, 1955	a 62.7	13	292	50	131	109	829	188	1.5	1,560	2.12	264	1,560	1,844	23	1.9	2,080	7.3				
Oct. 21-31, 1955	98.6	18	516	128	402	144	1,540	685	1.5	3,360	4.57	894	1,810	1,700	33	4.1	4,390	7.5				
Nov. 1-7, 1955	a 113	18	514	134	401	140	1,560	685	1.9	3,380	4.60	1,030	1,830	1,720	32	4.1	4,410	7.6				
Jan. 4-10, 1956	150	16	619	147	544	152	1,840	915	1.4	4,160	5.66	1,680	2,150	2,020	35	5.1	5,380	7.8				
Jan. 11-22, 1956	a 221	16	603	147	482	146	1,690	905	1.4	3,920	5.63	2,340	2,110	1,990	33	4.6	5,330	7.9				
Mar. 5-10, 18-31	a 233	16	611	147	582	148	1,870	940	1.3	4,240	5.77	2,670	2,130	2,010	37	5.5	5,540	7.9				
Apr. 1-15, 1956	258	14	556	169	758	159	1,790	1,230	2.5	4,600	6.26	3,200	2,080	1,950	44	7.2	6,300	7.7				
Apr. 16-30, 1956	160	14	572	181	778	156	1,880	1,260	2.4	4,760	6.47	2,060	2,170	2,040	44	7.3	6,460	7.7				
May 1-30, 1956	a 131	15	607	186	824	145	2,000	1,330	2.9	5,040	6.85	1,780	2,290	2,170	44	7.5	6,760	7.5				
June 3-5, 1956	173	15	659	200	828	130	2,140	1,370	1.7	5,280	7.18	2,470	2,470	2,360	42	7.3	7,070	7.6				
June 6, 1956	234	17	590	162	945	148	1,780	860	1.6	3,970	5.40	2,510	2,610	1,990	34	4.7	5,250	7.3				
June 7-18, 1956	194	14	659	233	956	131	2,210	1,610	1.7	5,750	7.82	3,010	2,600	2,490	44	8.1	7,830	7.7				
June 19-27, 1956	306	14	754	266	1,116	116	2,570	2,020	1.7	6,900	9.38	5,700	2,980	2,880	47	9.7	9,290	7.4				
June 28-29, 1956	322	14	651	123	1,000	95	2,230	1,350	1.9	5,420	7.37	4,710	2,130	2,050	51	9.4	7,150	7.3				
June 30-July 2, 1956	250	14	584	164	475	88	1,940	760	1.7	3,980	5.41	2,690	2,130	2,060	33	4.5	5,120	7.3				
July 3-10, 1956	228	14	594	109	287	99	1,990	425	1.6	2,980	4.05	1,830	1,760	1,670	25	2.8	3,760	7.3				
July 11-17, 1956	152	15	512	97	212	99	1,520	335	1.4	2,740	3.73	1,120	1,680	1,600	22	2.3	3,390	7.4				
July 18-20, 1956	366	16	500	112	181	105	1,480	335	1.7	2,680	3.64	2,650	1,710	1,620	19	1.9	3,350	7.4				
July 21-31, 1956	258	14	488	102	193	88	1,500	300	1.3	2,640	3.59	1,840	1,640	1,560	20	2.1	3,260	7.4				
Aug. 1-31, 1956	244	16	492	100	220	92	1,480	354	1.8	2,710	3.69	1,790	1,640	1,560	23	2.4	3,360	7.2				
Sept. 1-30, 1956	175	17	488	95	228	108	1,450	355	2.0	2,690	3.66	1,270	1,610	1,520	23	2.5	3,340	7.6				
Weighted average	b 191	15	558	144	517	123	1,740	846	1.8	3,880	5.28	2,000	1,880	1,880	36	5.0	5,100	--				

a No flow Oct. 4-6, Nov. 8 to Jan. 3, Jan. 23 to Mar. 4, Mar. 11-17, May 31 to June 2.

b Average for 264 days of flow.

RIO GRANDE BASIN--Continued
PECOS RIVER AT CARLSBAD, N. MEX.

LOCATION.--At gaging station at Greene Street Bridge in Carlsbad, Eddy County, half a mile upstream from Dark Canyon.
DRAINAGE AREA.--18,100 square miles, approximately (contributing area).
RECORDS AVAILABLE.--Chemical analyses: May 1937 to September 1956.
Water temperatures: July 1951 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 3,200 ppm Dec. 1-10; minimum, 1,730 ppm Oct. 2-10.
Hardness: Maximum, 1,690 ppm Jan. 1-10; minimum, 1,020 ppm Oct. 2-10.

Specific conductance: Maximum daily, 4,270 micromhos Dec. 25; minimum daily, 1,780 micromhos Oct. 2.
Water temperatures: Maximum, 90°F on several days during May through August; minimum, 45°F Feb. 4.

EXTREMES, 1937-46, 1951-56.--Dissolved solids: Maximum, 3,590 ppm May 1, 1941; minimum, 360 ppm May 22, 1941.
Hardness: Maximum, 1,970 ppm May 1, 1941; minimum, 290 ppm May 22, 1941.

Specific conductance: Maximum daily, 5,870 micromhos Apr. 25, 1942; minimum daily, 649 micromhos May 22, 1941.
Water temperatures: (1951-56).--Maximum, 94°F July 1, 1955; minimum, 45°F Feb. 4, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boiron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium-adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mg./nesium				Non-carbonate	
Oct. 1, 21-31, 1955	44.8	22		389	116	299		189	1,180	505		2.5		2,610	3.55	316	1,450	1,290	31	3.4	3,520	7.7
Oct. 2-10	1,939	14	324	52	149	106		925	210			1.2		1,730	2.35	9,080	1,020	936	24	2.0	2,260	7.5
Oct. 11-20	98.4	17	365	83	231	148		1,080	360	1,130		1.3		2,210	3.01	587	1,250	1,130	29	2.8	2,930	7.8
Nov. 1-10	54.1	24	389	119	352	199		1,220	560	1,460		4.1		2,770	3.77	405	1,460	1,300	34	4.0	3,710	7.8
Nov. 11-20	54.4	20	389	121	355	196		1,230	565	1,470		3.6		2,780	3.78	408	1,470	1,310	34	4.0	3,760	7.9
Nov. 21-30	75.4	19	445	121	391	162		1,370	635	1,610		3.0		3,060	4.16	623	1,610	1,480	35	4.2	4,070	7.9
Dec. 1-10	75.7	18	463	127	411	186		1,420	665	1,640		2.6		3,200	4.35	654	1,670	1,520	35	4.4	4,230	7.9
Dec. 11-20	70.5	19	459	129	409	180		1,420	665	1,640		2.6		3,190	4.34	607	1,680	1,530	35	4.3	4,230	7.8
Dec. 21-31	70.3	19	445	135	399	174		1,400	660	1,640		2.3		3,150	4.28	598	1,670	1,540	34	4.1	4,230	7.7
Jan. 1-10, 1956	62.0	20	435	146	396	182		1,400	650	1,640		3.0		3,130	4.26	524	1,690	1,540	33	4.1	4,200	8.0
Jan. 11-20	50.4	21	409	143	352	194		1,320	595	1,610		3.2		2,940	4.00	400	1,610	1,450	32	3.8	3,970	8.0
Jan. 21-31	56.7	21	409	135	360	196		1,290	605	1,580		3.4		2,920	3.97	447	1,580	1,420	33	3.9	3,930	8.0
Feb. 1-10	50.7	21	381	132	351	194		1,250	580	1,520		3.9		2,820	3.84	386	1,520	1,360	33	3.9	3,860	7.2
Feb. 11-20	52.6	20	377	135	365	209		1,260	570	1,500		3.4		2,830	3.85	402	1,500	1,320	35	4.1	3,860	7.2
Feb. 21-29	52.1	21	395	115	375	202		1,250	570	1,460		3.5		2,830	3.85	398	1,460	1,280	36	4.3	3,850	7.7
Mar. 1-10	48.7	20	399	127	350	195		1,260	570	1,460		3.1		2,860	3.85	372	1,520	1,360	33	3.9	3,850	7.7
Mar. 11-20	47.1	18	395	132	362	202		1,270	585	1,530		3.1		2,860	3.89	364	1,530	1,360	34	4.0	3,910	7.7
Mar. 21-31	46.2	17	393	124	349	196		1,250	580	1,490		2.4		2,790	3.79	348	1,490	1,360	34	3.9	3,810	7.8
Apr. 1-30	48.1	16	403	128	363	178		1,270	607	1,540		3.7		2,880	3.92	335	1,540	1,390	34	4.0	3,930	7.8
Apr. 31-30	36.2	19	381	131	351	182		1,270	587	1,540		3.1		2,870	3.90	281	1,560	1,410	33	3.8	3,910	7.9
May 1-30	35.4	19	389	138	366	187		1,230	575	1,540		3.1		2,770	3.77	265	1,540	1,380	32	3.6	3,790	7.6
June 1-30	35.4	19	389	138	366	187		1,230	575	1,540		3.1		2,770	3.77	265	1,540	1,380	32	3.6	3,790	7.6
July 1-31	32.2	19	413	147	335	185		1,260	615	1,580		2.8		2,910	3.96	263	1,640	1,480	31	3.4	4,000	7.6
Aug. 1-31	31.4	22	391	127	307	190		1,200	538	1,490		2.8		2,880	3.64	227	1,500	1,340	31	3.4	3,640	7.4
Sept. 1-30	29.0	19	389	124	317	171		1,210	545	1,480		2.6		2,690	3.66	211	1,480	1,340	32	3.6	3,660	7.9
Weighted average	93.1	17	364	89	246	144		1,090	391	1,270		2.1		2,270	3.10	573	1,270	1,160	30	3.0	3,040	--

RIO GRANDE BASIN--Continued

PECOS RIVER AT CARLSBAD, N. MEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

/Once-daily measurement, generally between 3 p. m. and 5:30 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	84	68	65	65	55	63	78	84	85	82	85	84
2	78	66	60	72	--	66	61	84	87	87	83	a 81
3	73	65	52	62	--	68	68	85	88	88	75	85
4	85	73	50	59	45	69	73	87	90	87	84	88
5	78	73	53	67	53	70	75	84	90	87	87	88
6	80	67	51	65	50	67	78	86	87	88	85	78
7	73	66	66	60	60	50	72	85	85	87	85	76
8	73	68	52	62	53	55	78	85	87	88	80	80
9	77	68	60	55	55	68	75	87	90	--	--	82
10	72	68	60	57	62	69	78	85	90	88	88	83
11	78	64	53	62	64	65	75	85	86	88	84	81
12	77	68	60	63	62	63	78	85	87	90	a 83	82
13	77	62	60	63	70	67	77	83	85	87	--	82
14	75	70	60	63	68	70	74	85	90	85	85	83
15	77	68	57	--	65	65	70	83	87	88	86	85
16	74	68	58	58	68	72	75	90	87	88	90	82
17	75	63	60	52	64	70	68	84	86	90	90	84
18	75	70	65	53	65	74	67	82	87	83	88	a 81
19	78	67	62	50	67	--	67	85	87	90	83	81
20	78	68	67	54	68	73	70	83	87	87	85	82
21	79	68	65	53	70	74	70	84	88	85	85	80
22	78	65	55	53	70	73	76	83	88	86	82	79
23	77	65	68	50	75	80	77	85	87	86	86	86
24	72	62	70	63	68	78	78	83	90	86	86	85
25	73	59	70	60	--	77	82	82	90	84	85	86
26	76	58	68	65	64	78	80	82	90	--	83	65
27	72	52	67	68	68	70	82	84	88	85	82	80
28	72	53	69	63	63	70	80	83	85	85	85	80
29	72	65	60	67	73	77	78	78	87	87	86	80
30	72	60	60	60	--	80	80	87	87	88	83	78
31	72	--	60	62	--	72	--	84	--	84	82	--
Average	76	65	61	60	63	70	75	84	88	87	85	82

a Measurement after 5:30 p. m.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

REFINERY INTAKE CANAL NEAR LOVING, N. MEX.

