Quality of Surface Waters of the United States 1955

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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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 by personnel of the Water Resources Division under the direction of:

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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.

The regular yearly publication of records of chemical analyses, suspended sediment, and water temperature was begun by the Geological Survey in 1941. The annual records prior to 1948 were published 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 were collected from October 1, 1954, to September 30, 1955. 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 dissolved solids, hardness, sediment loads, water temperature, and

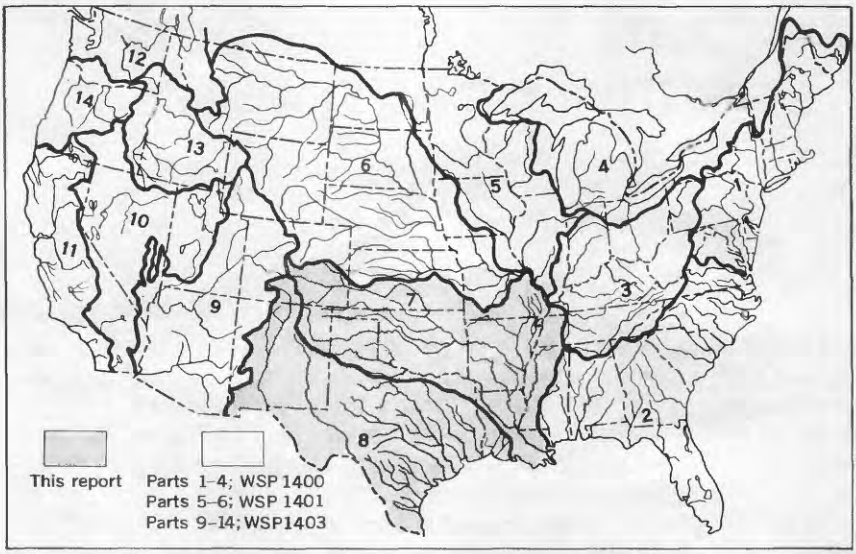

Figure 1. Map of the United States showing basins covered by the four water-supply papers on quality of surface waters in 1955. The shaded portion represents the section of the country covered by this volume; the unshaded portion represents the section of the country covered by other water-supply papers.

other pertinent data. Records of water discharge of the streams at, or near, the sampling point for the sampling period are included in most tables of analyses. The records are arranged by drainage basins, according to Geological Survey practice in reporting records of stream flow.

Beginning with the series of reports for the water year ending September 30, 1951, the order of listing station records was changed. In this report, stations on tributary streams are listed between stations on the main stream in the order in which those tributaries enter the main stem. Stations on tributaries to tributaries are inserted in a similar manner.

During the year ended September 30, 1955, 160 regular sampling stations on 100 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 123 of the regular sampling 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, determinations made on the

daily samples before compositing have not been reported. Specific conductance was usually determined on each daily sample, and as noted in the table headings 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 26 stations during the year ended September 30, 1955. 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 26 of the stations. As noted under Remarks in the table headings, suspended-sediment concentrations also were determined from the samples collected for chemical analyses in some parts of the country. The data do not provide a reliable basis for computing the loads of suspended sediment carried by the stream but may be of value for design and operation of filtration plants utilizing these stream waters. Records of these infrequent determinations are available for reference in the district offices listed.

Material which is transported essentially 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 method has been developed for determining bed load on a routine basis.

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 samples for analysis are used in Geological Survey Laboratories: (1) Equal volume method-For streams, mostly east of the Mississippi River, not subject to rapid and large fluctuations in chemical composition or concentration, 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 during the remainder of the month. Samples were sometimes composited for shorter periods on the basis of the concentration of dissolved solids as indicated by measurements of specific conductance of the daily samples.

(2) Discharge method-Composites based on discharge consist of a volume taken from each sample in proportion to the product of the rate of water discharge when the sample was collected and the length of time the sample represents. With this method usually each daily sample was assumed to represent an equal time and the volumes composited were taken in proportion to the rates of discharge when the samples were collected.

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., 1946).

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 the sum of the quantities of the various determined constituents using the carbonate equivalent of the reported bicarbonate. The sum of the constituents may be given instead of or in addition to the residue. Specific conductance is is given for most analyses and was determined by means of a conductance bridge using a standard potassium chloride solution as reference.

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. Suspended-sediment samples, consisting of depth-integrated samples at three or more verticals in the cross section, were made periodically to determine the cross-sectional distribution of the suspended concentration 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.

In addition to the records of quantities of suspended sediment transported, records of the particle sizes of sediment are included also. 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 pipette 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. Size fractions between 1.000 mm and 0.062 mm were usually analyzed by the visual accumulation tube method (U. S. Interagency 1957). Separations between sand and silt-clay sizes and some analyses of all sediment coarser than 0.062 mm were made by sieve analysis. Native or distilled water, as noted in the tables of analyses, was used as the settling medium. In some instances, chemical dispersing agents were added to the settling medium. In some instances, chemical dispersing agents were added to the settling medium. As settling diameters of the clay and colloidal fractions are often affected by the chemical character of the

settling medium, analyses made using native water may more nearly simulate particle sizes existing in the stream. Results of analyses using distilled water or using a settling medium containing dispersing agents 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 pipette method. The concentration of suspended sediment used in the bottom-withdrawal tube or pipette cylinder was often different from the concentration in the original suspension. The concentration at which analyses were made is indicated in the appropriate tables.

TEMPERATURE

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

Records of thermograph observations consist of maximum and minimum temperatures for each day, and the monthly averages of the maximum daily and minimum daily temperatures.

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^{--})	.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, as 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.

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 values are expressed in reciprocal ohms per centimeter times 10^6 (micromhos per cm at 25°C). The discharge of the streams is reported in cubic feet per second (see Streamflow, p. 22) 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 which is generally used in Survey laboratories, determines the activity of the hydrogen ions as distinguished from concentration.

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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. The discharge-weighted average reported for some station 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 finer than indicated sizes in millimeters. The size classification used in this report is that recommended by the American Geophysical Union Subcommittee on sediment terminology (Lane, et al; 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 through which the water has passed and the length of time it has been in contact with the rocks or soils. Some streams are fed by both surface runoff and underground 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. Underground water is usually more highly concentrated than surface runoff as 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 return drain waters.

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. 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 few contain more than 50 parts, but the more common range is from 10 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 steam turbines.

Aluminum (Al)

Aluminum is usually 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 practically 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 practically 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 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--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, 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 to about the same extent 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 in some instances may indicate previous contamination by sewage or other organic matter. The quantities of nitrate present in surface waters usually amount to 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 be the cause of methemoglobinemia in infants (Waring, 1949). In a report published by the National Re-

search 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 boron is detrimental to citrus and other boron-sensitive crops. Boron is reported in Survey analyses of surface waters in arid and semiarid regions of the Southwest and West 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. Waters 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.

PROPERTIES AND CHARACTERISTICS OF WATER

Oxygen consumed

The value for 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. Naturally highly colored waters may have relatively high oxygen consumed, although 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 usually 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, 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 value of 7.0 indicates that the water is neither acid nor alkaline. Waters having pH values progressively lower than 7.0 denote increasing acidity, whereas values progressively higher than 7.0 denote increasing alkalinity (see p. 7). 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. 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. (See p. 7.)

Hardness

Hardness is the characteristic of water that receives the most attention in industrial and domestic use. It is usually 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 usually requires some softening before being used for most purposes.

Total acidity

The total acidity of a natural water represents the content of free carbon dioxide, mineral acids, and salts--especially sulfates of iron and aluminum-- that hydrolyze to give hydrogen ions. Acid waters are very corrosive and generally contain excessive amounts of objectionable constituents, such as iron, aluminum, and manganese.

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

Percent sodium 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 basic constituents in the water has a bearing on the suitability of a water for irrigation. (See p. 7.) 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; Wilcox, 1948, p. 6).

Sodium-adsorption-ratio

The U. S. Salinity Laboratory Staff (1954) introduced the term sodium-adsorption-ratio (SAR), a ratio for irrigation waters and soil extracts used to express the relative activity of sodium ions in exchange reactions with the soil. This ratio is expressed by the equation:

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

where the concentrations of the ions are expressed in milliequivalents per liter (or equivalents per million for most irrigation waters). It has more significance than percent sodium for use as an index of the sodium or alkali hazard of the water because it relates more directly to the adsorption of sodium by the soil.

Waters are divided into four classes with respect to sodium or alkali hazard: low, medium, high, and very high, depending upon the SAR value 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 at 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 sediment 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, vegetal 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.

PUBLICATIONS

Reports giving chemical analyses, suspended-sediment loads, and water temperatures of samples of surface water made by the Geological Survey have been published yearly since 1941. Records for many of the stations listed in this report for the water years ending September 30, 1941-1955 are listed below:

Numbers of water-supply papers containing records for Parts 7 and 8, 1941-55

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	--	--

Geological Survey reports containing analyses of surface-water samples collected prior to 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 the table.

Financial assistance was furnished by the Bureau of Reclamation of the United Stated Department of the Interior for some of the investiagtions 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 partical-sizes 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 municipal, State, and Federal agencies.

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.

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		Lower Mississippi River (sediment investigations at St. Louis).	510 Rudge-Guenzel Bldg. Lincoln, Nebr.
New Mexico	New Mexico Interstate Stream Commission, J. R. Erickson, secretary.[a] 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.

a Succeeded by S. E. Reynolds.

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 H. A. Beckwith, chairman, A. P. Rollins, 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 Hubbard Creek Water Committee. City of Wichita Falls. Chambers-Liberty Counties Navigation District.	Lower Mississippi River, Western Gulf of Mexico.	807 Brazos St. Austin 14, Tex.

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, 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 Arkansas--J. W. Geurin; in Missouri--P. C. Benedict; in Oklahoma and in the Arkansas River basin in Kansas--T. B. Dover; in New Mexico and in the Rio Grande and Arkansas River basins in Colorado--J. M. Stow; and in Texas and Louisiana--Burdge Irelan. Any additional information on file can be obtained by writing the responsible Survey district office.

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 the mean daily discharges for the normal composite period. For analyses in which the composite periods differ from the normal 10 or 11-day period, the discharges reported are the averages of the mean daily discharges for the days indicated. 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.

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PART 7. LOWER MISSISSIPPI RIVER BASIN

MISSISSIPPI RIVER MAIN STEM

MISSISSIPPI RIVER AT ST. LOUIS, MO.

LOCATION.--At MacArthur Bridge, 1.1 miles below gaging station, which is 15 miles downstream from the Missouri River, 19.2 miles upstream from Meramec River, and at mile 180.0 above mouth of Ohio River.
DRAINAGE AREA.--701,000 square miles, approximately.
RECORDS AVAILABLE.--Water temperatures: October 1950 to September 1955.
Sediment records: April 1948 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 89°F Aug. 2; minimum, freezing point on several days during January and February.
Sediment concentrations: Maximum daily, 2,530 ppm Feb. 23; minimum daily, 77 ppm Feb. 1.
Sediment loads: Maximum daily, 2,110,000 tons Feb. 23; minimum daily, 13,600 tons Feb. 1.
EXTREMES, 1948-55.--Water temperatures (1950-55): 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, 38 ppm Feb. 2, 3, 1951.
Sediment loads: Maximum daily, 7,010,000 tons May 5, 1951; minimum daily, 4,340 tons Feb. 3, 1951.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement generally between 9 a. m. and 3 p. m./

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

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

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1.....	107,000	208	60,100	152,000	311	128,000	76,400	130	a27,000
2.....	106,000	200	a57,000	139,000	260	97,600	77,200	101	21,100
3.....	97,200	220	a58,000	131,000	290	a100,000	78,000	90	19,000
4.....	92,200	212	52,800	127,000	278	95,300	79,400	90	a19,000
5.....	102,000	240	a66,000	131,000	262	92,700	79,400	100	a21,000
6.....	133,000	308	111,000	134,000	250	a90,000	80,200	103	22,300
7.....	162,000	396	173,000	119,000	240	a77,000	78,700	122	25,900
8.....	166,000	511	229,000	104,000	223	62,600	78,000	150	a32,000
9.....	162,000	1,000	a440,000	101.000	178	48,500	81,000	148	32,400
10.....	152,000	1,400	a570,000	104,000	150	a42,000	82,400	121	26,900
11.....	171,000	1,240	573,000	102,000	140	a39,000	78,000	120	a25,000
12.....	206,000	968	538,000	98,000	130	34,400	75,000	140	a28,000
13.....	225,000	1,100	668,000	92,200	120	a30,000	72,200	137	26,700
14.....	236,000	1,240	790,000	89,700	120	a29,000	70,800	120	a23,000
15.....	237,000	1,100	704,000	90,400	121	29,500	71,500	113	21,800
16.....	224,000	850	a510,000	87,200	108	25,400	71,500	99	19,100
17.....	212,000	750	a430,000	82,400	95	a21,000	73,600	108	21,500
18.....	212,000	687	393,000	84,000	95	21,500	72,900	110	a22,000
19.....	204,000	700	a390,000	88,000	137	32,600	72,200	120	23,000
20.....	194,000	1,200	a630,000	88,800	120	a29,000	72,200	122	23,800
21.....	192,000	984	510,000	86,400	110	a26,000	71,500	110	a21,000
22.....	189,000	674	344,000	85,600	110	25,400	72,200	96	18,700
23.....	182,000	550	a270,000	84,800	109	25,000	73,600	98	19,500
24.....	180,000	480	a230,000	85,600	115	26,600	78,000	100	a21,000
25.....	176,000	352	167,000	86,400	120	a28,000	80,200	110	a24,000
26.....	175,000	352	166,000	82,400	130	a29,000	77,200	120	a25,000
27.....	171,000	420	a190,000	75,000	130	a26,000	75,700	93	19,000
28.....	174,000	418	196,000	75,000	120	a24,000	81,000	107	23,400
29.....	174,000	362	170,000	78,000	112	23,600	94,700	110	a28,000
30.....	166,000	340	a150,000	78,000	111	23,400	93,800	103	26,100
31.....	158,000	360	a150,000	--	--	--	85,600	116	26,800
Total	5,337,400	--	9,985,900	2,961,900	--	1,382,100	2,404,100	--	733,000

Day	January			February			March		
1.....	93,000	120	a30,000	65,200	77	13,600	212,000	825	472,000
2.....	94,700	110	a28,000	65,200	92	16,200	215,000	750	a440,000
3.....	99,800	142	38,300	65,900	122	21,700	231,000	790	493,000
4.....	113,000	140	42,700	67,300	140	a25,000	237,000	808	517,000
5.....	116,000	170	a53,000	69,400	140	a26,000	203,000	800	a440,000
6.....	144,000	287	112,000	68,700	130	a24,000	175,000	750	a350,000
7.....	204,000	606	334,000	67,300	119	21,600	174,000	785	369,000
8.....	215,000	900	a520,000	65,200	90	15,800	185,000	800	a400,000
9.....	203,000	1,000	a550,000	64,600	90	a16,000	185,000	870	435,000
10.....	177,000	900	a430,000	74,300	100	a20,000	176,000	824	392,000
11.....	153,000	750	310,000	74,300	120	a24,000	170,000	730	335,000
12.....	137,000	600	a220,000	67,300	120	a22,000	163,000	600	a260,000
13.....	129,000	503	175,000	68,700	120	a22,000	158,000	500	a210,000
14.....	119,000	387	124,000	70,100	118	22,300	157,000	452	192,000
15.....	113,000	300	a92,000	71,500	111	21,400	156,000	440	a190,000
16.....	114,000	260	a80,000	67,300	120	a22,000	171,000	540	249,000
17.....	107,000	220	63,600	68,000	139	25,500	196,000	602	319,000
18.....	102,000	197	54,300	70,800	170	32,500	204,000	654	360,000
19.....	101,000	180	a49,000	79,400	240	a51,000	213,000	850	a490,000
20.....	92,200	180	44,800	152,000	480	a200,000	215,000	950	a550,000
21.....	90,400	204	49,800	239,000	1,400	a900,000	199,000	800	a430,000
22.....	93,000	200	a50,000	284,000	2,460	1,890,000	194,000	628	329,000
23.....	89,600	180	a44,000	309,000	2,530	2,110,000	199,000	607	326,000
24.....	81,000	162	35,400	291,000	2,000	a1,600,000	209,000	590	333,000
25.....	75,700	150	a31,000	275,000	1,480	1,100,000	218,000	555	327,000
26.....	70,800	140	a27,000	254,000	1,200	a820,000	218,000	500	a290,000
27.....	70,100	130	a25,000	233,000	1,000	a630,000	193,000	480	a250,000
28.....	69,400	120	a22,000	218,000	810	477,000	177,000	438	209,000
29.....	69,400	120	a22,000	--	--	--	168,000	430	195,000
30.....	67,300	110	a20,000	--	--	--	163,000	400	a180,000
31.....	65,900	95	a17,000	--	--	--	156,000	358	151,000
Total	3,469,300	--	3,693,900	3,565,500	--	10,169,600	5,890,000	--	10,483,000

a Computed from estimated concentration graph and by comparison with daily turbidity readings.

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

Suspended sediment, water year October 1954 to September 1955--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.....	151,000	308	126,000	242,000	800	520,000	185,000	1,240	619,000
2.....	152,000	280	a110,000	222,000	867	520,000	170,000	1,300	a600,000
3.....	147,000	300	a120,000	207,000	1,100	a610,000	163,000	970	427,000
4.....	142,000	345	132,000	196,000	991	524,000	164,000	760	a340,000
5.....	148,000	265	106,000	184,000	800	a400,000	170,000	600	a280,000
6.....	157,000	285	121,000	185,000	621	277,000	172,000	490	228,000
7.....	168,000	380	a170,000	148,000	480	a190,000	177,000	420	a200,000
8.....	166,000	354	159,000	130,000	360	a130,000	174,000	400	188,000
9.....	165,000	340	a150,000	132,000	292	104,000	169,000	400	a180,000
10.....	169,000	340	a160,000	133,000	320	a110,000	169,000	432	197,000
11.....	165,000	322	143,000	127,000	382	131,000	177,000	460	a220,000
12.....	160,000	290	125,000	131,000	340	a120,000	175,000	650	a310,000
13.....	171,000	300	a140,000	141,000	291	111,000	169,000	705	322,000
14.....	182,000	364	179,000	176,000	340	a160,000	174,00	600	a280,000
15.....	188,000	407	207,000	197,000	460	a240,000	172,000	553	257,000
16.....	190,000	400	a210,000	196,000	676	358,000	169,000	500	a230,000
17.....	193,000	420	a220,000	184,000	950	a470,000	165,000	498	222,000
18.....	206,000	570	317,000	154,000	940	391,000	160,000	480	a210,000
19.....	210,000	538	305,000	142,000	750	a290,000	156,000	440	a190,000
20.....	200,000	600	320,000	128,000	523	181,000	153,000	385	159,000
21.....	197,000	834	444,000	118,000	340	a110,000	153,000	340	a140,000
22.....	201,000	699	379,000	113,000	270	a82,000	152,000	322	132,000
23.....	213,000	600	a350,000	107,000	240	69,000	140,000	300	a110,000
24.....	231,000	650	a410,000	102,000	219	60,300	125,000	277	93,500
25.....	251,000	823	558,000	103,000	217	60,300	122,000	320	a110,000
26.....	255,000	1,000	a690,000	94,700	220	a56,000	123,000	480	a160,000
27.....	255,000	1,240	854,000	102,000	242	66,600	148,000	750	a300,000
28.....	260,000	1,300	a910,000	110,000	260	a77,000	159,000	1,140	489,000
29.....	260,000	1,180	828,000	162,000	310	a140,000	176,000	1,560	741,000
30.....	254,000	1,000	a690,000	181,000	430	a210,000	166,000	1,800	a810,000
31.....	--	--	--	185,000	700	a350,000	--	--	--
Total.	5,807,000	--	9,633,000	4,712,700	--	7,118,200	4,847,000	--	8,744,500

	July			August			September		
1.....	156,000	2,400	1,010,000	79,400	310	a66,000	118,000	220	a70,000
2.....	140,000	1,800	a680,000	77,200	312	65,000	118,000	305	97,200
3.....	131,000	1,700	a600,000	81,700	280	a62,000	107,000	600	a170,000
4.....	128,000	1,800	a620,000	82,400	280	a62,000	95,600	550	a140,000
5.....	117,000	1,540	486,000	88,000	215	51,100	82,400	420	a93,000
6.....	117,000	1,070	338,000	91,300	160	a39,000	72,200	360	a70,000
7.....	117,000	1,100	a350,000	88,800	140	a34,000	67,300	305	55,400
8.....	138,000	1,040	388,000	88,800	150	a36,000	65,900	280	a50,000
9.....	143,000	900	a350,000	91,300	161	39,700	84,600	278	48,500
10.....	131,000	700	a250,000	95,600	278	71,800	65,200	260	a46,000
11.....	139,000	840	315,000	94,700	340	a87,000	66,600	260	a47,000
12.....	134,000	950	a340,000	99,000	242	64,700	63,200	240	a41,000
13.....	136,000	824	303,000	94,700	280	a72,000	63,200	246	42,000
14.....	141,000	700	a270,000	89,600	320	a77,000	62,000	280	46,900
15.....	165,000	617	275,000	83,200	263	59,100	63,200	260	a44,000
16.....	163,000	600	a260,000	82,400	240	a53,000	63,200	212	36,200
17.....	151,000	650	a270,000	82,400	220	a49,000	80,000	200	a32,000
18.....	141,000	790	301,000	81,700	252	55,600	60,000	200	a32,000
19.....	132,000	800	a290,000	81,000	260	56,900	61,300	200	a33,000
20.....	119,000	679	218,000	78,000	260	a55,000	66,600	220	39,600
21.....	112,000	600	a180,000	75,000	240	a49,000	68,000	201	36,900
22.....	107,000	520	150,000	75,700	240	a49,000	65,200	220	a39,000
23.....	99,800	480	a130,000	75,700	220	a45,000	72,900	240	47,200
24.....	99,800	460	a120,000	72,900	220	a43,000	69,400	240	a45,000
25.....	101,000	473	129,000	70,100	200	a38,000	68,000	260	a48,000
26.....	99,000	520	a140,000	65,200	208	36,600	68,000	260	a48,000
27.....	94,700	445	114,000	60,000	204	33,000	70,100	240	a45,000
28.....	91,300	380	a94,000	60,000	200	a32,000	76,400	240	a50,000
29.....	91,300	300	a74,000	60,000	195	31,600	78,700	300	a64,000
30.....	66,400	300	a70,000	84,000	200	a45,000	91,300	510	126,000
31.....	89,600	300	a73,000	108,000	200	58,300	--	--	--
Total.	3,810,900	--	9,188,000	2,537,800	--	1,616,400	2,213,500	--	1,782,900

Total discharge for year (cfs-days) 47,557,100
Total load for year (tons) 74,530,500

a Computed from estimated concentration graph and by comparison with daily turbidity readings.