(Weekly samples taken from canal in sec. 13, T. 23 S., R. 28 E., representing water in Harroun Canal diverted from Pecos River at dam in sec. 11, T. 23 S., R. 28 E.)

Date of collection	Chloride (Cl)	Specific conductance (micromhos at 25°C)
Oct. 6, 1955.....	210	2,320
Oct. 12.....	455	3,430
Oct. 20.....	570	3,960
Nov. 3.....	690	4,340
Nov. 10.....	750	4,630
Nov. 17.....	770	4,680
Dec. 1.....	710	4,460
Dec. 8.....	790	4,770
Dec. 15.....	790	4,750
Jan. 1, 1956.....	780	4,810
Jan. 12.....	790	4,810
Jan. 19.....	820	4,890
Feb. 2.....	770	4,710
Feb. 9.....	790	4,750
Feb. 16.....	770	4,710
Mar. 1.....	770	4,630
Mar. 8.....	770	4,680
Mar. 15.....	770	4,860
Apr. 5.....	800	4,750
Apr. 12.....	840	4,910
Apr. 19.....	830	4,940
May 3.....	820	4,890
May 10.....	860	5,060
May 17.....	910	5,290
May 24.....	975	5,540
May 31.....	850	5,080
June 7.....	845	5,030
June 14.....	835	4,960
June 21.....	835	4,960
June 28.....	875	5,070
July 5.....	855	5,060
July 12.....	830	4,890
July 19.....	895	5,140
July 26.....	1,020	5,780
Aug. 2.....	885	5,180
Aug. 9.....	880	5,120
Aug. 16.....	935	5,330
Aug. 23.....	980	5,580
Aug. 30.....	845	5,000
Sept. 6.....	855	5,090
Sept. 13.....	1,030	5,810
Sept. 20.....	865	5,060
Sept. 27.....	845	5,010

RIO GRANDE BASIN--Continued
PECOS RIVER EAST OF MALAGA, N. MEX.

LOCATION --One and one-half miles upstream from gaging station near Malaga, which is 3 miles southeast of Malaga, Eddy County, and 3 miles downstream from Black River, 190 square miles, approximately, above gaging station (contributing area).

RAINFALL AVAILABLE --Chemical analyses: May 1937, September 1956.

EXTREMES 1955-56 --Dissolved solids: Maximum daily, 1,770 ppm Oct. 2-6, 8.

Hardness: Maximum 2,740 ppm Sept. 1-30; minimum, 1,080 ppm Oct. 2-6, 8.

Specific conductance: Maximum daily, 12,900 microhos Sept. 26; minimum daily, 1,660 microhos Oct. 3.

EXTREMES 1937-56 --Dissolved solids: Maximum 8,320 ppm Sept. 1-30, 1956; minimum, 384 ppm Sept. 21-22, 1941.

Hardness: Maximum, 2,750 ppm June 1-10, 1955; minimum, 254 ppm Sept. 21-22, 1941.

Specific conductance: Maximum daily, 12,900 microhos Sept. 26, 1956; minimum daily, 450 microhos Sept. 21, 1941.

REMARKS --Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for gaging station near Malaga for water year October 1955 to September 1956 given in WSP 1442. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boiron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium				Non-carbonate
Oct. 1, 7, 9-10, 1955	465	19	381	93	479	139	1,140	760	2.8	2,940	4.00	3,690	1,330	1,220	44	5.7	4,220	7.3		
Oct. 2-6, 8	3,146	18	339	56	141	120	942	214	1.6	1,770	2.41	15,030	1,080	978	22	1.9	2,290	7.5		
Oct. 11-20	211	16	431	122	471	130	1,310	814	2.4	3,220	4.38	1,830	1,580	1,470	39	5.2	4,550	7.5		
Oct. 21-31	102	21	484	166	685	146	1,570	1,150	3.7	4,150	5.64	1,140	1,890	1,770	44	6.8	5,830	7.7		
Nov. 1-10	97.3	21	504	164	735	165	1,630	1,200	7.0	4,340	5.90	1,140	1,830	1,800	45	7.1	5,980	7.7		
Nov. 11-20	71.3	24	512	173	809	183	1,660	1,320	9.8	4,600	6.26	886	1,990	1,840	47	7.9	6,370	7.9		
Nov. 21-30	114	21	488	171	698	187	1,600	1,140	9.0	4,220	5.74	1,300	1,920	1,770	44	6.9	5,830	7.8		
Dec. 1-10	109	21	480	166	677	187	1,590	1,090	8.9	4,120	5.60	1,210	1,880	1,730	44	6.8	5,630	8.0		
Dec. 11-20	103	19	512	171	674	191	1,650	1,110	8.6	4,240	5.77	1,180	1,980	1,820	43	6.5	5,770	7.9		
Dec. 21-31	104	19	508	188	680	191	1,680	1,140	7.6	4,320	5.88	1,210	2,040	1,880	42	6.5	5,930	8.1		
Jan. 1-10, 1956	96.2	20	528	178	701	206	1,680	1,170	8.0	4,390	5.97	1,140	2,050	1,880	43	6.7	5,990	8.0		
Jan. 11-20	75.7	20	512	190	711	192	1,700	1,190	7.7	4,430	6.02	905	2,060	1,900	43	6.8	6,070	8.1		
Jan. 21-31	80.5	18	512	193	722	180	1,710	1,210	7.4	4,460	6.07	969	2,070	1,920	43	6.9	6,120	8.0		
Feb. 1-10	73.8	22	508	193	693	193	1,670	1,180	8.3	4,370	5.94	871	2,060	1,900	42	6.6	5,980	7.9		
Feb. 11-20	25.0	25	560	192	1,080	201	1,830	1,750	7.4	5,540	7.53	374	2,190	2,020	52	10	7,840	7.7		
Feb. 21-29	26.0	21	556	238	1,210	163	1,950	2,010	7.8	6,070	8.26	426	2,370	2,230	53	11	8,490	7.7		
Mar. 1-10	28.3	22	572	242	1,230	165	2,000	2,040	7.1	6,190	8.42	473	2,420	2,290	53	11	8,750	7.5		
Mar. 11-20	46.8	18	548	231	1,100	161	1,910	1,830	6.5	5,720	7.78	723	2,320	2,190	51	9.9	8,080	7.3		
Mar. 21-31	34.6	17	540	214	1,060	148	1,870	1,750	5.8	5,530	7.52	517	2,230	2,110	51	9.8	7,810	7.8		

RIO GRANDE BASIN--Continued

PECOS RIVER EAST OF MALAGA, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1955 to September 1956.--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boiron (B)	Dissolved solids (calculated)		Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25° C)	pH		
														Parts per million	Tons per acre-foot day	Tons per day	Calcium, magnesium				Non-carbonate	
Apr. 1-4, 1956	34.0	18		564	219	1,200		176	1,930	1,970		4.9		5,990	8.15	550	2,310	2,160	53	11	8,560	7.7
Apr. 5-May 1	32.4	22		596	226	1,450		171	2,050	2,330		--		6,760	9.19	591	2,420	2,280	57	13	9,630	7.7
May 2-12	56.5	20		544	219	1,080		153	1,910	1,770		7.0		5,620	7.64	857	2,260	2,130	51	9	7,940	7.6
May 13-29	27.1	24		597	230	1,610		187	2,030	2,600		--		7,180	9.76	525	2,440	2,280	59	14	10,400	7.6
May 30-31	38.0	16		536	188	1,150		160	1,720	1,910		3.9		5,600	7.62	575	2,110	1,980	54	11	8,120	7.4
June 1-30	34.5	22		607	261	1,490		170	2,080	2,500		--		7,040	9.57	656	2,590	2,450	56	13	9,890	7.6
July 1-13, 16-31	26.3	23		607	259	1,750		170	2,060	2,900		--		7,680	10.4	545	2,580	2,440	60	15	11,300	7.7
July 14-15	34.0	22		512	185	1,180		141	1,870	1,950		6.1		5,590	7.60	513	2,040	1,920	56	11	8,140	7.7
Aug. 1-31	26.6	28		637	273	1,870		183	2,180	3,090		--		8,170	11.1	587	2,710	2,560	60	16	11,600	7.5
Sept. 1-30	26.8	30		664	263	1,910		183	2,210	3,150		--		8,320	11.3	602	2,740	2,590	60	16	11,900	7.7
Weighted average	111	19		434	135	560		147	1,350	915		3.9		3,490	4.75	1,050	1,640	1,520	43	6.0	4,790	--

RIO GRANDE BASIN--Continued

PECOS RIVER AT PIERCE CANYON CROSSING, NEAR MALAGA, N. MEX.

LOCATION.--At Pierce Canyon Crossing, a quarter of a mile downstream from gaging station which is 6 miles southeast of Malaga, Eddy County. DRAINAGE AREA.--19,260 square miles, approximately (contributing area).

RECORDS AVAILABLE.--Chemical analyses: March 1938 to September 1941, October 1951 to September 1956.

Water temperatures: October 1952 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 13,800 ppm Sept. 1-30; minimum, 1,790 ppm Oct. 2-6, 8.

Specific conductance: Maximum daily, 20,800 microhmhos Sept. 9; minimum daily, 1,930 microhmhos Oct. 4.

Water temperatures: Maximum, 87°F Aug. 18; minimum, 37°F Feb. 5.

EXTREMES, 1938-41, 1951-56.--Dissolved solids: Maximum, 23,700 ppm Aug. 11-21, 1954; minimum, 280 ppm Sept. 21, 1941.

Hardness: Maximum, 5,420 ppm Aug. 11-21, 1954; minimum, 202 ppm Sept. 21, 1941.

Specific temperatures: Maximum daily, 34,400 microhmhos Aug. 2, 1954; minimum daily, 433 microhmhos Sept. 21, 1941.

Specific temperatures: (1952-56): Maximum, 90°F Aug. 5, 1953, July 24, 1954; minimum, 37°F Dec. 24, 1953, Feb. 5, 1956.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442. No appreciable inflow between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids (calculated)		Hardness as CaCO ₃	Percent sodium	Sodium adsorption ratio	Specific conductance (microhmhos at 25°C)
													Parts per million	Tons per acre-foot	Calcium, magnesium	Non-carbonate		
Oct. 1, 7, 9-18, 1955	280	19				832		139	1,260	1,310		4.5	4,010	5.56	1,470	1,350	55	5,960
Oct. 2-6, 8,	3,050	14				50		120	908	254		2.8	1,790	2.43	1,040	943	26	2,400
Oct. 19-31,	101	20				178		152	1,650	2,330		--	6,200	8.43	1,690	1,820	62	9,210
Nov. 1-10,	105	20				188		164	1,720	2,240		--	6,160	8.38	1,750	2,060	59	9,030
Nov. 11-20,	94.3	20				207		186	1,750	2,400		--	6,470	8.80	1,650	2,130	60	9,550
Nov. 21-30,	118	20				207		172	1,310	2,120		--	5,940	8.08	1,890	2,070	58	8,700
Dec. 1-10,	112	20				200		187	1,670	1,950		7.5	5,620	7.64	1,700	2,030	56	8,200
Dec. 11-20,	109	17				197		192	1,730	1,980		7.4	5,770	7.85	1,700	2,110	56	8,280
Dec. 21-31,	110	16				197		180	1,740	2,020		--	5,820	7.92	1,730	1,950	56	8,430
Jan. 1-10, 1956	104	15				207		191	1,760	2,050		--	5,910	8.04	1,760	2,150	56	8,600
Jan. 11-20,	87.9	17				202		189	1,810	2,170		7.0	6,190	8.42	1,470	2,160	52	8,860
Jan. 21-31,	86.5	15				214		180	1,810	2,140		6.6	6,120	8.32	1,480	2,010	57	8,910
Feb. 1-10,	82.3	14				202		166	1,770	2,150		--	6,060	8.24	1,350	2,090	58	8,760
Feb. 11-20,	28.7	17				237		182	1,890	1,560		--	8,690	11.8	673	2,260	69	12,800
Feb. 21-29,	28.1	14				251		125	2,170	4,380		--	10,200	13.9	774	2,400	72	15,100

RIO GRANDE BASIN--Continued
 PECOS RIVER AT PIERCE CANYON CROSSING, NEAR MALAGA, N. MEX.--Continued
 Chemical analyses, in parts per million, water year October 1955 to September 1956--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Cal- cium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- dium adsorp- tion ratio	Specific conduct- ance (micro- mhos at 25° C)	pH	
														Parts per mil- lion	Tons per acre- foot	Tons per day	Calcium, Non- mag- nesium	Non- carbon- ate				
Mar. 1-10, 1956 .	35.1	15		565	277	2,850		158	2,250	4,450		--		10,500	14.3	995	2,550	2,420	71	25	15,500	7.4
Mar. 11-20	73.5	13		526	244	1,960		148	2,010	3,090		--		7,920	10.8	1,570	2,320	2,190	65	13	11,700	7.4
Mar. 21-31	47.5	11		538	227	2,060		124	1,970	3,260		--		8,130	11.1	1,040	2,280	2,170	66	19	11,900	7.3
Apr. 1-30	36.9	15		593	255	2,520		158	2,150	4,000		--		9,610	13.1	957	2,530	2,400	68	22	14,100	7.7
May 1-31	41.5	20		596	258	2,610		163	2,150	4,150		--		9,860	13.4	1,100	2,550	2,410	69	22	14,400	7.7
June 1-30	33.4	29		635	293	2,970		173	2,290	4,770		--		11,100	15.1	1,000	2,790	2,650	70	24	16,100	7.4
July 1-31	29.2	31		639	290	3,400		154	2,330	5,410		--		12,200	16.6	962	2,790	2,660	73	28	17,500	7.3
Aug. 1-31	27.8	30		666	318	3,760		155	2,460	6,000		--		13,300	18.1	998	2,970	2,840	73	30	19,200	7.2
Sept. 1-30	28.8	26		662	321	3,960		169	2,490	6,280		--		13,800	18.8	1,110	2,970	2,830	74	32	20,000	7.4
Weighted average	113	17		442	142	1,090		145	1,430	1,730		--		4,920	6.69	1,500	1,690	1,570	58	12	7,090	--

RIO GRANDE BASIN--Continued

PECOS RIVER AT PIERCE CANYON CROSSING, NEAR MALAGA, N. MEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

/Once-daily measurement, generally during daylight/

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	60	45	49	47	55	65	--	78	79	84	78
2	71	59	49	54	40	55	62	75	80	78	84	78
3	72	55	51	51	--	58	55	80	81	80	83	78
4	72	59	49	--	38	--	62	74	78	81	85	80
5	71	62	48	52	37	65	--	75	77	82	81	77
6	73	57	46	52	46	62	63	74	80	83	83	76
7	70	57	48	53	45	58	60	73	83	80	80	78
8	70	53	48	51	46	51	67	73	83	83	85	78
9	66	54	46	51	--	53	65	--	80	79	81	75
10	65	51	50	50	45	60	60	74	81	83	80	74
11	70	53	48	48	48	57	63	76	84	84	85	74
12	67	59	46	50	45	54	63	75	84	79	80	72
13	65	61	46	48	53	50	68	78	80	80	82	76
14	64	60	50	50	55	50	63	73	81	80	82	73
15	70	60	47	49	55	52	62	70	81	--	83	77
16	66	57	48	46	55	52	67	72	81	82	85	80
17	65	54	50	44	55	59	60	71	79	81	85	78
18	65	53	49	44	50	60	58	77	83	84	87	78
19	66	56	51	48	52	57	57	76	82	81	79	78
20	67	51	49	50	50	63	56	78	80	85	80	72
21	67	53	50	49	51	64	57	72	80	85	79	77
22	70	55	50	49	57	64	62	77	81	81	84	78
23	70	55	53	48	55	63	70	73	81	81	83	72
24	64	53	56	51	62	60	66	76	82	79	82	76
25	60	52	55	52	60	63	70	76	82	81	80	72
26	67	55	55	52	69	66	71	77	84	83	78	74
27	61	53	55	49	58	66	74	78	83	83	78	73
28	59	50	55	54	60	62	70	80	84	80	84	79
29	--	48	53	51	52	59	68	78	85	84	81	73
30	59	47	49	49	--	60	68	81	83	85	80	--
31	59	--	49	46	--	62	--	82	--	84	77	--
Average	67	55	50	50	51	59	64	76	81	82	82	76

RIO GRANDE BASIN--Continued
PECOS RIVER NEAR RED BLUFF, N. MEX.

LOCATION.--At pipeline bridge, 2½ miles downstream from gaging station at Red Bluff, Eddy County, which is 0.2 mile downstream from Red Bluff Creek, and 5.5 miles upstream from Delaware River.
DRAINAGE AREA.--19,640 square miles, approximately, above gaging station (contributing area).
RECORDS AVAILABLE.--Chemical analyses: July 1937 to September 1956.
Water temperatures: October 1952 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 14,800 ppm Sept. 1-30; minimum, 2,170 ppm Oct. 5-9.
Hardness: Maximum, 3,140 ppm Sept. 1-30; minimum, 1,170 ppm Oct. 5-9.

Specific conductance: Maximum daily, 22,500 micromhos Sept. 20; minimum daily, 2,340 micromhos Oct. 5.

Water temperatures: Maximum, 89°F on several days during May through August; minimum, 44°F Nov. 30.

EXTREMES, 1937-56.--Dissolved solids: Maximum, 22,800 ppm Sept. 1-20, 1953; minimum, 456 ppm June 3, 1948.

Hardness: Maximum, 3,860 ppm Sept. 1-10, 1953; minimum, 256 ppm June 3, 1948.

Specific conductance: Maximum daily, 33,200 micromhos Sept. 18, 1953; minimum daily, 268 micromhos Sept. 19, 1946.

Water temperatures: (1952-56) Maximum, 91°F Aug. 7, 1955; minimum, 35°F Dec. 28, 1954.

REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for gaging station at Red Bluff for water year October 1955 to September 1956 given in WSP 1442. No appreciable inflow between sampling point and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃)	Bo- ron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Per- cent so- lution	So- lution (micro- mhos at 25°C)		
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mag- nesium	Non-carbon- ate				
Oct. 1-2, 10-20, 1955	292	19		409	132	1,050		151	1,330	1,650		4.7		4,670	6.35	3,680	1,560	1,440	59	12	7,110	7.2
Oct. 5-9	1,491	16		345	74	256		124	1,040	380		1.2		2,170	2.95	8,740	1,170	1,060	32	3.3	3,030	7.5
Oct. 21-31	106	17		481	201	1,690		146	1,710	2,720		--		6,900	9.38	1,970	2,050	1,930	64	16	10,500	7.5
Nov. 1-10	110	19		507	211	1,620		171	1,780	2,600		--		6,820	9.28	2,030	2,130	1,990	62	15	10,100	7.6
Nov. 11-20	98.6	17		503	221	1,560		161	1,760	2,550		--		6,690	9.10	1,780	2,160	2,030	61	13	10,100	7.3
Nov. 21-30	125	16		516	197	1,520		170	1,760	2,430		--		6,520	8.87	2,200	2,100	1,960	61	14	9,490	7.3
Dec. 1-10	124	19		488	193	1,340		170	1,700	2,140		--		5,960	8.11	2,000	2,010	1,870	59	13	8,790	7.7
Dec. 11-20	119	19		504	202	1,310		176	1,760	2,100		--		5,980	8.13	1,920	2,090	1,940	58	12	8,820	7.4
Dec. 21-31	112	19		520	195	1,340		170	1,790	2,130		--		6,080	8.27	1,840	2,100	1,960	58	13	8,900	7.5
Jan. 1-10, 1956	105	15		508	209	1,380		167	1,770	2,230		--		6,190	8.42	1,750	2,130	1,990	58	13	9,150	7.8
Jan. 11-20	94.5	18		516	226	1,430		175	1,810	2,340		--		6,430	8.74	1,640	2,220	2,070	58	13	9,480	7.7
Jan. 21-31	89.7	18		520	216	1,440		136	1,830	2,340		--		6,430	8.74	1,560	2,190	2,070	59	13	9,480	7.7
Feb. 1-10	85.4	16		520	212	1,400		162	1,810	2,260		--		6,300	8.57	1,450	2,170	2,040	58	13	9,220	7.7
Feb. 11-20	35.7	17		519	249	1,800		171	1,880	2,930		--		7,480	10.2	721	2,320	2,180	63	16	11,200	7.5
Feb. 21-29	32.9	10		533	291	2,910		127	2,170	4,600		--		10,600	14.4	942	2,530	2,420	71	25	15,900	7.3
Mar. 1-10	66.2	10		564	298	3,300		117	2,330	5,170		--		11,700	15.9	1,160	2,630	2,540	73	28	17,200	7.1
Mar. 11-15	66.2	11		592	277	3,050		131	2,290	4,790		--		11,100	15.1	1,960	2,620	2,510	72	26	16,500	7.2
Mar. 16-31	61.8	7.5		538	232	2,040		125	2,010	3,210		--		8,100	11.0	1,350	2,300	2,190	66	18	11,800	7.3

	Apr. 1-30, 1956 .	11	581	277	2,720	143	2,240	4,300	--	--	10,200	13.9	1,190	2,590	2,470	70	23	15,100	7.4
	May 1-7, 24-31 ..	14	596	281	3,070	137	2,320	4,820	--	--	11,200	15.2	1,240	2,640	2,530	72	26	16,400	7.3
	May 8-23	15	582	268	2,848	149	2,180	3,410	--	--	8,670	11.8	873	2,550	2,430	65	18	12,800	7.4
	June 1-30	20	634	328	3,330	95	2,440	5,350	--	--	12,100	16.5	983	2,980	2,850	71	27	18,000	7.3
	July 1-31	18	617	324	3,250	58	2,450	5,200	--	--	11,900	16.2	1,110	2,870	2,820	71	26	17,400	7.2
	Aug. 1-30	22	653	337	4,080	58	2,590	6,490	--	--	14,200	19.3	1,170	3,010	2,970	75	32	20,600	7.0
	Sept. 1-30	11	677	353	4,260	555	2,680	6,790	--	--	14,800	20.1	1,230	3,140	3,100	75	33	21,500	7.2
	Weighted average	16	483	191	1,570	138	1,700	2,490	--	--	6,520	8.87	1,540	1,990	1,880	63	15	9,590	--
	Weighted average	b118	--	--	--	--	--	--	--	--	55,190	7.06	1,650	--	--	--	--	7,600	--

a Average for 364 days representing 74 percent of runoff for water year October 1955 to September 1956.