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

Particle-size analyses of suspended sediment, October 1954 to May 1955
(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. 18, 1954	--	a212,000	--	683	5,530	41	51	61	71	81	85	89	98		100		SBWCM
Nov. 29	--	a78,000	42	113	354	40	49	55	66	74	77	82	97		100		SBWCM
Feb. 25, 1955	1:10 p.m.	275,000	35	1,470	--	40	47	56	66	79	85	90	97		99		BWCM
Mar. 31	2:00 p.m.	155,000	43	354	--	--	--	--	--	--	65	71	37		95		BWCM
May 24	12:50 p.m.	102,000	--	218	--	47	53	58	67	81	93	97	100		--		VPWCM

a Daily mean discharge.

Particle-size analyses of bed material, October 1954 to May 1955
(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)

Date of collection	Number of sampling pointe	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									
						0.062	0.125	0.250	0.500	1.000	2.000	4.000	7.93	12.7	
Oct. 19, 1954	4	a204,000				--	0	40	64	84	94	98	100	--	S
Nov. 29	4	a78,000				0	8	41	76	92	98	100	--	--	S
Feb. 25, 1955	4	275,000				0	13	50	84	91	92	93	96	98	S
Mar. 18	4	206,000				0	2	70	90	96	98	100	--	--	S
Apr. 1	4	151,000				--	0	60	92	99	100	--	--	--	S
May 24	16	102,000				0	11	38	79	93	96	97	98	99	S
May 24	4	102,000				0	1	42	88	96	99	99	100	--	S

a Daily mean discharge.

ST. FRANCIS RIVER BASIN

ST. FRANCIS RIVER AT MARKED TREE, ARK.

LOCATION.--At gaging station at bridge on U. S. Highway 63, at Marked Tree, Poinsett County, 4.8 miles downstream from Little River, and 7 miles downstream from dam of Poinsett County Drainage District 7.
RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1946, November 1949 to September 1955.
Water temperatures: October 1945 to September 1946, November 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 266 ppm Mar. 1-19, 28-31, Sept. 1-30; minimum, 151 ppm Apr. 1-4, 7, 10, 13-17.
Hardness: Maximum, 207 ppm Sept. 1-30; minimum, 102 ppm Apr. 1-4, 7, 10, 13-17.
Specific conductance: Maximum daily, 505 micromhos Aug. 11; minimum daily, 160 micromhos Apr. 16.
Water temperatures: Maximum, 86°F Aug. 6-7, 1955; minimum, 40°F on several days during January and February.
EXTREMES, 1945-46, 1949-55.--Dissolved solids: Maximum, 329 ppm Nov. 21-30, 1949; minimum, 87 ppm Jan. 15-18, 1951.
Hardness: Maximum, 262 ppm Aug. 1-10, 1952; minimum, 64 ppm Feb. 14-19, 1950.
Specific conductance: Maximum daily, 746 micromhos Sept. 1, 1953; minimum daily, 99.3 micromhos Jan. 27, 1951.
Water temperatures: Maximum, 89°F June 29, July 1, 1952; minimum, freezing point 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1-31, 1954.....	225			48	15	11		203	19	8.5		0.8	223	181	15	378	7.7	12
Nov. 1-30.....	214			51	17	9.4		a 228	20	7.0		.4	238	197	10	403	8.4	15
Dec. 1-31.....	113			27	16	11		148	25	6.5		.5	179	133	12	301	8.0	5
Jan. 1-3, 15-31, 1955	1,218			39	9.1	7.9		144	20	8.0		1.2	189	135	17	304	8.1	--
Jan. 4-14.....	301			32	14	9.7		146	28	6.0		.6	197	138	18	315	8.0	--
Feb. 1-28.....	1,434			41	13	9.3		166	20	10		.8	214	156	20	335	8.0	10
Mar. 1-19, 28-31....	1,591			46	12	9.2		181	23	8.0		.8	266	164	16	355	7.6	9
Mar. 20-27.....	2,544			34	10	6.7		127	19	7.0		1.9	211	126	22	279	7.7	21
Apr. 1-4, 7, 10, 13-17	3,032			28	7.9	5.6		112	17	4.0		1.4	151	102	11	231	8.0	15
Apr. 5-6, 8-9, 11-12, 18-30.....	2,879	10	0.12	39	9.3	6.8	2.7	b 143	19	5.5	0.3	1.5	185	136	18	286	8.3	18
May 1-31.....	2,101			50	13	10		c 198	22	8.0		.8	235	178	16	368	8.5	15
June 1-8.....	2,242			39	11	7.8		158	17	6.5		1.2	198	143	13	308	7.3	8
June 9-30.....	1,822			54	15	11		228	20	9.0		.3	250	196	10	407	7.6	8
July 1-8, 13-22.....	1,704			54	15	9.9		220	18	9.0		.4	246	196	16	397	7.8	7
July 9-12, 23-31.....	1,396			41	12	7.3		170	16	6.0		.3	192	152	12	312	7.8	7
Aug. 1-4.....	1,512			44	11	8.4		182	13	6.5		1.2	216	155	6	330	7.6	10
Aug. 5-31.....	1,156			54	14	11		229	11	8.5		.9	249	192	5	396	8.2	10
Sept. 1-30.....	549			55	17	11		c 243	13	10		1.1	266	207	8	418	8.4	11
Average.....	1,248			43	13	9.1		179	19	7.4		0.9	217	161	14	340	--	11

a Includes the equivalent of 7 parts per million of carbonate (CO_3).
b Includes the equivalent of 1 part per million of carbonate (CO_3).
c Includes the equivalent of 6 parts per million of carbonate (CO_3).

ST. FRANCIS RIVER BASIN--Continued

ST. FRANCIS RIVER AT MARKED TREE, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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 August 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, October 1954 to August 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, Magnesium	Noncarbonate			
Oct 27, 1954	103	4.0	0.09	23	2.3	2.3	2.1	67	9.4	3.0		5.0	103	67	12	153	7.0	25
Nov. 22	16			33	2.9	2.6		100	11	4.0		.9	96	94	12	196	7.3	5
Dec. 20	50			22	2.8	2.4		66	12	4.0		1.2	70	66	12	145	7.2	5
Jan. 17, 1955	339			13	2.6	1.6		38	9.2	3.5		2.2	54	43	12	95.2	7.2	20
Feb. 15	118			17	2.4	1.8		50	9.2	3.0		2.1	59	52	11	116	7.2	5
Mar. 14	99			20	2.2	1.8		58	6.8	3.0		2.4	76	59	11	125	7.5	6
Apr. 11	266			20	1.5	1.7		61	9.4	2.5		1.7	80	56	6	123	7.7	8
May 18	51			28	2.7	2.0		89	6.4	3.0		2.7	104	81	8	179	7.4	4
June 8	196			20	1.7	1.4		66	4.6	2.5		1.8	83	57	3	129	7.3	22
July 19	63			30	2.6	2.2		100	2.2	2.5		1.1	108	86	4	183	8.0	5
Aug. 9	9.2			37	2.2	2.1		117	5.8	3.0		1.8	116	101	6	201	8.1	4
Aug. 29	7.1			40	2.1	2.3		126	5.0	3.5		1.1	122	108	5	211	7.9	6

KINGS RIVER NEAR BERRYVILLE, ARK.

LOCATION.--At gaging station at bridge on county road 1¼ miles downstream from Bee Creek, 2¼ miles upstream from Clabber Creek, and 5¼ miles northwest of Berryville, Carroll County.
DRAINAGE AREA.--532 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to August 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, October 1954 to August 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 27, 1954	292	5.4	0.00	37	13	2.0	1.7	160	8.4	3.0	0.1	6.3	169	146	15	290	7.7	5
Nov. 23	39			43	13	2.4		179	10	3.5		.9	159	161	14	312	7.7	5
Dec. 21	77			41	12	2.0		170	11	4.0		2.5	153	152	12	297	7.7	5
Jan. 18, 1955	364			30	7.0	1.6		108	9.6	2.5		3.2	108	104	15	209	7.5	5
Feb. 16	207			31	9.4	1.7		124	8.2	3.0		3.3	138	116	14	233	7.9	5
Mar. 15	153			32	8.0	1.5		121	7.4	2.5		2.0	132	113	14	219	8.2	10
Apr. 12	472			29	6.9	1.3		109	6.8	2.2		1.2	119	101	11	199	8.2	10
May 17	121			30	7.0	1.4		121	5.4	2.2		.2	126	104	4	207	7.9	4
June 7	375			30	8.4	1.4		125	5.4	2.5		2.4	133	109	7	223	7.9	4
July 20	440			29	6.2	2.7		114	5.0	1.5		1.4	116	98	4	198	8.2	9
Aug. 9	40			37	9.2	2.4		151	4.2	3.0		1.7	144	130	6	251	7.7	6
Aug. 29	11			37	11	2.5		a160	3.8	3.0		.4	145	138	6	259	8.3	5

a Includes equivalent of 2 parts per million of carbonate (CO_3).

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 15, 1954 to September 1955.
Water temperatures: July 15, 1954 to September 1955.
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, July 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
July 16, 19-20, 21-23, 28-30, 1954				36	12	3.2		a164	4.2	4.0		1.4	156	139	5	273	8.3	5
Aug. 2-6, 9-13, 16-17, 22, 24-27, 30-31				35	11	3.8		161	6.8	4.0		1.6	177	133	1	280	8.2	5
Sept. 1-3, 7-10, 13-17, 20-24, 27-29				39	12	4.0		b170	6.6	3.8		1.9	168	147	7	293	8.5	5
Oct. 1, 3-8, 11-15, 18-22, 25-29				29	13	5.2		c144	8.2	5.0		1.3	146	126	8	262	8.5	5
Nov. 1-5, 8-9, 12, 15-19, 22-24, 26				35	14	3.4		162	7.6	4.5		1.4	156	145	12	283	8.2	5
Dec. 1-2, 13-17, 20-23, 27-30				34	14	3.4		d160	7.0	4.0		1.7	153	142	11	280	8.3	5
Jan. 3-7, 10-14, 17-19, 21, 24-28, 31, 1955				37	13	3.6		d166	6.4	5.8		3.4	168	146	10	289	8.3	5
Feb. 1-4, 7-11, 14-18, 21, 23-25, 28				33	15	3.7		d159	9.0	4.8		2.5	166	144	14	279	8.3	5
Mar. 1-4, 7-11, 14-18, 21-24, 28-31				34	15	3.5		163	8.2	4.5		2.2	169	147	13	295	7.7	5
Apr. 1, 4-8, 11-15, 18-22, 25-29				37	13	3.7		162	7.6	4.2		3.6	185	146	13	295	7.7	6
May 2-6, 9-11, 13, 16-20, 23-27, 31				35	14	3.3		159	9.8	3.5		2.9	175	145	15	285	8.2	6
June 1-3, 6-10, 13-17, 20-24, 27-30				37	12	2.7		157	7.8	3.5		4.7	176	142	13	276	7.5	6
July 1, 5-8, 11-15, 18-22, 25-29				35	12	2.5		146	7.8	3.0		4.8	176	137	17	263	8.0	6
Aug. 1-5, 8-11, 15-19, 22-26, 29-31				36	10	3.3		a146	5.0	3.8		4.3	159	131	11	257	8.4	6
Sept. 1-2, 6-9, 12-15, 20-23, 26-30				34	11	2.9		d145	5.2	3.5		6.2	158	130	11	258	8.3	9

a Includes equivalent of 4 parts per million of carbonate (CO_3).
b Includes equivalent of 6 parts per million of carbonate (CO_3).
c Includes equivalent of 3 parts per million of carbonate (CO_3).
d Includes equivalent of 2 parts per million of carbonate (CO_3).

WHITE RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955

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

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 1955.
Water temperatures: October 1947 to May 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 248 ppm Mar. 16, 22-23; minimum, 140 ppm May 13-17, 19-21, 23, 25-29, 31.
Hardness: Maximum, 162 ppm Mar. 16, 22-23; minimum, 118 ppm May 13-17, 19-21, 23, 25-29, 31.
Specific conductance: Maximum daily, 695 micromhos Nov. 23; minimum daily, 180 micromhos May 28.
Water temperatures: Minimum, 35°F Feb. 11.
EXTREMES, 1951-55.--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, 695 micromhos Nov. 23, 1954; minimum daily, 180 micromhos May 28, 1955.
Water temperatures: Maximum (1951-54) 79°F Sept. 20, 1954; minimum, 35°F Feb. 11, 1955.
REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for gaging station near Flippin, for water year October 1954 to September 1955 given in WSP 1391. Flow regulated by Bull Shoals Reservoir since July 23, 1951.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1-31, 1954	247			41	14	3.6		180	9.6	5.5		1.7	184	160	12	314	8.0	7
Nov. 1-21, 24-30	956			40	13	5.8		170	8.2	10		1.2	173	153	14	311	8.2	7
Dec. 1-5, 7, 9-13,15-31	899			36	15	3.2		168	7.8	4.5		1.1	158	152	14	293	8.0	5
Jan. 1-14, 1955	475			39	15	3.8		178	8.8	5.5		2.3	171	159	13	312	8.0	5
Jan. 15-22 24-31.....	448			38	16	4.6		176	8.6	7.5		2.0	174	161	16	320	7.8	5
Feb. 1-28.....	1,356			37	13	3.0		174	6.2	3.5		3.6	171	148	6	307	8.0	--
Mar. 1-15, 17-21, 24-31	3,093			37	14	3.2		a165	6.8	5.5		3.0	174	150	15	299	8.3	5
Mar. 16, 22-23.....	2,947			40	15	21		a154	12	40		3.0	248	162	35	396	8.3	7
Apr. 1-30.....	4,583			33	16	3.9		164	7.6	5.5		3.9	177	148	14	300	7.8	6
May 1-12, 18, 22, 24, 30	4,450			34	14	5.4		154	9.2	7.5		2.7	176	142	16	293	8.0	5
May 13-17, 19-21, 23, 25-29, 31.....	4,341			26	13	3.7		129	9.2	6.0		1.4	140	118	13	245	7.3	7
June 1-30	6,557			37	13	3.9		161	8.4	5.0		4.5	177	146	14	285	8.1	6
July 1-12.....	7,382			39	11	5.5		a157	9.8	7.0		6.6	181	143	14	290	8.3	10
Sept. 1-24	3,649			--	11	3.9		133	7.4	5.0		2.4	144	120	11	240	7.9	10
Average	b2,956			36	14	5.3		162	8.5	8.4		2.8	175	147	15	300	--	7

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Mean discharge for water year October 1954 to September 1955 was 3,061 cfs.

WHITE RIVER BASIN--Continued

WHITE RIVER AT COTTER, ARK.--Continued

Temperature (°F) of water, October 1954 to July 1955

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

BUFFALO RIVER NEAR ST. JOE, ARK.

LOCATION.--At gaging station at bridge on U. S. Higbway 65, 1¼ 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 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 25, 1954	69	5.7	0.00	39	5.6	2.0	1.0	133	8.8	3.0	0.3	0.7	133	120	11	233	8.0	5
Nov. 16	62			37	6.9	2.1		a131	11	3.0		.3	134	121	13	232	8.4	5
Dec. 13	184			35	6.1	1.9		124	10	3.0		.7	149	112	11	220	8.1	5
Jan. 21, 1955	478			28	3.3	1.4		87	9.0	3.0		.6	85	83	12	167	7.5	5
Feb. 14	428			26	2.4	1.6		80	7.4	2.0		.6	98	75	9	152	8.2	8
Mar. 18	3,750			22	1.9	1.1		66	6.6	1.5		.7	94	63	9	131	7.6	36
Apr. 15	2,500			25	2.8	2.2		81	6.4	1.5		.6	97	74	8	152	8.1	12
May 9	315			49	4.9	1.7		114	4.4	31		.2	214	142	49	307	7.0	7
June 9	787			31	3.6	1.2		106	3.6	2.2		.3	114	92	5	188	7.8	5
July 11	335			48	3.8	2.8		154	6.4	2.0		1.3	143	135	9	249	8.0	4
Sept. 6	53			44	3.9	1.7		b145	4.6	2.8		.4	142	126	7	241	8.3	5

a Includes equivalent of 6 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).

NORTH FORK RIVER AT NORFORK DAM, NEAR NORFORK, ARK.

LOCATION.--At gaging station at Norfork Dam, 4.3 miles northeast of Norfork, Baxter County.
DRAINAGE AREA.--1,806 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 6, 1954	57	3.3	0.00	37	24	1.4	1.4	222	4.0	2.5	0.1	1.8	182	191	9	360	7.3	5
Nov. 4	64	3.9	.00	37	25	1.5	1.5	225	4.0	3.0	.1	2.3	186	195	11	361	7.3	5
Nov. 30	64	3.0	.00	35	26	1.5	1.4	225	4.6	2.8	.1	1.8	186	194	10	361	7.4	5
Feb. 15, 1955	63	2.5	.00	35	25	1.2	1.4	a236	5.5	3.5	.0	1.1	192	192	0	352	8.3	--
Mar. 31	57	2.5	.00	35	27	1.6	1.8	234	6.0	2.0	.1	1.2	204	200	8	360	7.6	--
Apr. 15	541	1.5	.00	35	26	1.6	1.9	235	7.8	2.0	.3	1.3	202	195	2	360	7.8	--
June 15	53	3.4	.00	37	23	1.6	1.9	217	5.6	2.0	.0	.4	188	187	9	341	7.6	7
July 12	373	2.8	.00	36	24	1.6	1.4	218	6.8	2.5	.0	1.1	186	188	10	342	7.6	7
Aug. 23	2,130	3.5	.00	37	23	1.6	1.7	217	6.8	2.5	.0	2.3	190	187	9	338	8.2	5
Sept. 8	2,270	3.1	.02	38	23	1.5	1.7	218	7.0	2.5	.0	1.0	189	189	11	342	7.5	7
Sept. 15	2,380	2.8	.02	36	24	1.6	2.1	217	7.4	2.5	.0	1.6	190	188	11	341	7.5	7
Sept. 28	1,790	2.2	.00	37	23	1.6	1.5	218	6.6	2.5	.0	2.0	190	187	8	343	7.4	7

a Includes equivalent of 2 parts per million of carbonate (CO_3).

WHITE RIVER BASIN--Continued

BLACK RIVER NEAR CORNING, ARK.

LOCATION.--At gaging station at bridge on U. S. Highway 62, 2¼ 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 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium magnesium	Noncarbonate			
Oct. 27, 1954	336	4.4	0.01	28	19	1.9	0.9	174	4.8	2.5	0.2	1.1	152	148	5	279	7.8	5
Nov. 18	348			30	18	2.1		174	5.2	2.0		.5	130	149	6	283	8.2	5
Dec. 15	1,070			21	13	1.9		a 121	6.0	2.8		1.2	115	106	7	212	8.3	5
Jan. 18, 1955	767			25	13	1.8		126	7.8	2.5		3.4	105	116	13	223	7.9	5
Feb. 17	637			26	16	1.8		b 150	4.8	2.0		1.4	133	131	8	249	8.4	6
Mar. 15	974			23	12	1.4		a 119	4.8	2.5		1.8	126	107	9	209	8.3	10
Apr. 12	1,400			20	11	2.6		102	7.2	3.5		1.9	122	95	12	192	8.2	15
May 12	767			23	14	1.8		130	4.8	2.8		.5	126	115	8	229	7.6	5
June 7	1,120			22	12	1.7		a 119	4.4	2.2		1.0	124	104	7	207	8.3	6
July 14	616			29	14	2.0		c 154	6.6	2.0		1.2	138	130	4	245	8.3	6
Aug. 18	412			30	17	2.1		166	6.6	3.0		.6	146	145	9	265	7.7	6
Sept. 8	282			31	16	1.8		171	4.4	2.5		.3	148	143	3	274	8.0	5

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Includes equivalent of 4 parts per million of carbonate (CO_3).
c Includes equivalent of 3 parts per million of carbonate (CO_3).