^b Includes estimated data for missing period. Represents 100 percent of runoff for water year October 1955 to September 1956.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR RED BLUFF, N. MEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

/Once-daily measurement, generally between 4 p.m. and 6 p.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	80	57	58	47	58	69	--	79	85	84	80
2	71	58	50	55	--	61	62	78	84	86	87	80
3	--	87	49	50	--	59	63	75	86	87	87	81
4	--	68	59	45	--	b 62	64	72	84	86	87	81
5	75	64	57	--	--	65	69	75	86	87	87	83
6	69	63	55	47	54	56	70	78	84	85	86	77
7	70	59	52	47	54	50	66	--	85	87	85	78
8	68	53	a 55	47	53	57	69	80	--	a 87	86	78
9	72	53	55	--	52	62	67	b 68	--	82	86	78
10	71	60	a 53	--	48	b 59	68	--	87	86	85	77
	71											
11	74	58	50	46	50	58	72	80	85	--	80	78
12	70	62	50	54	--	57	64	82	87	88	87	78
13	72	60	52	52	54	67	64	83	87	87	89	79
14	70	60	51	50	50	59	69	80	85	88	89	79
15	73	63	51	54	58	53	69	77	87	89	86	83
16	72	58	50	47	50	60	--	77	82	--	87	81
17	70	57	53	45	a 48	60	55	78	86	88	87	78
18	69	52	54	47	--	62	55	80	87	84	84	78
19	--	--	50	--	55	63	70	80	88	--	87	79
20	70	58	53	47	48	64	64	78	89	84	82	77
21	70	59	53	47	58	65	64	77	87	82	85	77
22	72	57	--	50	59	64	72	79	86	--	85	77
23	68	57	--	49	60	70	70	84	87	84	88	77
24	78	b 55	--	57	--	--	74	80	85	85	86	79
25	67	55	--	55	58	69	76	a 78	86	87	89	a 76
26	66	59	--	57	--	60	72	78	87	86	86	78
27	64	52	a 57	53	59	70	78	82	84	89	82	77
28	65	53	55	46	57	a 62	74	85	86	--	87	78
29	65	47	53	56	60	63	71	84	84	87	82	79
30	60	44	48	--	--	70	72	89	83	88	--	75
31	65	--	48	50	--	69	--	86	--	83	--	--
Average	70	58	53	50	--	62	68	79	85	86	86	79

a Measurement before 4 p.m.

b Measurement after 6 p.m.

RIO GRANDE BASIN--Continued

PECOS RIVER BELOW RED BLUFF DAM, NEAR ORLA, TEX.

LOCATION.--Just below dam, 3 miles upstream from Salt (Screwbean) Draw, 5 miles northwest of Orla, Reeves County, and 14 miles upstream from gaging station DRAINAGE AREA.--20,720 square miles, approximately (contributing area.) RECORDS AVAILABLE.--Chemical analyses July 1937 to September 1956. Water temperatures March 1953 to September 1956.

EXTREMES, 1955-56.--Dissolved solids: Maximum, 7,340 ppm Sept. 1-30; minimum, 3,620 ppm Feb. 1-8.

HARDNESS: Maximum, 2,320 ppm Sept. 1-8; minimum, 1,310 ppm Feb. 1-8.

Specific conductance: Maximum, 7,340 ppm Sept. 1-30; minimum, 4,950 microhos Feb. 4.

Water temperatures: Maximum, 80° F. July 17, 1953; minimum, 40° F. Feb. 4, 1953.

EXTREMES, 1957-58.--Dissolved solids: Maximum, 15,600 ppm Sept. 1-30, 1953; minimum, 1,090 ppm June 1-2, 1948.

HARDNESS: Maximum, 3,430 ppm July 1-31 Oct. 1-16, 1953; minimum, 1,610 microhos June 2, 1948.

Specific conductance: Maximum daily, 24,200 microhos Sept. 24, 1953; minimum daily, 1,610 microhos June 2, 1948.

Water temperatures (1953-56): Maximum, 80° on many days during July and August; minimum, 40° on several days during winter months.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for gaging station near Orla for water year October 1955 to September 1956 given in WSP 1442. Mean discharge values reported below have been adjusted to reflect inflow from Salt (Screwbean) Draw which enters Pecos River between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)		Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Boron (B)	Dissolved solids (calculated)			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
						Sodium (Na)	Potassium (K)								Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-31, 1955..	35.1	18		511	162	1,790	132	132	1,660	2,840			--		7,050	9.59	668	1,940	1,830	67	18	10,500	7.6
Nov. 1-30,	29.8	13		472	118	1,060	138	138	1,470	1,680		3.5			4,900	6.66	394	1,660	1,550	59	12	7,120	7.8
Dec. 1-31,	32.0	13		466	130	999	145	145	1,500	1,550		3.5			4,730	6.43	409	1,700	1,580	56	11	6,760	7.8
Jan. 1-31, 1956, ..	31.5	13		492	128	1,020	157	157	1,540	1,580		2.9			4,850	6.60	412	1,750	1,630	56	11	6,810	7.8
Feb. 1-8,	32.5	14		450	93	650	125	125	1,350	1,000		1.5			3,620	4.92	318	1,510	1,400	48	7.3	5,090	8.0
Feb. 9-29,	30.9	14		492	150	1,060	152	152	1,620	1,650		3.0			5,060	6.88	422	1,840	1,720	55	11	7,390	8.0
Mar. 1-17, 26-31, ..	83.7	9.6		490	138	1,190	129	129	1,550	1,880		3.0			5,320	7.24	1,200	1,790	1,680	59	12	7,070	8.0
Mar. 18-25,	28.5	8.8		532	163	1,360	132	132	1,750	2,150		--			6,030	8.20	464	2,000	1,890	60	13	9,310	8.0
Apr. 1-30,	284	11		480	112	855	114	114	1,500	1,320		8			4,330	5.89	332	1,660	1,560	53	9.1	6,170	7.9
May 1-31,	130	12		512	121	1,070	110	110	1,610	1,650		2.0			5,030	6.84	1,770	1,780	1,680	57	11	7,280	7.5
June 1-30,	225	12		514	120	964	98	98	1,610	1,500		1.5			4,770	6.49	2,900	1,780	1,700	54	10	6,710	7.7
July 1-31,	307	14		554	133	1,060	102	102	1,740	1,660		1.0			5,210	7.09	432	1,930	1,850	54	11	7,440	7.7
Aug. 1-31,	236	14		594	146	1,230	108	108	1,900	1,910		1.3			5,850	7.96	3,320	2,080	1,990	56	12	8,080	7.7
Sept. 1-30,	79.0	17		642	175	1,700	119	119	2,130	2,620		--			7,340	9.98	1,570	2,320	2,220	61	15	10,200	7.9
Weighted average	125	13		531	131	1,090	112	112	1,680	1,600		--			5,190	7.06	1,750	1,860	1,770	56	11	7,340	--

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

PECOS RIVER BELOW RED BLUFF DAM NEAR ORLA, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	70	54	48	47	46	57	61	70	78	79	76
2	76	70	54	49	45	46	57	60	70	78	79	75
3	75	70	55	48	41	46	57	61	71	78	79	75
4	75	70	55	48	40	46	56	60	71	78	78	75
5	75	66	55	48	41	46	58	60	71	78	78	75
6	74	64	55	48	41	47	57	60	71	78	78	75
7	74	63	55	49	42	--	58	60	71	78	78	74
8	74	62	55	49	--	47	58	60	71	78	78	74
9	74	62	54	--	45	48	59	61	72	78	78	74
10	74	62	53	48	44	49	59	61	72	79	78	73
11	74	63	51	49	45	49	58	61	72	78	78	72
12	74	63	51	48	45	49	59	62	73	78	78	72
13	74	61	51	49	45	49	--	62	73	78	78	72
14	74	58	50	49	45	50	59	61	73	78	78	72
15	74	57	50	49	45	41	60	61	74	78	78	72
16	74	57	50	49	45	51	61	61	74	79	78	74
17	74	56	50	49	45	52	60	62	75	80	78	74
18	74	57	51	49	45	53	60	62	75	80	78	74
19	74	57	50	49	45	54	59	63	74	79	77	73
20	74	57	50	49	45	55	59	65	75	79	78	73
21	74	57	50	49	45	54	59	66	75	72	76	73
22	74	57	50	49	45	54	60	66	76	78	76	73
23	74	57	50	49	46	54	59	67	76	78	77	73
24	73	57	50	49	46	54	60	68	76	78	77	73
25	73	56	49	49	46	55	60	68	76	78	77	72
26	73	55	49	48	45	55	60	67	77	78	76	74
27	73	55	49	48	45	55	60	69	77	78	76	74
28	73	55	49	48	45	56	60	69	77	78	77	72
29	72	54	49	47	45	56	60	69	77	78	77	71
30	71	54	48	47	--	56	61	70	78	78	76	72
31	70	--	48	47	--	56	--	70	--	78	76	--
Average	74	60	51	48	44	51	59	64	74	78	78	73

RIO GRANDE BASIN--Continued
PECOS RIVER BELOW GRANDFALLS, TEX.

LOCATION.--At gaging station at bridge on State Farm-to-Market Road 11, between Grandfalls and Imperial, 7.1 miles southeast of Grandfalls, Ward County, and 10 miles downstream from Chacatori Draw.

DRAINAGE AREA.--27,820 square miles, approximately (Contributing area).

RECORDS AVAILABLE.--Chemical analyses: April 1939 to June 1942; October 1946 to September 1956 (discontinued).

EXTREMES 1955-56.--Hardness: Maximum, 3,830 ppm June 1-30; minimum, 2,000 ppm Oct. 6-13.

Specific conductance: Maximum daily, 19,000 micromhos July 3-6; minimum daily, 5,190 micromhos Oct. 9.