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 1955.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 27, 1954		5.3	0.00	29	22	1.8	1.5	a 194	2.4	2.0	0.1	0.9	162	163	4	299	8.4	5
Nov. 18				37	23	1.8		219	4.2	1.8		.6	174	187	7	345	8.0	5
Dec. 15				35	23	2.6		210	5.4	2.2		.9	161	182	10	334	8.0	5
Jan. 18, 1955				32	18	1.4		176	7.4	2.5		2.4	147	154	10	293	8.1	5
Feb. 17				36	21	1.7		199	4.6	2.0		1.5	178	176	13	326	8.1	6
Mar. 15				31	16	2.1		b 165	5.0	2.0		1.8	158	143	8	269	8.4	10
Apr. 12				27	16	1.4		c 152	5.8	2.0		2.0	148	133	8	251	8.3	13
May 12				22	15	1.2		131	4.0	2.0		1.9	130	117	9	218	7.4	12
June 7				23	13	1.0		129	4.0	2.0		2.3	127	111	5	221	7.6	15
July 14				36	19	1.5		200	6.0	3.5		1.0	169	168	4	308	7.9	6
Aug. 18				37	20	2.2		205	6.2	3.0		1.3	170	175	7	317	7.9	4
Sept. 8				37	20	1.5		204	4.2	2.0		.5	176	175	7	324	8.1	5

a Includes equivalent of 5 parts per million of carbonate (CO_3).
b Includes equivalent of 4 parts per million of carbonate (CO_3).
c Includes equivalent of 2 parts per million of carbonate (CO_3).

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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 Eleven Point River, and 12.1 miles upstream from mouth.
DRAINAGE AREA.--1,162 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 27, 1954	355	6.2	0.01	22	31	1.4	1.2	216	4.8	2.0	0.1	0.1	170	182	5	325	8.2	5
Nov. 17	289			51	32	1.8		310	6.6	2.5		.3	236	258	4	471	7.9	5
Dec. 14	461			21	29	1.5		a204	5.8	2.0		1.3	158	172	4	313	8.4	5
Jan. 19, 1955	461			48	28	1.5		273	7.0	2.5		2.3	217	235	11	430	8.1	5
Feb. 16	431			50	29	1.6		280	6.0	2.5		1.4	242	244	15	434	8.1	8
Mar. 16	506			45	28	1.4		b257	5.4	2.0		2.2	234	227	17	419	8.3	9
Apr. 13	1,200			43	24	1.7		232	5.0	2.2		2.5	218	206	16	374	8.2	13
May 11	905			44	26	1.2		245	8.0	2.0		2.2	220	217	16	402	7.2	6
June 7	1,060			45	25	1.1		a254	3.2	2.5		1.1	218	215	7	385	8.3	5
July 13	439			30	29	1.1		228	6.0	2.2		1.3	184	194	7	341	8.2	6
Aug. 17	363			46	30	1.3		277	6.2	2.2		.8	221	238	11	408	8.1	6
Sept. 7	296			41	29	1.2		258	4.6	2.0		.4	215	222	10	388	8.2	5

a Includes equivalent of 5 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).

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.--1,123 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 28, 1954	344	4.3	0.02	33	25	1.3	2.1	222	6.0	2.0	0.2	1.0	184	185	3	342	8.1	5
Nov. 18	287			29	31	1.4		a 230	5.4	1:8		.9	189	200	11	353	8.3	5
Dec. 15	395			31	26	1.4		220	2.6	1.5		.4	174	184	4	345	8.1	5
Jan. 19, 1955	405			39	23	1.8		224	6.4	2.0		2.0	174	192	8	357	8.0	5
Feb. 17	348			33	24	1.3		211	6.2	2.0		1.9	185	181	8	335	8.2	5
Mar. 16	503			38	21	1.2		207	3.4	2.0		2.0	186	181	12	331	8.0	10
Apr. 13	859			34	19	1.1		b 186	3.8	1.5		3.2	168	163	10	297	8.4	7
May 12	659			38	21	1.3		217	2.8	1.5		1.2	183	181	3	346	7.9	3
June 6	828			37	21	1.5		c 213	2.6	3.0		1.8	188	179	4	329	8.4	5
July 14	471			37	24	1.1		222	4.6	2.0		2.2	184	191	9	335	8.2	4
Aug. 19	367			44	25	1.1		250	.6	2.0		1.3	202	213	8	374	8.0	4
Sept. 8	317			46	24	1.1		253	4.4	1.8		.6	212	213	6	385	8.2	5

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Includes equivalent of 6 parts per million of carbonate (CO_3).
c Includes equivalent of 3 parts per million of carbonate (CO_3).

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 2½ miles northeast of Poughkeepsie, Sharp County.
DRAINAGE AREA.--476 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1953 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 12, 1954	321			22	11	0.8		a 114	7.2	1.5		1.4	104	100	7	198	8.3	15
Nov. 9	61			46	26	1.4		258	6.0	2.0		.6	202	222	10	406	7.9	5
Dec. 1	54			48	28	1.6		275	11	2.0		.4	208	235	10	425	8.1	5
Jan. 19, 1955	168			48	24	1.6		246	6.8	2.5		2.6	224	218	17	393	8.2	7
Feb. 16	150			46	26	1.7		b 247	6.4	2.5		2.4	228	222	19	398	8.4	9
Mar. 3	295			42	22	1.3		218	6.2	2.2		2.8	202	195	17	359	8.1	9
May 10	170			44	26	1.3		250	3.2	2.0		1.3	214	217	12	398	8.1	4
June 6	457			41	18	2.2		206	3.2	2.0		2.1	179	176	8	321	7.9	5
July 6	114			43	26	1.5		246	10	2.0		1.0	203	214	13	371	8.0	4
Aug. 17	62			44	22	1.2		232	4.4	2.0		.1	196	200	10	360	8.0	5
Sept. 7	45			39	25	1.1		a 236	4.6	2.0		.6	198	200	7	359	8.3	5

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Includes equivalent of 8 parts per million of carbonate (CO_3).

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.
DRAINAGE AREA.--19,812 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1955.
Water temperatures: October 1945 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 226 ppm Oct. 4-7, 10; minimum, 128 ppm Apr. 15-16, 22-29.
Hardness: Maximum, 193 ppm Oct. 4-7, 10; minimum, 97 ppm Mar. 20-31.
Specific conductance: Maximum daily, 459 micromhos Oct. 23; minimum daily, 190 micromhos Mar. 27.
Water temperatures: Maximum, 76°F on several days during summer months, minimum, 39°F on several days during January and February.
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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 1-3, 8-9, 1954 ...	4,150	--	--	37	21	4.7	--	206	7.8	6.0	--	1.3	190	179	10	343	8.2	8
Oct. 4-7, 10.....	4,196	--	--	41	22	7.9	--	222	12	9.5	--	2.9	226	193	11	389	8.2	10
Oct. 11-20	3,529	--	--	41	18	4.2	--	a 202	10	5.0	--	1.4	190	176	11	336	8.3	10
Oct. 21-31	3,660	--	--	37	18	3.9	--	188	9.0	4.5	--	.9	180	166	12	320	8.2	7
Nov. 1-10	3,616	7.9	0.00	36	17	4.2	1.4	180	9.0	5.8	0.2	1.5	178	160	12	311	8.2	10
Nov. 11-20	3,664	--	--	33	16	6.0	--	a 157	16	6.8	--	2.9	174	148	19	303	8.3	6
Nov. 21-30	4,105	--	--	37	18	3.9	--	190	8.2	3.8	--	.6	175	166	11	326	7.6	5
Dec. 1-10	4,082	--	--	36	17	4.6	--	b 176	11	6.0	--	.8	170	160	15	313	8.4	7
Dec. 11-20	5,837	--	--	36	18	4.2	--	184	7.6	5.0	--	.8	174	164	13	316	7.8	5
Dec. 21-22, 24-25	5,255	--	--	35	18	3.8	--	185	6.6	4.5	--	.9	163	161	10	315	7.9	5
Dec. 23, 26-31	10,880	--	--	29	13	2.9	--	139	9.2	3.0	--	1.5	146	126	12	247	8.1	10
Jan. 1-10, 1955.....	11,920	--	--	32	13	2.4	--	150	5.6	3.0	--	4.5	154	133	10	267	8.2	10
Jan. 11-20.....	7,544	--	--	33	15	3.8	--	a 160	5.6	4.0	--	7.2	170	144	13	286	8.3	10
Jan. 21-31	5,568	--	--	36	15	3.1	--	168	5.6	4.0	--	3.9	168	152	14	298	7.8	5
Feb. 1-10	6,618	9.0	.00	38	16	3.7	1.7	195	7.4	5.0	.1	2.3	180	160	0	323	7.8	--
Feb. 11-20	6,728	--	--	36	15	2.6	--	172	6.2	3.5	--	2.8	178	152	11	297	7.8	5
Feb. 21-28	18,290	--	--	26	10	3.4	--	120	6.4	3.0	--	5.4	144	106	8	223	7.5	17
Mar. 1-10	12,890	--	--	27	9.9	3.6	--	118	7.6	3.5	--	2.8	140	108	11	222	7.2	20
Mar. 11-19.....	14,560	--	--	35	15	2.7	--	170	7.2	3.5	--	2.8	176	149	10	289	8.1	10
Mar. 20-31.....	37,610	--	--	24	9.1	3.0	--	108	6.4	4.0	--	3.9	144	97	9	205	7.5	--

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Includes equivalent of 3 parts per million of carbonate (CO_3).

WHITE RIVER BASIN--Continued

WHITE RIVER AT NEWPORT, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Apr. 1-10, 1955	23,500	--	--	33	17	2.9	--	172	6.4	3.5	--	1.2	172	152	11	294	7.7	5
Apr. 11-14, 17-21, 30	21,550	--	--	34	16	3.0	--	172	5.6	3.5	--	1.4	172	151	0	297	7.9	6
Apr. 15-16, 22-29	26,670	--	--	23	10	1.7	--	110	4.8	2.5	--	2.9	128	98	8	202	8.0	20
May 1-10	14,140	5.4	0.00	33	15	3.2	1.5	156	14	3.5	0.1	3.0	176	144	16	291	7.2	5
May 11-20	14,270	--	--	30	13	3.8	--	141	11	4.0	--	2.0	157	128	13	263	7.3	8
May 21-31	30,340	--	--	30	12	3.7	--	136	10	4.5	--	1.3	153	124	13	252	7.4	10
June 1-9	19,130	--	--	30	9.5	6.6	--	122	17	6.5	--	1.4	173	114	14	255	7.2	6
June 10-20	18,880	--	--	35	14	2.9	--	166	5.8	3.2	--	3.7	171	145	9	278	7.6	5
June 21-30	19,080	--	--	33	14	3.2	--	160	6.0	3.0	--	2.6	157	140	9	271	8.0	7
July 1-10	18,560	.4	.00	34	15	3.2	1.0	172	5.4	3.5	.0	1.6	166	147	6	292	8.1	6
July 11-20	12,820	--	--	37	15	3.2	--	176	5.4	3.5	--	1.1	173	154	10	298	8.0	7
July 21-31	13,570	--	--	37	15	3.8	--	172	7.2	4.2	--	3.2	156	154	13	298	7.6	5
Aug. 1-10	10,430	--	--	37	17	3.4	--	188	5.8	3.5	--	1.6	158	162	8	312	7.9	6
Aug. 11-20	9,400	--	--	36	17	3.4	--	182	6.4	4.0	--	2.9	159	160	11	303	8.2	5
Aug. 21-31	9,154	--	--	35	17	3.4	--	180	6.6	4.2	--	2.4	152	157	10	300	8.1	5
Sept. 1-10	7,848	--	--	39	16	3.9	--	187	4.4	4.0	--	4.4	186	163	10	309	8.2	5
Sept. 11-20	7,816	--	--	39	17	3.0	--	190	3.0	4.5	--	2.7	186	167	12	312	8.0	8
Sept. 21-30	7,880	--	--	39	18	2.6	--	200	1.4	3.8	--	2.2	184	171	7	318	8.2	5
Average	12,540	--	--	34	15	3.7	--	168	7.6	4.3	--	2.4	168	147	9	291	--	8

WHITE RIVER BASIN--Continued

WHITE RIVER AT NEWPORT, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

WHITE RIVER BASIN--Continued

LITTLE RED RIVER NEAR HEBER SPRINGS, ARK.