EXTREMES 1939-42, 1946-56.--Hardness: Maximum, 4,460 ppm Mar. 1-31, 1953; minimum, 246 ppm June 14, 1954.

Specific conductance: Maximum daily, 35,700 micromhos Feb. 9-10, 15, 19-20, 1953; minimum daily, 904 micromhos June 14, 1954.

REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃) (B)	Boron	Dissolved solids			Hardness as CaCO ₃		Percent sodium adsorption ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Oct. 1-5, 14-31, 1955	20.7					1,510		122	2,150	2,450							2,560	2,460	56	13	9,840	7.5
Oct. 6-13	70.6					928		111	1,780	1,520							2,000	1,910	50	9.0	7,070	7.6
Nov. 1-30	15.9					2,400		148	2,720	3,930							3,220	3,100	62	18	14,100	7.5
Dec. 1-31	19.1					2,820		181	2,820	4,600							3,360	3,230	64	21	16,200	7.6
Jan. 1-31, 1956	34.8					2,710		180	2,750	4,350							3,180	3,030	65	21	15,100	7.8
Feb. 1-29	34.2					2,690		172	2,710	4,250							3,140	3,000	85	21	15,000	7.8
Mar. 1-31	30.3					2,770		152	2,840	4,470							3,240	3,120	65	21	15,800	7.8
Apr. 1-30	16.5					2,930		132	2,960	4,640							3,540	3,430	64	21	16,300	7.9
May 1-31	11.3					2,920		96	3,070	4,720							3,480	3,480	64	21	16,300	7.9
June 1-30	7.81					3,220		101	3,210	5,230							3,830	3,750	65	23	17,600	7.7
July 1-31	7.95					3,220		92	3,280	5,230							3,810	3,730	65	23	17,700	7.5
Aug. 1-31	10.5					3,130		103	3,200	5,070							3,660	3,580	65	23	17,500	7.5
Sept. 1-30	12.9					3,110		110	3,140	5,060							3,710	3,620	65	22	17,400	7.7
Weighted average..	19.6					2,580		144	2,750	4,160							3,200	3,080	64	20	14,800	--

RIO GRANDE BASIN--Continued
PECOS RIVER NEAR GIRVIN, TEX.

LOCATION --At supplementary gage at bridge on U. S. Highway 67, about half a mile downstream from Panhandle and Santa Fe Railway bridge, 2.1 miles east of Glin, Pecos County, 6½ miles downstream from Comanche Creek and 7.8 miles downstream from regular gaging station.

DRAINAGE AREA --29 580 square miles, approximately (contributing area at supplementary gage.)

RECORDS AVAILABLE --Chemical analyses: October 1939 to June 1941, October 1946 to September 1947, October 1953 to September 1956.

Water temperatures: October 1953 to September 1956.

EXTREMES 1953-56 --Hardness: Maximum, 5,040 ppm June 1-30; minimum, 2,530 ppm Oct. 1-31.

Specific conductance: Maximum daily, 25,600 micromhos July 1; minimum daily, 8,610 micromhos Oct. 14.

Water temperatures: Maximum, 89°F July 10, Aug. 19, 29; minimum, 38°F Feb. 3-4.

EXTREMES 1939-41, 1946-47, 1953-56 --Hardness: Maximum, 5,040 ppm June 1-30, 1956; minimum, 640 ppm June 16-18, 1954.

Specific conductance: Maximum daily, 25,600 micromhos July 1, 1956; minimum daily, 1,480 micromhos May 29, 1941.

Water temperatures (1953-56): Maximum 93°F June 1, 1954; minimum, 38°F Feb. 3-4, 1956.

REMARKS --Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1955 to September 1956 given in WSP 1442.

Chemical analyses, in parts per million, water year October 1955 to September 1956

Date of collection	Mean discharge (cfs)	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Mag- ne- sium (Mg)	Sodium (Na)	Potas- sium (K)	Bicar- bonate (HCO ₃)	Sulfate (SO ₄)	Chlo- ride (Cl)	Fluo- ride (F)	Ni- trate (NO ₃) (B)	Bo- ron (B)	Dissolved solids			Hardness as CaCO ₃		Per- cent so- dium ad- sorp- tion ratio	Specific conductance (micro-mhos at 25°C)	pH	
														Parts per million	Tons per acre-foot	Tons per day	Calcium, mag- nesium	Non-carbonate				
Oct. 1-31, 1955	40.6					1,850		49	2,330	2,890							2,530	2,490	61	16	11,200	7.1
Nov. 1-30	24.7					2,640		60	3,120	4,200							3,340	3,290	63	20	14,100	7.0
Dec. 1-31, 1956	27.7					3,170		137	3,330	5,080							3,710	3,600	65	23	17,700	7.5
Jan. 1-31, 1956	43.7					3,230		158	3,200	5,080							3,590	3,460	66	23	17,400	7.7
Feb. 1-29	44.3					3,000		161	3,080	4,690							3,560	3,430	65	22	16,300	7.5
Mar. 1-31	38.8					3,180		121	3,270	5,040							3,570	3,470	66	23	17,500	7.5
Apr. 1-8, 19-30	26.0					3,420		79	3,460	5,410							3,770	3,710	66	24	18,600	7.3
Apr. 9-18	24.9					2,420		59	2,840	3,830							3,040	2,990	63	19	14,100	7.3
May 1-31	12.6					3,880		50	4,020	6,010							4,200	4,160	67	26	20,200	7.2
June 1-30	10.6					4,640		58	4,670	7,260							5,040	4,990	67	28	23,700	7.4
July 1-9	30.6					4,210		59	4,340	6,680							4,730	4,680	66	27	22,200	7.2
July 10-22	15.0					3,110		73	3,380	4,970							3,590	3,590	65	22	17,300	7.4
July 23-31	13.0					4,600		63	4,630	7,290							5,020	4,970	67	28	23,800	7.2
Aug. 1-31	13.6					4,540		63	4,570	7,160							4,820	4,770	67	28	23,500	7.2
Sept. 1-30	15.5					3,950		55	4,060	6,230							4,310	4,260	67	26	21,000	7.5
Weighted average..	26.4					3,180		101	3,330	4,980							3,640	3,560	65	23	17,200	--

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR GIRVIN, TEX.--Continued

Temperature (°F) of water, water year October 1955 to September 1956

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	78	61	47	45	48	60	71	78	86	85	76	74
2	78	59	47	44	39	62	63	80	85	85	76	74
3	78	57	49	43	38	63	63	80	80	81	81	77
4	--	58	62	42	38	63	68	78	81	--	86	82
5	82	57	62	44	42	67	68	80	82	85	84	84
6	70	--	69	44	--	67	70	83	82	81	83	79
7	67	60	50	44	53	59	70	80	73	88	87	78
8	65	50	65	42	53	59	70	79	84	87	82	82
9	63	58	50	46	46	54	62	82	85	88	77	84
10	64	60	55	46	39	56	65	79	85	89	78	83
11	66	53	50	47	--	63	69	83	87	81	77	82
12	69	62	60	--	40	53	56	85	80	78	76	81
13	67	67	55	51	47	58	73	85	--	83	76	82
14	64	67	56	--	48	62	73	86	76	76	77	83
15	64	65	57	48	49	60	65	86	75	75	77	83
16	65	60	55	51	54	62	75	83	76	77	77	75
17	70	54	44	45	54	65	65	79	77	78	78	80
18	71	50	55	48	49	62	65	79	77	78	76	80
19	71	49	65	48	51	60	55	77	77	78	89	76
20	73	53	65	47	50	60	55	77	75	78	88	84
21	70	54	52	50	58	66	55	78	86	79	85	78
22	70	56	45	47	59	60	58	77	86	83	88	72
23	72	55	60	51	68	58	63	82	86	82	88	75
24	87	51	--	52	68	59	63	82	86	82	88	80
25	65	47	62	52	68	60	63	82	87	85	75	80
26	83	54	--	52	60	61	63	78	87	87	87	78
27	83	49	50	57	60	60	71	84	87	87	83	79
28	65	48	51	60	60	60	82	81	84	85	86	74
29	64	43	50	60	60	60	78	--	85	79	89	75
30	83	42	48	53	--	68	71	85	78	73	86	76
31	65	--	45	51	--	68	--	79	--	85	86	--
Average	68	55	55	49	52	61	66	81	82	82	82	79

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956			
Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
COCHITI EAST SIDE MAIN CANAL NEAR COCHITI ^a			
Oct. 3, 1955.....	3	990	8
Oct. 5.....	72	535	104
Oct. 7.....	78	630	133
Oct. 10.....	37	702	70
Oct. 12.....	78	482	102
Oct. 14.....	91	150	37
Oct. 17.....	47	64	8
Oct. 18.....	83	91	20
Oct. 19.....	82	113	25
Oct. 21.....	91	147	36
Oct. 24.....	52	58	8
Oct. 26.....	79	53	11
Oct. 28.....	85	43	10
Oct. 31.....	78	32	7
Nov. 2.....	80	31	7
Nov. 2.....	74	69	14
Nov. 4.....	78	23	5
Nov. 7.....	89	1,800	433
Mar. 21, 1956.....	66	192	34
Mar. 28.....	81	1,640	359
Apr. 3.....	75	1,270	257
Apr. 10.....	78	618	130
Apr. 18.....	103	1,380	384
Apr. 24.....	78	1,220	257
May 2.....	86	1,470	341
May 15.....	92	755	188
May 29.....	91	808	199
June 12.....	100	490	132
June 19.....	100	486	131
June 26.....	90	299	73
July 3.....	90	330	80
July 10.....	100	118	32
July 17.....	91	353	87
Aug. 7.....	87	251	59
Aug. 21.....	93	518	130
Sept. 4.....	95	1,240	318
Sept. 10.....	84	676	153
Sept. 18.....	96	101	26
Sept. 24.....	96	46	12

SILI MAIN CANAL NEAR COCHITI^a

Oct. 3, 1955.....	4	611	7
Oct. 5.....	21	46	3
Oct. 7.....	18	37	2
Oct. 10.....	11	948	28
Oct. 12.....	25	46	3
Oct. 14.....	27	56	4
Oct. 17.....	16	399	17
Oct. 18.....	29	47	4
Oct. 19.....	29	50	4
Oct. 21.....	27	89	6
Oct. 26.....	34	46	4
Oct. 28.....	34	54	5
Oct. 31.....	36	34	3
Nov. 2.....	36	45	4
Nov. 2.....	36	28	3
Nov. 4.....	36	26	3
Nov. 7.....	36	214	21
Mar. 21, 1956.....	31	212	18
Mar. 27.....	34	1,420	130
Apr. 3.....	29	1,560	122

^a Total-sediment discharge measured at this station.

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956--Continued

Suspended sediment			
Date	Discharge (cfs)	Mean concentration (ppm)	Discharge (tons per day)
SILI MAIN CANAL NEAR COCHITI ^a --Continued			
Apr. 10, 1956.....	40	379	41
Apr. 18	43	787	91
Apr. 24	43	584	68
May 2	39	775	82
May 15	28	235	18
June 12.....	33	147	13
June 19.....	40	38	4
June 26.....	40	30	3
July 2.....	34	322	30
July 10.....	32	41	4
July 16.....	32	520	45
Aug. 7	28	182	14
Aug. 21.....	38	525	54
Sept. 10.....	34	474	44
Sept. 18.....	36	20	2
Sept. 24.....	35	13	1

RIO GRANDE AT COCHITI

Oct. 3, 1955.....	217	924	541
Oct. 13.....	162	287	126
Oct. 18.....	167	170	77
Oct. 25.....	148	98	39
Nov. 2.....	176	192	91
Nov. 8.....	310	859	719
Nov. 15.....	359	1,160	1,120
Nov. 22.....	380	806	827
Nov. 28.....	388	748	784
Dec. 8.....	428	623	720
Dec. 14.....	478	947	1,220
Dec. 19.....	505	1,010	1,380
Dec. 27.....	532	999	1,430
Jan. 3, 1956.....	532	969	1,390
Jan. 10.....	550	957	1,420
Jan. 18.....	613	1,140	1,890
Jan. 24.....	568	895	1,370
Jan. 30.....	667	2,640	4,750
Feb. 7.....	595	1,260	2,020
Feb. 15.....	523	819	1,160
Feb. 22.....	505	3,170	4,320
Feb. 29.....	586	2,450	3,880
Mar. 7.....	941	3,630	9,220
Mar. 12.....	694	1,950	3,650
Mar. 19.....	420	584	662
Mar. 27.....	750	1,960	3,970
Apr. 3.....	974	5,000	13,100
Apr. 10.....	568	709	1,090
Apr. 18.....	910	5,030	12,400
Apr. 24.....	963	2,920	7,590
May 2.....	1,240	2,200	7,370
May 7.....	1,290	2,100	7,310
May 15.....	505	939	1,280
May 22.....	245	287	177
May 29.....	941	969	2,460
June 5.....	1,050	1,870	5,300
June 12.....	694	1,060	1,990
June 19.....	167	152	69
June 26.....	67	36	7
July 3.....	436	708	833
July 10.....	34	30	3
July 16.....	388	969	1,020
July 24.....	195	415	218
Aug. 3.....	195	1,680	885
Aug. 7.....	54	153	22
Aug. 13.....	310	1,600	1,340

^a Total-sediment discharge measured at this station.

WESTERN GULF OF MEXICO BASINS
RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
RIO GRANDE AT COCHITI--Continued			
Aug. 21, 1956.....	54	370	54
Aug. 29	32	74	6
Sept. 4	452	1,260	1,540
Sept. 10	274	634	469
Sept. 18	388	25	26
Sept. 24	9	6	(t)
RIO GRANDE AT SAN FELIPE			
Oct. 4, 1955	212	1,170	670
Oct. 12.....	236	741	472
Oct. 19.....	236	712	454
Oct. 28.....	232	1,390	871
Nov. 2	280	2,040	1,540
Nov. 8	394	3,470	3,690
Nov. 14	370	1,510	1,510
Nov. 22	400	1,740	1,880
Nov. 28	407	1,440	1,580
Dec. 8	470	1,290	1,640
Dec. 14	486	1,480	1,940
Dec. 19	518	1,670	2,340
Dec. 27	595	1,510	2,430
Jan. 3, 1956	526	1,160	1,650
Jan. 10.....	568	1,100	1,690
Jan. 18.....	613	1,340	2,220
Jan. 24.....	518	938	1,310
Feb. 1	568	1,650	2,530
Feb. 7	595	1,200	1,930
Feb. 15	526	906	1,290
Feb. 22	470	867	1,100
Feb. 29	586	1,540	2,440
Mar. 6	851	3,870	8,890
Mar. 13	595	1,430	2,300
Mar. 21	510	916	1,260
Mar. 27	862	2,270	5,280
Apr. 4	895	1,650	3,990
Apr. 10	640	1,070	1,850
Apr. 19	928	1,780	4,460
Apr. 24	961	1,490	3,870
May 2	1,220	2,170	7,150
May 9	1,280	2,000	6,190
May 15	595	2,550	4,100
May 24	577	2,130	3,320
May 29	906	1,190	2,910
June 6	1,110	1,680	5,030
June 12	670	641	1,160
June 20	236	158	101
June 26	136	107	39
July 3	421	526	598
July 10	107	84	24
July 17	388	1,230	1,290
July 24	245	608	402
Aug. 2	370	24,100	24,100
Aug. 7	116	1,610	504
Aug. 14	325	3,000	2,630
Aug. 21	160	2,670	1,150
Aug. 30	80	300	65
Sept. 4	376	3,310	3,160
Sept. 11	240	667	432
Sept. 18	70	114	22
Sept. 24	75	129	26

t Less than 0.5 ton.

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)

ALBUQUERQUE MAIN CANAL AT ALGODONES ^a

Oct. 4, 1955	76	988	203
Oct. 5	159	955	410
Oct. 7	131	953	337
Oct. 10	82	1,160	257
Oct. 12	147	1,060	421
Oct. 14	157	1,030	437
Oct. 17	43	1,930	224
Oct. 19	153	1,080	446
Oct. 21	185	1,430	714
Oct. 24	163	1,590	700
Oct. 26	167	1,060	478
Oct. 28	179	1,180	575
Oct. 31	201	1,320	716
Nov. 2	205	1,490	825
Nov. 4	225	1,260	765
Nov. 7	267	1,920	1,380
Nov. 9	307	3,070	2,540
Nov. 11	279	2,200	1,660
Nov. 14	247	2,650	1,770

RIO GRANDE AT ALBUQUERQUE

Oct. 4, 1955	102	1,420	391
Oct. 10	74	172	34
Oct. 17	38	355	36
Oct. 24	42	244	28
Oct. 31	30	56	4
Nov. 8	73	740	146
Nov. 22	378	2,210	2,260
Dec. 1	402	1,310	1,420
Dec. 5	490	2,010	2,660
Dec. 12	408	1,900	2,090
Dec. 20	516	1,830	2,550
Dec. 22	553	2,290	3,420
Dec. 27	600	2,680	4,340
Jan. 3, 1956	630	2,190	3,730
Jan. 9	590	2,210	3,520
Jan. 16	610	1,290	2,120
Jan. 23	590	1,910	3,040
Jan. 30	878	6,130	14,500
Feb. 7	692	4,130	7,720
Feb. 13	610	2,610	4,300
Feb. 20	553	3,090	4,610
Feb. 27	630	4,020	6,840
Mar. 5	640	5,210	9,000
Mar. 13	680	5,250	9,640
Mar. 19	227	1,350	827
Mar. 26	301	2,230	1,810
Apr. 3	960	4,910	12,700
Apr. 9	517	2,150	3,000
Apr. 16	660	3,520	6,270
Apr. 19	580	6,190	9,690
Apr. 23	526	2,340	3,320
Apr. 30	692	3,990	7,450
May 7	891	3,980	9,570
May 14	345	1,220	1,140
May 21	41	232	26
May 28	469	1,920	2,430
June 4	384	1,720	1,780
June 7	692	2,420	4,520
June 11	408	1,540	1,700
June 14	182	1,020	501
June 18	19	95	5
July 2	185	2,460	1,230
July 9	16	114	5

^a Total-sediment discharge measured at this station.

WESTERN GULF OF MEXICO BASINS

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
RIO GRANDE AT ALBUQUERQUE--Continued			
July 18, 1956	64	1,060	183
July 19	112	39	12
July 20	3,500	62,300	610,000
July 23	114	4,410	1,360
July 30	9	39	(t)
Aug. 6	50	2,930	396
Aug. 13	108	14,700	4,290
Aug. 20	221	6,360	3,800
Aug. 27	3	163	1
Sept. 4	90	5,960	1,450
Sept. 7	80	1,210	261
Sept. 10	106	1,680	481
Sept. 17	5	330	4
Sept. 25	7	129	2

BELEN HIGHLINE CANAL AT ISLETA ^a

Oct. 3, 1955	41	723	80
Oct. 5	45	860	104
Oct. 7	1.7	85	.4
Oct. 10	1.6	233	1.0
Oct. 14	.9	62	.2
Oct. 24	17	85	3.9
Oct. 26	9.5	40	1.0
Oct. 28	12	53	1.7
Oct. 31	31	68	5.7
Nov. 2	32	81	7.0
Nov. 4	37	63	6
Nov. 7	65	137	24
Nov. 9	72	321	62
Nov. 11	88	519	123
Nov. 14	93	1,320	331

ISLETA EAST SIDE CANAL AT ISLETA ^a

Oct. 3, 1955	b 115	809	251
Oct. 5	b 57	957	147
Oct. 7	b 22	80	5
Oct. 10	b 49	335	44
Nov. 9	b 62	311	52
Nov. 11	b 110	690	205
Nov. 14	b 140	1,320	499
Nov. 16	b 70	1,090	206

RIO GRANDE NEAR BELEN

Oct. 4, 1955	164	916	406
Oct. 10	131	255	90
Oct. 18	81	143	31
Oct. 24	53	54	8
Nov. 7	56	140	21
Nov. 14	88	452	107
Nov. 21	350	2,060	1,950
Nov. 29	330	1,470	1,310
Dec. 5	440	2,160	2,570
Dec. 13	420	1,810	2,050
Dec. 28	570	2,300	3,540
Jan. 4, 1956	516	1,840	2,560
Jan. 11	564	1,840	2,800
Jan. 16	591	1,220	1,950
Jan. 23	682	3,100	5,710

t Less than 0.5 ton.

a Total-sediment discharge measured at this station.

b Daily mean discharge.

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water year October 1955 to September 1956--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)

RIO GRANDE NEAR BELEN--Continued

Feb. 1, 1956.....	738	3,020	6,020
Feb. 6.....	430	1,610	1,870
Feb. 13.....	577	1,390	2,170
Mar. 7.....	619	3,440	5,750
Mar. 21.....	168	541	245
Mar. 29.....	330	2,080	1,850
Apr. 5.....	534	3,060	4,410
Apr. 12.....	161	441	192
Apr. 17.....	330	1,290	1,150
Apr. 26.....	380	1,400	1,440
May 3.....	131	1,920	679
May 8.....	633	2,170	3,710
May 17.....	108	142	41
May 22.....	81	88	19
May 31.....	168	496	225
June 4.....	206	691	384
June 14.....	100	245	66
June 18.....	77	142	30
June 28.....	49	174	23
July 3.....	47	113	14
July 12.....	41	119	13
July 16.....	42	141	16
July 26.....	52	354	50
July 30.....	36	61	6
Aug. 9.....	31	97	8
Aug. 16.....	31	69	6
Aug. 23.....	30	181	15
Aug. 30.....	26	86	6
Sept. 6.....	20	46	2
Sept. 12.....	21	39	2
Sept. 29.....	22	24	1