LOCATION.--At gaging station at bridge on State Highway 25, 2¾ miles downstream from Peter Creek, and 3 miles northeast of town of Heber Springs, Cleburne County.
DRAINAGE AREA.--1,141 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1949 to September 1952; October 1954 to September 1955.
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 micromhos Jan. 21, 1951; minimum daily, 25.2 micromhos 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, 1949-52, available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 25, 1954	20			7.1	1.5	2.5	1.2	31	3.0	1.5		0.6	a32	24	0	67.2	7.7	5
Nov. 23	40			8.6	2.0	2.8	1.6	37	4.0	3.5		.6	56	30	0	77.9	7.5	5
Dec. 14	836			10	1.8	2.4	1.4	34	9.4	3.0		.5	56	32	4	88.1	6.8	5
Mar. 2, 1955	3,070			3.8	1.0	2.2	1.0	15	6.2	2.0		1.2	52	14	1	47.4	7.4	16
Apr. 22	18,900			3.7	1.1	.7	1.2	15	3.6	1.0		.9	42	14	1	40.0	6.4	28
May 16	851			9.1	2.2	1.1	--	34	4.6	2.0		.1	48	32	4	72.4	6.8	9
June 15	8,430			6.6	.8	.5	--	22	1.8	.5		.8	36	20	2	49.4	6.6	22
July 14	332			8.3	1.0	1.2	--	30	1.4	2.0		.5	40	25	0	59.2	6.8	5
Sept. 7	18			12	1.2	.8	--	40	1.8	1.5		.1	49	35	2	78.3	7.1	5

a Sum of determined constituents.

CACHE RIVER AT PATTERSON, ARK.

LOCATION.--250 feet north of bridge on U. S. Highway 64, just west of Patterson, Woodruff County.
DRAINAGE AREA.--1,041 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to May 1955 (discontinued).
Water temperatures: October 1952 to May 1955 (discontinued).
EXTREMES, 1952-54.--Diseolved solids: Maximum, 224 ppm Nov. 21-24, 1952 Nov. 1-30, 1953; minimum, 71 ppm Dec. 9-11, 14, 16-20, 1952.
Hardness: Maximum, 155 ppm Nov. 1-30, 1953; minimum, 15 ppm Jan. 24-31, Feb. 1-9, 21-28, Mar. 21-31, 1953.
Specific conductance: Maximum daily, 516 micromhos Dec. 7, 1953; minimum daily, 36.5 micromhos Mar. 24, 1953.
Water temperatures: Maximum, 86°F July 7, 1954; minimum, 36°F Jan. 23, 1954.
REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to May 1955 furnished, by district office, Corps of Engineers, Memphis, Tenn.

Chemical analyses, in parts per million, October 1954 to May 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 1-31, 1954	73.3			28	11	16		152	7.6	9.8		1.0	186	115	0	288	7.9	30
Nov. 1-30	23.3			32	11	15		170	4.6	9.0		.6	186	125	0	304	8.2	5
Dec. 1-15	38.7			32	11	15		169	4.4	8.5		.4	185	125	0	304	7.6	15
Dec. 16-29	204			17	7.9	12		97	9.2	9.5		1.6	150	75	0	216	7.8	35
Dec. 30-31, Jan. 1-12, 14, 16-25, 1955	87.3			6.1	2.4	5.7		29	8.4	4.5		1.2	a42	25	1	90.2	7.4	30
Jan. 13, 15, 26-31	249			8.1	3.9	7.8		42	9.6	7.0		.7	a58	36	2	119	7.6	40
Feb. 1-14	176			9.8	4.7	7.4		50	11	6.0		2.9	a67	44	3	132	7.2	27
Feb. 16-21	218			14	5.2	8.8		70	9.0	6.0		1.9	a79	56	0	160	7.1	22
Feb. 22-28	655			6.4	3.3	5.5		30	11	4.0		2.7	a48	30	5	89.0	7.2	33
Mar. 1-20, 31	1,015			5.7	3.2	5.6		31	10	4.0		1.4	a45	27	2	89.8	7.0	25
Mar. 21-30	4,851			3.4	2.1	2.9		20	5.2	1.5		.8	a26	17	1	52.4	6.9	28
Apr. 1-30	2,240			5.3	3.0	4.0		29	5.0	2.0		1.0	a34	26	2	76.5	6.6	45
May 1-6, 19-20	1,263			7.3	3.7	4.6		42	4.8	2.0		2.6	a46	33	0	94.2	7.3	45
May 7-18	392			11	4.6	4.8		60	2.4	2.5		1.4	a57	46	0	122	7.0	40
May 21-31	2,710			5.9	2.0	3.4		26	7.6	1.2		1.0	a34	23	2	67.0	6.9	40
Average	b946			13	5.3	7.9		68	7.3	5.2		1.4	83	54	0	147	--	31

a Sum of determined constituents.
b Mean discharge for water year October 1954 to September 1955, 730 cfs.

WHITE RIVER BASIN--Continued

CACHE RIVER AT PATTERSON, ARK.--Continued

Temperature (°F) of water, October 1954 to May 1955

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

BAYOU DE VIEW NEAR BRASFIELD, ARK.

LOCATION.--At bridge on U. S. Highway 70, Monroe County, about 6 miles northeast of Brasfield, Prairie County, and 3.8 miles upstream from the mouth.
DRAINAGE AREA.--625 square miles, approximately.
RECORDS AVAILABLE.--Chemical analyses: January to September 1955.
REMARKS.--Values reported for dissolved solids are the sum of determined constituents. Discharge data given are for the gaging station near Morton, 422 square miles drainage area, about 36 miles upstream from sampling site. There is appreciable inflow between the two points. Records of discharge furnished by district office, Corps of Engineers, Memphis, Tenn.

Chemical analyses, in parts per million, January to September 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)	Dissolved solids (sum)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Jan. 27, 1955	52			4.9	1.7	9.3	2.6	20	16	8.0		0.8	53	19	3	90.0	6.3	30
Feb. 22	1,200			4.6	1.6	7.7	2.6	20	14	4.0		.8	45	18	2	78.9	5.2	80
Mar. 30	2,380			4.0	1.8	10		22	11	6.2		1.0	45	17	0	58.6	7.0	45
Apr. 26	1,720			5.3	3.0	4.5	--	37	2.0	1.2		1.2	35	26	0	72.6	7.9	30
May 25	781			6.4	3.1	4.6	--	39	1.6	2.5		1.0	38	29	0	81.5	6.9	30
June 22	191			6.0	3.6	4.1	--	36	2.0	3.0		.9	38	30	0	79.5	6.7	50
July 21	436			9.3	4.8	7.3	--	56	3.0	4.0		1.3	58	43	0	117	6.9	80
Aug. 17	31			13	3.6	9.0	--	70	1.8	5.5		1.1	68	47	0	133	7.0	90
Sept. 14	68			11	4.5	8.4	--	70	1.2	5.0		.7	65	46	0	133	7.0	80

WHITE RIVER BASIN--Continued

WHITE RIVER AT CLARENDON, ARK.

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 1955.
Water temperatures: October 1948 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 191 ppm Dec. 1-10; minimum, 61 ppm Mar. 20, 22-31.
Hardness: Maximum, 186 ppm Nov. 21-30; minimum, 52 ppm Mar. 20, 22-31.
Specific conductance: Maximum daily, 438 micromhos Aug. 28; minimum daily, 104 micromhos Mar. 28.
Water temperatures: Maximum, 88°F Aug. 26; minimum, 39°F Jan. 20.
EXTREMES, 1947-55.--Dissolved solids: Maximum, 225 ppm July 1-10, 1953; minimum, 38 ppm Feb. 1-9, 1950.
Hardness: Maximum, 186 ppm Oct. 11-20, 1952, Nov. 21-30, 1954; minimum, 29 ppm Mar. 1-10, 1948.
Specific conductance: Maximum daily, 484 micromhos Dec. 29, 1953; minimum daily, 60.7 micromhos Feb. 3, 1950.
Water temperatures (1948-55): Maximum, 90°F on several days during June and July 1954; minimum, 34°F Dec. 23, 1953.
REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 furnished by district office, Corps of Engineers, Memphis, Tenn.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1-10, 1954	4,415	4.8	0.00	36	21	5.4	1.2	a203	5.2	6.5	0.1	1.2	188	176	10	342	8.3	5
Oct. 11-20	4,026	--	--	33	19	3.9	--	185	5.0	5.0	--	.7	174	160	9	311	8.2	10
Oct. 21-31	3,928	--	--	38	20	4.4	--	205	5.8	6.5	--	1.7	184	177	9	339	8.2	10
Nov. 1-10	3,970	--	--	38	20	4.4	--	a208	5.6	6.8	--	1.0	188	177	7	338	8.3	10
Nov. 11-20	3,664	--	--	36	20	4.8	--	b197	5.6	7.0	--	.6	176	172	10	330	8.4	8
Nov. 21-30	4,242	--	--	40	21	6.0	--	215	5.6	10	--	.7	190	186	10	363	8.0	6
Dec. 1-10	4,380	6.7	.04	40	19	5.7	1.3	206	4.2	8.5	.3	1.0	191	178	9	355	7.6	5
Dec. 11-20	5,298	--	--	29	20	5.3	--	178	5.6	7.0	--	.4	160	155	9	309	8.0	5
Dec. 21-31	6,307	--	--	35	17	4.1	--	176	7.2	5.0	--	1.6	161	157	13	305	8.2	5
Jan. 1-10, 1955	17,300	4.5	.04	25	10	3.2	1.5	116	9.2	4.0	.0	2.8	130	104	8	219	7.5	5
Jan. 11-20	11,100	--	--	26	8.8	3.9	--	113	7.6	4.2	--	4.4	138	101	8	218	8.1	36
Jan. 21-31	8,208	--	--	29	12	3.3	--	a134	5.6	5.0	--	2.7	139	122	12	244	8.3	20
Feb. 1-9	7,227	--	--	29	13	3.7	--	142	7.4	5.0	--	2.4	156	126	9	259	7.8	10
Feb. 10-21	10,120	--	--	26	12	4.3	--	126	7.0	6.0	--	2.5	144	114	11	240	7.7	10
Feb. 22-28	21,800	--	--	20	9.9	2.9	--	97	5.6	4.0	--	2.8	127	91	11	185	7.6	32
Mar. 1-10	20,350	--	--	21	9.3	3.7	--	99	6.6	4.5	--	2.8	128	91	10	191	7.7	35
Mar. 11-19	19,480	--	--	23	9.4	3.4	--	104	5.8	4.5	--	2.7	130	96	11	199	7.4	36
Mar. 20, 22-31	48,250	--	--	13	4.7	3.8	--	54	5.8	4.5	--	1.9	c61	52	8	122	7.1	24

a Includes equivalent of 2 parts per million of carbonate (CO_3).
b Includes equivalent of 6 parts per million of carbonate (CO_3).
c Sum of determined constituents.