RIO GRANDE AT SAN ANTONIO

Oct. 6, 1955.....	185	24,300	12,100
Oct. 13.....	70.8	1,280	245
Oct. 20.....	10.0	727	20
Nov. 10.....	14.3	613	24
Nov. 18.....	156	4,650	1,980
Nov. 22.....	216	6,710	3,910
Nov. 29.....	266	6,370	4,570
Dec. 8.....	391	6,980	7,470
Dec. 20.....	470	12,000	15,200
Dec. 30.....	529	10,000	14,300
Jan. 7, 1956.....	548	9,420	13,900
Jan. 11.....	538	11,500	16,700
Jan. 17.....	527	11,500	16,400
Jan. 24.....	696	12,100	22,700
Feb. 9.....	726	12,600	24,700
Feb. 17.....	511	12,200	16,800
Feb. 21.....	513	9,260	12,800
Feb. 28.....	631	9,340	15,900
Mar. 7.....	503	11,500	15,600
Mar. 13.....	315	4,270	3,630
Mar. 19.....	230	3,370	2,090
Mar. 27.....	167	823	371
Apr. 3.....	356	8,750	8,410
Apr. 9.....	197	2,790	1,480
Apr. 16.....	118	4,530	1,440
Apr. 24.....	573	4,270	6,610
May 1.....	696	6,260	11,800
May 12.....	383	6,260	6,470
May 15.....	488	3,730	4,910

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956

(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (° F)	Suspended sediment										Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters								
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000

COCHITI EASTSIDE MAIN CANAL NEAR COCHITI

Oct. 3, 1955	3:30 p.m.	3	71	990	3,180		21		26		54	94	100	--	--	VPWCM
Oct. 5	8:00 a.m.	72	58	535		--	--	--	--		26	76	100	--	--	V
Oct. 7	8:00 a.m.	78	49	630		--	--	--	--		23	80	100	--	--	V
Oct. 17	3:00 p.m.	47	62	64		--	--	--	--		57	76	98	100	--	S
Oct. 19	9:00 a.m.	82	54	113		--	--	--	--		35	45	91	100	--	S
Oct. 21	8:30 a.m.	91	53	147		--	--	--	--		51	58	100	100	--	S
Oct. 31	8:30 a.m.	78	--	32		--	--	--	--		98	100	--	--	--	S
Nov. 4	9:30 a.m.	78	42	23		--	--	--	--		95	100	--	--	--	S
Mar. 21, 1956	11:20 a.m.	66	52	192		--	--	--	--		77	83	91	100	--	S
Apr. 3	2:35 p.m.	76	47	1,270		--	--	--	--		64	91	98	100	--	VPWCM
Apr. 16	12:00 m.	103	50	1,380		--	--	--	--		37	74	96	100	--	VPWCM
May 2	10:00 a.m.	86	57	1,470		--	--	--	--		36	65	92	99	100	VPWCM
May 15	11:15 a.m.	92	57	755		--	--	--	--		39	75	98	100	--	V
May 29	10:10 a.m.	91	64	808		--	--	--	--		34	64	99	100	--	V
June 12	10:10 a.m.	100	70	490		--	--	--	--		26	72	94	98	100	S
June 26	9:30 a.m.	100	69	299		--	--	--	--		10	46	92	100	--	V
Aug. 7	9:30 a.m.	87	--	281	784		55	60	67	69	78	89	93	100	--	B
Aug. 21	11:45 a.m.	93	70	518	2,600		51	85	85	97	97	98	99	100	--	SPWCM

SILI MAIN CANAL NEAR COCHITI

Oct. 3, 1955	3:00 p.m.	4	71	611	2,750		37		47		87	100	--	--	--	SPWCM
Oct. 5	8:30 a.m.	21	58	46		--	--	--	--		90	100	--	--	--	S
Oct. 7	8:30 a.m.	18	49	37		--	--	--	--		92	100	--	--	--	S
Oct. 17	2:30 p.m.	16	62	399	1,540		14	16	16		80	100	--	--	--	VPWCM
Oct. 19	8:30 a.m.	29	54	50		--	--	--	--		99	100	--	--	--	S
Oct. 21	8:00 a.m.	27	53	89		--	--	--	--		96	100	--	--	--	S
Oct. 31	8:00 a.m.	36	--	34		--	--	--	--		100	--	--	--	--	S
Nov. 2	7:00 a.m.	30	--	28		--	--	--	--		96	100	--	--	--	S
Nov. 4	9:00 a.m.	36	42	26		--	--	--	--		100	--	--	--	--	S

SILI MAIN CANAL NEAR COCHITI --Continued

Mar. 21, 1955 ...	31	52	212	--	--	--	--	--	97	100	--	--	S
Apr. 3 ...	29	47	1,560	3,440	41	55	55	82	94	96	100	--	VPWCM
Apr. 18 ...	43	50	787	2,180	46	60	60	89	95	100	--	--	SPWCM
May 2 ...	39	57	775	4,110	51	63	63	98	100	--	--	--	SPWCM
May 15 ...	28	59	235	--	--	--	--	93	99	100	--	--	S
June 12 ...	33	74	147	--	--	--	--	65	99	100	--	--	S
June 26 ...	40	69	30	--	--	--	--	76	82	93	100	--	S
Aug. 7 ...	28	--	182	481	74	84	87	100	--	--	--	--	B
Aug. 21 ...	38	70	525	2,170	53	--	87	100	--	--	--	--	PWCM

RIO GRANDE AT COCHITI

Oct. 3, 1955 ...	217	--	924	3,200	32	--	38	58	93	100	--	--	VPWCM
Oct. 18 ...	167	63	170	--	--	--	--	26	78	100	--	--	V
Nov. 2 ...	176	52	192	--	--	--	--	19	57	98	100	--	V
Nov. 15 ...	359	42	1,160	1,080	3	--	5	16	52	87	96	100	VPWCM
Nov. 28 ...	388	40	748	--	--	--	--	24	66	99	100	--	V
Dec. 14 ...	478	36	947	--	--	--	--	26	60	97	100	--	V
Dec. 27 ...	532	39	999	--	--	--	--	26	72	97	100	--	V
Jan. 10, 1956 ...	550	38	957	--	--	--	--	17	63	92	100	--	V
Jan. 24 ...	568	41	895	--	--	--	--	14	59	93	100	--	V
Feb. 7 ...	595	37	1,260	1,660	5	--	8	21	58	93	100	--	VPWCM
Feb. 22 ...	505	42	3,170	1,360	4	--	5	9	16	48	97	100	VPWCM
Mar. 7 ...	941	43	3,630	4,340	33	--	42	51	68	87	98	100	VPWCM
Mar. 3 ...	974	47	5,000	3,780	12	--	16	25	33	40	68	95	VPWCM
Apr. 18 ...	910	52	5,030	3,190	7	--	10	19	34	70	89	100	VPWCM

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956--Continued
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (° F)	Suspended sediment										Methods of analysis
				Concentration of sample analyzed (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters								
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000

RIO GRANDE AT COCHITI--Continued

May 2, 1956	3:30 p.m.	1,240	59	2,200	3,590	--	19	--	23	--	45	81	96	99	100	VPWCM
May 15	1:15 p.m.	505	59	939	--	--	--	--	--	--	32	71	99	100	--	V
May 29	11:45 a.m.	941	66	969	--	--	--	--	--	--	31	71	98	100	--	V
June 12	1:45 p.m.	694	73	1,060	--	--	--	--	--	--	15	43	59	86	96	V
June 26	11:15 a.m.	67	77	36	--	--	--	--	--	--	59	90	100	--	--	S
July 10	12:00 m.	34	80	30	--	--	--	--	--	--	95	98	100	--	--	S
July 24	10:30 a.m.	195	71	415	1,110	22	24	29	38	47	72	92	100	--	--	VPWCM
Aug. 7	12:15 p.m.	54	83	153	351	62	76	82	86	88	88	100	--	--	--	SBWCM
Aug. 21	1:00 p.m.	54	78	370	1,170	50	59	73	85	88	100	--	--	--	--	BWCM
Sept. 4	12:15 p.m.	452	71	1,260	4,480	--	39	--	58	--	87	93	99	100	--	VPWCM
Sept. 18	11:45 a.m.	388	73	25	--	--	--	--	--	--	53	70	82	100	--	S

RIO GRANDE AT SAN FELIPE

Oct. 4, 1955	3:00 p.m.	212	73	1,170	3,100	--	18	--	25	--	51	59	63	99	100	VPWCM
Oct. 19	2:30 p.m.	236	64	712	1,850	--	16	--	22	--	61	90	97	100	--	VPWCM
Nov. 2	11:15 a.m.	280	64	2,040	2,800	--	5	--	8	--	25	44	58	81	100	VPWCM
Nov. 14	2:35 p.m.	370	52	1,510	4,770	--	6	--	10	--	44	90	98	100	--	VPWCM
Nov. 28	3:00 p.m.	407	44	1,440	3,860	--	5	--	8	--	38	85	100	--	--	VPWCM
Dec. 14	3:15 p.m.	466	40	1,480	2,920	--	6	--	9	--	27	65	82	92	100	VPWCM
Dec. 27	1:35 p.m.	595	40	1,510	2,860	--	6	--	9	--	32	79	98	100	--	VPWCM
Jan. 10, 1956	3:10 p.m.	568	43	1,100	2,370	--	6	--	8	--	29	76	99	100	--	VPWCM
Jan. 24	2:40 p.m.	518	43	938	1,660	--	4	--	5	--	22	76	96	100	--	VPWCM
Feb. 7	2:15 p.m.	595	40	1,200	2,710	--	7	--	11	--	34	76	96	100	--	VPWCM
Feb. 22	1:45 p.m.	470	47	867	--	--	--	--	--	--	21	60	93	97	100	V
Mar. 6	2:05 p.m.	851	47	3,870	3,730	--	39	--	51	--	70	90	99	100	--	VPWCM
Mar. 21	10:43 a.m.	510	51	916	1,980	--	12	--	31	--	43	82	100	--	--	VPWCM
Mar. 4	8:25 p.m.	885	51	1,680	3,860	--	32	--	45	--	68	91	99	100	--	VPWCM
Apr. 19	10:30 a.m.	928	50	1,760	3,290	--	19	--	26	--	50	79	96	100	--	VPWCM

RIO GRANDE AT SAN FELIPE--Continued

May 2, 1956.....	10:20 a.m.	1,220	58	2,170	4,110	20	26	53	86	99	100	--	VPWCM V
May 15.....	4:15 p.m.	595	66	2,550	--	--	--	15	29	50	71	98	VPWCM
May 29.....	2:20 p.m.	906	70	1,190	2,740	12	15	41	84	98	100	--	VPWCM
June 12.....	4:30 p.m.	670	76	641	1,100	14	18	38	83	100	--	--	VPWCM
June 26.....	2:15 p.m.	136	--	107	--	--	--	41	75	99	100	--	S
July 10.....	2:15 p.m.	107	--	84	420	69	77	96	97	100	--	--	SPWCM
July 24.....	1:45 p.m.	245	--	608	2,200	39	56	85	94	98	100	--	VPWCM
Aug. 7.....	1:50 p.m.	116	82	1,610	3,010	24	33	48	52	62	95	100	VPWCM
Aug. 21.....	3:30 p.m.	160	78	2,670	3,160	53	76	82	85	91	99	100	VPWCM
Sept. 4.....	2:30 p.m.	376	75	3,110	4,420	29	42	62	82	94	100	--	VPWCM
Sept. 18.....	3:50 p.m.	70	76	114	940	44	67	88	98	100	--	--	SPWCM