Apr. 1-5, 7-11, 1955..	53,220	--	--	12	6.2	4.2	--	61	5.6	5.5	--	1.2	c65	55	5	132	7.2	23
Apr. 12-20	39,620	--	--	15	6.7	5.5	--	75	5.2	7.5	--	.4	102	65	4	164	6.9	26
Apr. 21-30	41,590	--	--	15	7.1	3.8	--	77	4.8	4.0	--	1.0	104	67	4	152	7.4	23
May 1-8	35,480	--	--	18	8.0	4.3	--	88	4.0	7.5	--	1.3	111	78	6	173	7.2	33
May 9-20	18,700	5.9	.00	28	12	4.5	2.0	131	8.0	7.0	.1	2.6	157	119	12	241	7.4	12
May 21-27	27,430	--	--	26	9.2	3.8	--	117	5.6	5.0	--	1.3	133	103	7	219	7.6	17
May 28-31	46,900	--	--	16	5.6	3.1	--	71	4.4	2.5	--	2.3	c69	63	5	141	6.9	35
June 1-8	44,220	--	--	15	6.3	3.2	--	74	4.6	3.2	--	1.4	78	63	3	140	7.2	40
June 9-20	28,320	--	--	22	8.3	3.2	--	102	6.2	3.0	--	1.4	98	89	5	180	7.3	10
June 21-30	26,070	--	--	30	11	4.6	--	136	5.2	6.0	--	1.2	144	120	9	243	7.5	10
July 1-10	24,400	6.6	.00	32	12	3.6	1.8	145	9.0	4.5	.1	2.4	162	129	10	267	8.0	16
July 11-20	16,300	--	--	35	13	4.6	--	156	6.6	8.0	--	1.9	159	141	13	278	7.5	8
July 21-31	16,840	.6	.00	32	11	3.9	1.1	a146	5.4	5.0	.1	2.4	152	125	5	255	8.3	7
Aug. 1-10	13,260	--	--	36	14	5.8	--	168	6.4	8.0	--	1.8	173	147	10	291	8.2	10
Aug. 11-20	10,590	--	--	37	15	4.7	--	178	5.8	5.5	--	2.1	168	154	8	302	8.2	10
Aug. 21-27, 29-31	10,540	--	--	38	15	5.3	--	a178	3.2	7.8	--	2.9	182	156	11	308	8.3	6
Sept. 1-10	9,284	--	--	38	16	4.5	--	184	3.6	7.0	--	2.2	185	161	10	312	8.2	6
Sept. 11-20	8,733	--	--	40	16	4.0	--	194	2.8	5.8	--	2.1	188	166	7	323	7.7	10
Sept. 21-30	8,906	--	--	38	16	5.1	--	184	13	5.5	--	1.5	176	161	10	325	8.2	5
Average	d18,500	--	--	29	13	4.3	--	141	5.9	5.7	--	1.8	145	126	10	252	--	16

a Includes equivalent of 2 parts per million of carbonate (CO_3).
c Sum of determined constituents.
d Mean discharge for water year October 1954 to September 1955, 17,760 cfs.

WHITE RIVER BASIN--Continued

WHITE RIVER AT CLARENDON, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

LITTLE LAGRUE BAYOU NEAR STUTTGART, ARK.

LOCATION.--At bridge on county road, 8¾ miles east of Stuttgart, Arkansas County, three quarters of a mile due east of University of Arkansas Rice Branch Experiment Station.
RECORDS AVAILABLE.--Chemical analyses: February 1954 to March 1955 (discontinued).
Water temperatures: February 1954 to March 1955 (discontinued).
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, October 1954 to March 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 6-9, 1954.....		--	--	21	9.2	77	--	212	8.2	50		1.3	312	90	0	506	8.1	35
Oct. 11-15, 18-20 ...		7.7	0.13	21	6.5	73	5.0	202	6.0	50	0.5	.9	310	79	0	501	7.4	30
Oct. 21-23, 25-29 ...		--	--	19	7.1	77	--	200	8.2	50		1.2	306	77	0	494	8.0	35
Nov. 4-8, 9-10.....		--	--	19	6.8	73	--	187	8.2	48		.8	300	75	0	469	8.0	35
Nov. 11-13, 16.....		--	--	18	8.6	74	--	a194	6.8	49		1.8	288	80	0	482	8.5	25
Dec. 20-23.....		--	--	16	8.8	60	--	b160	11	42		2.1	269	76	0	422	8.3	20
Jan. 1-3, 5-10, 1955.		6.7	.40	7.5	3.3	21	6.3	43	21	17		3.4	c108	32	0	164	7.6	45
Jan. 11-15, 17-18 ...		--	--	8.1	5.2	25	--	54	18	22		2.6	c108	42	0	205	7.5	25
Jan. 19, 22, 24-29...		--	--	9.8	5.8	28	--	65	17	26		2.8	c121	48	0	230	7.8	25
Jan. 31, Feb. 1-3		--	--	9.5	4.8	24	--	61	12	23		1.9	c105	43	0	219	7.7	35
Feb. 4-5, 7-12, 14 ..		--	--	5.3	2.0	9.1	--	25	11	6.5		2.7	c49	21	1	85.9	7.0	22
Feb. 15-19		--	--	7.2	3.0	11	--	39	12	8.0		2.7	c63	30	0	114	6.9	20
Feb. 22-26, 28, Mar. 1		--	--	5.3	2.1	8.4	--	30	9.6	5.0		2.3	c48	22	0	84.6	7.1	21

a Includes equivalent of 4 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).
c Sum of determined constituents.

WHITE RIVER BASIN--Continued

LITTLE LAGRUE BAYOU NEAR STUTTGART, ARK.--Continued

Temperature (°F) of water, October 1954 to March 1955

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

ARKANSAS RIVER BELOW JOHN MARTIN RESERVOIR, COLO.

51025 O - 56 - 5

LOCATION.--At gaging station 1 mile upstream from Caddoa Creek, 1¾ 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 1955 (daily samples).
EXTREMES, 1954-55.--Dissolved solids: Maximum, 4,280 ppm Aug. 8; minimum, 1,030 ppm June 11-20.
Hardness: Maximum, 1,910 ppm Aug. 8; minimum, 548 ppm June 11-20.
Specific conductance: Maximum observed, 5,180 micromhos Apr. 21; minimum observed, 1,310 micromhos June 15.
Water temperatures: Maximum; 77°F Aug. 10; minimum, freezing point Dec. 29, Feb. 21-23.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 4,280 ppm Aug. 8, 1955; minimum, 712 ppm June 21-30, 1953.
Hardness: Maximum, 1,910 ppm Aug. 8, 1955; minimum, 382 ppm May 24-25, 1954.
Specific conductance: Maximum observed, 5,180 micromhos Apr. 21, 1955; minimum observed, 830 micromhos June 19, 1952.
Water temperatures: Maximum 85°F Aug. 6, 1951; minimum, freezing point on several days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 8-10, 1954	23.7	13	0.01	351	141	424	7.7	278	1,930	106	1.0	2.8	0.50	3,270	4.45	209	1,460	1,230	39	4.8	3,630	7.7
Oct. 7	92.0	--	--	248	82	213	--	182	--	--	--	--	--	1,920	2.61	477	956	807	33	3.0	2,280	--
Oct. 11-20	23.3	--	--	389	179	441	--	--	--	--	--	--	--	3,510	4.77	221	1,700	--	36	4.7	3,850	--
Oct. 21-31	17.2	--	--	385	171	456	--	--	--	--	--	--	--	3,520	4.79	163	1,660	--	37	4.9	3,870	--
Nov. 1-10	17.7	--	--	393	169	452	--	--	--	--	--	--	--	3,510	4.77	168	1,680	--	37	4.8	3,870	--
Nov. 11-20	19.8	--	--	385	174	450	--	--	--	--	--	--	--	3,470	4.72	186	1,680	--	37	4.8	3,850	--
Nov. 21-30	23.5	--	--	381	169	446	--	--	--	--	--	--	--	3,410	4.64	216	1,650	--	37	4.8	3,790	--
Dec. 1-10	24.3	--	--	369	178	455	--	338	--	--	--	--	--	3,580	4.87	235	1,650	1,380	37	4.9	3,900	7.6
Dec. 11-20	24.1	--	--	381	178	462	--	353	--	--	--	--	--	3,610	4.91	235	1,680	1,390	37	4.9	3,960	7.6
Dec. 21-31	16.6	--	--	393	176	474	--	348	--	--	--	--	--	3,730	5.07	167	1,700	1,420	38	5.0	4,070	7.6
Jan. 1-10, 1955	3.05	21	.00	409	181	517	7.9	369	2,270	137	.8	7.2	.88	3,890	5.29	32.0	1,760	1,460	39	5.4	4,220	7.6
Jan. 11-20	2.07	--	--	369	190	495	--	388	--	--	--	--	--	3,770	5.13	21.1	1,700	1,380	39	5.2	4,120	7.7
Jan. 21-31	1.88	--	--	381	190	505	--	378	--	--	--	--	--	3,640	5.22	19.5	1,730	1,420	39	5.3	4,200	7.6
Feb. 1-10	1.97	--	--	357	197	495	--	386	--	--	--	--	--	3,750	5.10	19.9	1,700	1,380	39	5.2	4,110	7.6
Feb. 11-20	1.64	--	--	341	200	498	--	395	--	--	--	--	--	3,720	5.06	16.5	1,670	1,350	39	5.3	4,080	7.5
Feb. 21-28	1.40	--	--	324	201	482	--	381	--	--	--	--	--	3,650	4.96	13.8	1,640	1,320	39	5.2	3,990	7.6
Mar. 1-10	5.93	--	--	310	174	474	--	363	--	--	--	--	--	3,480	4.73	55.7	1,490	1,190	41	5.4	3,820	7.8
Mar. 11-20	9.75	--	--	306	150	415	--	274	--	--	--	--	--	3,120	4.24	82.1	1,380	1,160	40	4.9	3,490	7.5
Mar. 21-31	10.3	--	--	322	159	443	--	267	--	--	--	--	--	3,320	4.52	92.3	1,460	1,240	40	5.0	3,640	7.7