ALBUQUERQUE MAIN CANAL AT ALGODONES

Oct. 4, 1955.....	10:30 a.m.	76	63	988	5,030	39	54	82	97	100	--	--	VPWCM
Oct. 5.....	11:30 a.m.	159	63	955	3,540	24	35	65	90	97	100	--	VPWCM
Oct. 7.....	3:15 p.m.	131	63	953	3,380	19	29	59	74	87	99	100	VPWCM
Oct. 17.....	3:00 p.m.	43	66	1,930	5,180	10	17	55	85	96	100	--	VPWCM
Oct. 19.....	2:30 p.m.	153	66	1,080	2,640	12	17	45	70	87	97	100	VPWCM
Oct. 21.....	3:00 p.m.	185	65	1,430	5,010	12	21	56	85	91	96	100	VPWCM
Nov. 2.....	12:45 p.m.	205	52	1,490	3,720	10	16	46	71	93	99	100	VPWCM
Nov. 4.....	2:40 p.m.	225	53	1,280	3,740	10	16	45	74	90	97	100	VPWCM
Nov. 14.....	12:20 p.m.	247	51	2,650	2,870	7	9	35	68	94	100	--	VPWCM

RIO GRANDE AT ALBUQUERQUE

Oct. 4, 1955.....	2:45 p.m.	102	68	1,420	3,440	87	96	98	99	100	--	--	SPWCM
Oct. 31.....	2:00 p.m.	30	57	50	--	22	33	50	87	100	--	--	S
Nov. 22.....	12:20 p.m.	378	46	2,210	3,980	22	35	45	66	54	92	100	VPWCM
Dec. 1.....	2:30 p.m.	402	49	1,310	2,860	24	32	82	90	98	100	--	VPWCM
Dec. 12.....	2:30 p.m.	408	42	1,900	3,620	23	38	73	81	94	100	--	VPWCM

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956--Continued
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment										Methods of analysis
				Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters								
						0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.500	1.000	2.000

RIO GRANDE AT ALBUQUERQUE--Continued

Dec. 27, 1955...	2:30 p.m.	600	48	2,080	3,080				31		68	79	94	100	--	VPWCM
Jan. 6, 1956...	3:45 p.m.	590	48	2,210	3,260				31		73	87	99	100	--	VPWCM
Jan. 23.....	3:55 p.m.	580	43	1,910	3,850				23		63	78	97	100	--	VPWCM
Feb. 7.....	3:45 p.m.	692	45	4,130	3,730				22		70	89	98	100	--	VPWCM
Feb. 20.....	4:00 p.m.	553	50	3,090	3,370				23		76	94	100	--	--	VPWCM
Mar. 5.....	4:05 p.m.	640	53	5,210	3,630				50		86	97	100	--	--	VPWCM
Mar. 19.....	3:30 p.m.	227	58	1,350	2,980				30		84	95	100	--	--	VPWCM
Apr. 3.....	11:55 a.m.	960	45	4,910	3,480				21		75	95	100	--	--	VPWCM
Apr. 16.....	3:00 p.m.	660	61	3,520	4,700				33		75	94	100	94	100	VPWCM
Apr. 19.....	4:35 p.m.	580	59	6,190	5,000				17		33	43	67	100	--	VPWCM
Apr. 30.....	11:50 a.m.	692	60	3,990	4,040				34		73	93	100	--	--	VPWCM
May 14.....	3:30 p.m.	345	--	1,220	2,110				30		60	80	99	100	--	VPWCM
May 28.....	4:10 p.m.	469	72	1,920	3,340				44		73	92	100	--	--	VPWCM
June 11.....	2:15 p.m.	468	80	1,840	3,140				23		60	81	94	100	--	VPWCM
June 14.....	12:20 p.m.	182	76	1,020	2,050				27		64	56	89	100	--	VPWCM
July 20.....	12:00 m.	3,500	70	62,300	3,840				80		94	98	100	--	--	VPWCM
July 23.....	3:00 p.m.	114	78	4,410	3,890				98		99	100	--	--	--	VPWCM
Aug. 6.....	11:50 a.m.	50	78	2,930	3,640				93		97	98	100	--	--	VPWCM
Aug. 20.....	10:20 a.m.	221	71	6,360	3,880				93		97	99	100	--	--	VPWCM
Sept. 4.....	11:15 a.m.	90	--	5,960	3,640				76		99	99	100	--	--	VPWCM
Sept. 17.....	9:45 a.m.	5	62	330	1,100				92		93	95	100	--	--	VPWCM

BELEN HIGHLINE CANAL AT ISLETA

Oct. 3, 1955....	1:00 p.m.	41	71	723	1,380				95		99	100				SPWCM
Oct. 5.....	9:55 a.m.	45	65	860	1,220				96		100	--				PWCM
Nov. 4.....	11:30 a.m.	57	--	63					93		98	100				S
Nov. 14.....	10:30 a.m.	93	--	1,320	4,520				63		100	--				PWCM

ISLETA EAST SIDE CANAL AT ISLETA

Oct. 3, 1955.....	12:45 p.m.	a 115	71	809	2,100	84	92	96	97	100	SPWCM
Oct. 5.....	9:10 a.m.	a 57	74	957	4,360	89	95	100	--	--	FWCM
Nov. 14.....	10:00 a.m.	a 140	--	1,320	3,440	66	94	99	99	100	SPWCM
Nov. 16.....	1:50 p.m.	a 70	44	1,090	2,960	72	96	100	--	--	FWCM

RIO GRANDE NEAR BELEN

Oct. 4, 1955.....	2:15 p.m.	164	74	916	3,600	64	84	99	100	--	SPWCM
Nov. 14.....	2:00 p.m.	88	52	452	1,870	68	87	99	99	--	SPWCM
Nov. 29.....	12:05 p.m.	330	43	1,470	4,090	57	81	92	100	--	VPWCM
Dec. 13.....	1:10 p.m.	420	44	1,810	4,700	45	73	85	99	100	VPWCM
Dec. 28.....	11:40 a.m.	570	47	2,300	4,620	43	69	87	100	--	VPWCM
Jan. 11, 1956.....	1:50 p.m.	564	45	1,840	4,760	37	60	80	99	100	VPWCM
Jan. 23.....	2:00 p.m.	682	47	3,100	2,700	20	31	43	68	95	VPWCM
Feb. 6.....	12:10 p.m.	430	41	1,610	2,240	23	32	48	50	69	VPWCM
Mar. 7.....	11:30 a.m.	619	42	3,440	4,050	62	75	88	95	100	VPWCM
Mar. 21.....	3:20 p.m.	168	58	541	2,760	52	71	97	100	--	SPWCM
Apr. 5.....	2:05 p.m.	534	59	3,060	3,200	42	58	87	96	100	VPWCM
Apr. 17.....	1:30 p.m.	330	63	1,290	4,860	53	74	90	95	99	SPWCM
May 3.....	12:15 p.m.	131	64	1,920	4,000	47	65	87	92	99	VPWCM
May 17.....	11:35 a.m.	108	63	142	--	--	--	92	96	100	S
May 31.....	11:00 a.m.	168	67	496	--	--	--	87	95	100	V
June 14.....	8:30 a.m.	100	83	245	750	47	65	89	98	100	SPWCM
June 26.....	12:30 p.m.	49	70	174	1,060	45	63	89	97	99	SPWCM
July 12.....	11:30 a.m.	41	72	119	595	57	69	92	98	100	SPWCM
Aug. 23.....	11:45 a.m.	30	72	161	750	70	82	99	99	100	SPWCM

a Daily mean discharge.

RIO GRANDE BASIN--Continued
MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water year October 1955 to September 1956--Continued
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water;
W, in distilled water; C, chemically dispersed; M, mechanically dispersed; V, visual accumulation tube)

Date of collection	Time	Discharge (cfs)	Water temperature (°F)	Suspended sediment										Methods of analysis				
				Concentration of sample (ppm)		Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters											
				0.002	0.004		0.008	0.016	0.031	0.062	0.125	0.250	0.350		0.500	1.000		
RIO GRANDE AT SAN ANTONIO																		
Oct. 6, 1955	1:40 p.m.	185	65	24,300	4,230		82			93		97		99	100			VPWCM
Oct. 13	5:00 p.m.	70.8	61	1,280	4,480		86			97		100		--	--			PWCM
Oct. 20	--	10.0	62	727	1,860		92			99		100		--	--			PWCM
Nov. 10	9:20 a.m.	14.3	37	613	1,350		83			90		92		94	99			VPWCM
Nov. 18	2:10 p.m.	158	49	4,650	3,860		61			79		91		96	100			VPWCM
Nov. 21	2:00 p.m.	216	50	6,710	5,440		58			77		90		97	100			VPWCM
Nov. 29	11:55 a.m.	266	48	6,370	5,080		54			72		86		94	100			VPWCM
Dec. 8	9:50 a.m.	391	38	6,980	5,010		48			64		85		96	100			VPWCM
Dec. 20	12:35 p.m.	470	42	12,000	3,260		28			44		80		94	100			VPWCM
Dec. 30	12:50 p.m.	529	42	10,000	3,000		31			47		86		97	100			VPWCM
Jan. 7, 1956	3:30 p.m.	548	42	9,420	3,210		24			36		77		95	100			VPWCM
Jan. 11	2:10 p.m.	538	45	11,500	3,390		25			36		84		97	100			VPWCM
Jan. 17	10:30 a.m.	527	45	11,500	4,180		23			33		82		98	100			VPWCM
Jan. 24	1:30 p.m.	696	49	12,100	3,820		24			35		90		96	100			VPWCM
Feb. 9	1:50 p.m.	726	40	12,600	4,070		23			35		78		95	100			VPWCM
Feb. 17	12:20 p.m.	511	41	12,200	3,760		20			28		79		97	100			VPWCM
Feb. 21	2:15 p.m.	513	52	9,260	3,260		23			34		83		98	100			VPWCM
Feb. 28	3:30 p.m.	631	52	9,340	4,020		18			35		82		98	100			VPWCM
Mar. 7	11:55 a.m.	503	49	11,500	4,720		30			40		86		99	100			VPWCM
Mar. 13	2:10 p.m.	315	50	4,270	4,170		36			52		86		98	100			VPWCM
Mar. 19	11:40 a.m.	230	60	3,370	4,910		26			38		78		98	100			VPWCM
Mar. 27	12:10 p.m.	167	62	823	3,260		59			72		91		99	100			VPWCM
Apr. 3	1:40 p.m.	356	55	8,750	3,120		37			52		82		98	100			VPWCM
Apr. 9	2:20 p.m.	197	65	2,790	3,890		25			36		83		98	100			VPWCM
Apr. 16	1:15 p.m.	118	63	4,530	3,160		35			44		78		97	100			VPWCM
Apr. 24	2:50 p.m.	573	--	4,270	3,530		39			50		79		97	100			VPWCM
May 1	1:05 p.m.	696	--	6,260	4,980		32			48		86		99	100			VPWCM
May 12	10:30 a.m.	383	74	6,260	4,140		33			47		81		98	100			VPWCM
May 15	2:00 p.m.	488	61	3,730	4,880		41			55		82		96	100			VPWCM

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