ARKANSAS RIVER BASIN--Continued

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

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955 ..	8.80	11	0.00	345	162	418	8.6	269	1,950	110	0.9	3.4	0.47	3,350	4.56	79.6	1,530	1,310	37	4.7	3,690	7.6
Apr. 11-20	314	--	--	326	164	458	--	231	--	--	--	--	--	3,400	4.62	2,880	1,490	1,300	40	5.2	3,750	7.5
Apr. 21-30.....	24.6	--	--	361	185	522	--	268	--	--	--	--	--	3,880	5.28	258	1,660	1,440	41	5.6	4,160	7.6
May 1-10	22.9	--	--	357	169	511	--	252	--	--	--	--	--	3,690	5.02	228	1,590	1,380	41	5.6	3,970	7.5
May 11-20	340	--	--	298	140	387	--	301	--	--	--	--	--	2,940	4.00	2,700	1,320	1,070	39	4.6	3,300	7.6
May 21-23	5.20	--	--	318	162	470	--	326	--	--	--	--	--	3,390	4.61	47.6	1,460	1,190	41	5.3	3,740	7.6
May 24-31	354	--	--	196	68	138	--	392	--	--	--	--	--	1,320	1.80	1,260	768	448	28	2.2	1,640	7.4
June 1-2, 4-10....	193	--	--	183	63	108	--	332	--	--	--	--	--	1,270	1.73	662	716	444	25	1.8	1,570	7.4
June 3	166	--	--	294	104	276	--	308	--	--	--	--	--	2,300	3.13	1,030	1,160	908	34	3.5	2,740	7.4
June 11-20	465	--	--	144	46	103	--	128	--	--	--	--	--	1,030	1.40	1,290	548	444	29	1.9	1,330	7.7
June 21-30	738	--	--	146	47	103	--	134	--	--	--	--	--	1,070	1.46	2,130	558	448	29	1.9	1,360	7.6
July 1-10	1,212	12	.01	156	53	85	6.8	130	629	18	.6	5.6	.14	1,080	1.47	3,530	607	500	23	1.5	1,370	7.8
July 11-20	1,200	--	--	154	50	100	--	135	--	--	--	--	--	1,110	1.51	3,600	590	479	27	1.8	1,400	7.7
July 21-31	1,237	--	--	164	48	104	--	143	--	--	--	--	--	1,130	1.54	3,770	606	490	27	1.8	1,430	7.7
Aug. 1-7, 9-10 ...	1,184	--	--	164	52	108	--	140	--	--	--	--	--	1,170	1.59	3,740	623	508	27	1.9	1,470	7.7
Aug. 8	484	--	--	472	178	581	--	300	--	--	--	--	--	4,280	5.82	559	1,910	1,660	40	5.8	4,620	7.2
Aug. 11-20.....	1,136	--	--	167	53	110	--	145	--	--	--	--	--	1,200	1.63	3,680	634	516	27	1.9	1,490	7.7
Aug. 21-31.....	1,282	--	--	161	52	108	--	143	--	--	--	--	--	1,160	1.58	4,020	616	498	28	1.9	1,460	7.6
Sept. 1-10	1,125	--	--	157	53	107	--	144	--	--	--	--	--	1,140	1.55	3,460	610	492	28	1.9	1,440	7.8
Sept. 11-20.....	1,036	--	--	159	54	110	--	146	--	--	--	--	--	1,170	1.59	3,270	618	499	28	1.9	1,460	7.8
Sept. 21-30	740	--	--	163	55	115	--	149	--	--	--	--	--	1,220	1.66	2,440	632	510	28	2.0	1,500	7.7
Weighted average	343	--	--	171	58	125	--	155	--	--	--	--	--	1,280	1.74	1,190	665	538	29	2.1	1,570	--

ARKANSAS RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement at about 8 a. m./

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

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT ARKANSAS CITY, KANS.

LOCATION.--At gaging station at Chestnut Avenue highway bridge, half a mile west of Arkansas City, Cowley County, and 5.9 miles upstream from Walnut River.
DRAINAGE AREA.--43,713 square miles, of which 7,607 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1955.
Water temperatures: October 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,680 ppm Aug. 7; minimum, 240 ppm May 27-29.
Hardness: Maximum, 530 ppm Aug. 7; minimum, 120 ppm June 19-20, Sept. 29-30.
Specific conductance: Maximum daily, 4,640 micromhos Aug. 7; minimum daily, 341 micromhos May 27.
Water temperatures: Maximum, 82°F July 31; minimum, freezing point on Dec. 13, Jan. 22-23, Feb. 11-15, 20, Mar. 22, 26.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 2,770 ppm Oct. 5, 1953; minimum, 240 ppm May 27-29, 1955.
Hardness: Maximum, 561 ppm Dec. 22-23, 1951; minimum, 117 ppm May 29, 1954.
Specific conductance: Maximum daily, 4,720 micromhos Oct. 5, 1953; minimum daily, 341 micromhos May 27, 1955.
Water temperatures: Maximum, 82°F July 16, 1954, July 31, 1955; 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 1954	44.7	--	--	125	29	484	--	260	0	162	825	--	9.9	--	1,910	2.60	231	430	217	71	10	3,410	7.1
Oct. 7-10	107	--	--	96	23	373	--	210	0	142	580	--	15	--	1,450	1.97	419	335	163	71	8.9	2,600	7.5
Oct. 11-20	71.0	--	--	104	27	486	--	216	6	138	775	--	14	--	1,730	2.35	332	370	183	74	11	3,140	8.4
Oct. 21-27	65.7	--	--	120	29	476	--	216	16	155	750	--	9.4	--	1,750	2.38	310	420	216	71	10	3,080	8.6
Oct. 28-31	166	--	--	83	23	284	--	190	6	118	440	--	12	--	1,120	1.52	502	300	134	67	7.1	1,990	8.4
Nov. 1-10	119	17	0.00	102	26	411	7.7	236	0	146	650	0.5	18	0.28	1,550	2.11	498	360	166	71	9.4	2,770	8.2
Nov. 11-20	162	--	--	104	20	410	--	227	0	141	600	--	15	--	1,490	2.03	652	340	154	72	9.7	2,620	7.9
Nov. 21-30	155	13	.01	104	27	384	7.1	239	0	147	625	.5	15	.24	1,510	2.05	632	370	174	69	8.7	2,680	7.9
Dec. 1-10	165	--	--	104	22	376	--	237	0	142	600	--	16	--	1,430	1.94	637	350	156	70	8.7	2,540	7.9
Dec. 11-20	178	--	--	104	22	407	--	237	0	150	600	--	13	--	1,470	2.00	706	350	156	72	9.5	2,670	7.9
Dec. 21-31	235	14	.00	112	27	430	12	232	2	163	675	--	8.3	.00	1,560	2.12	990	390	198	70	9.5	2,860	8.3
Jan. 1-10, 1955	287	--	--	104	26	409	--	233	0	161	650	--	13	--	1,530	2.08	1,190	365	174	71	9.3	2,710	8.0
Jan. 11-18	297	--	--	112	22	411	--	236	0	169	650	--	16	--	1,570	2.14	1,260	370	176	71	9.3	2,760	7.9
Jan. 19-20	318	--	--	104	18	376	--	224	0	142	565	--	17	--	1,400	1.90	1,200	335	152	71	8.9	2,470	8.2
Jan. 21-31	291	14	.00	106	28	388	9.0	242	0	170	600	--	16	.25	1,470	2.00	1,150	380	182	68	8.7	2,710	7.8
Feb. 1-10	370	--	--	96	20	348	--	213	0	155	532	--	15	--	1,330	1.81	1,330	320	146	70	8.5	2,370	7.9
Feb. 11-14	334	--	--	108	24	408	--	230	5	176	625	--	13	--	1,530	2.08	1,380	370	173	71	9.2	2,740	8.3
Feb. 15-20	399	--	--	100	17	335	--	226	0	157	500	--	15	--	1,320	1.80	1,420	320	135	69	8.1	2,350	8.1
Feb. 21-28	376	18	.00	108	23	396	6.0	233	0	191	575	.4	12	.03	1,460	1.99	1,480	365	174	70	9.0	2,600	8.2
Mar. 1-10	419	--	--	120	21	389	--	249	0	212	600	--	10	--	1,490	2.03	1,690	385	181	69	8.6	2,670	8.1
Mar. 11-13	392	--	--	112	27	415	--	249	0	209	575	--	11	--	1,500	2.04	1,590	390	186	70	9.1	2,700	7.9
Mar. 14-20	353	--	--	112	29	456	--	234	0	229	675	--	10	--	1,660	2.26	1,580	400	208	71	9.9	2,970	7.8
Mar. 21-31	349	16	.00	107	32	412	7.0	248	0	218	650	.4	10	.26	1,670	2.27	1,570	400	197	69	9.0	2,900	8.0

Apr. 1-10, 1955	417	--	--	102	23	416	--	231	0	213	600	--	9.0	--	1,490	2.03	1,680	350	160	72	9.7	2,620	8.0
Apr. 11-20	426	10	.03	109	19	412	7.3	223	0	210	630	.9	6.6	.16	1,590	2.16	1,830	350	168	71	9.6	2,770	7.8
Apr. 21-22	800	--	--	78	18	261	--	197	0	144	390	--	3.6	--	1,050	1.43	2,270	270	108	68	6.9	1,850	8.1
Apr. 23-27, 29-30...	506	--	--	98	38	392	--	232	0	198	590	--	6.5	--	1,490	2.03	2,040	400	210	68	8.5	2,630	7.8
Apr. 28	458	--	--	124	24	710	--	232	0	220	1,080	--	--	--	2,480	3.37	3,070	410	220	79	15	4,110	8.1
May 1-10	270	--	--	104	31	486	--	238	0	229	720	--	9.7	--	1,830	2.49	1,330	385	190	73	11	3,160	7.8
May 11-21	309	18	.00	106	23	446	8.5	218	0	61	745	.6	4.8	.42	1,730	2.35	1,440	360	182	72	10	3,110	7.2
May 22-25	562	--	--	74	18	273	--	176	0	126	432	--	2.0	--	1,010	1.37	1,530	260	116	70	7.4	1,650	7.7
May 26	6,170	--	--	60	13	118	--	164	0	94	160	--	4.3	--	580	.79	9,660	205	70	56	3.6	949	7.6
May 27-29	7,030	--	--	35	9.1	33	--	118	0	37	46	--	2.0	--	240	.33	4,560	125	28	36	1.3	384	7.3
May 30-31	2,170	--	--	66	12	100	--	148	0	130	136	--	2.0	--	546	.74	3,200	215	94	50	3.0	858	7.6
June 1-5	1,842	--	--	96	5.0	144	--	172	0	153	194	--	3.9	--	723	.98	3,600	260	119	55	3.9	1,190	6.6
June 6	4,330	--	--	51	13	86	--	152	0	86	104	--	3.5	--	462	.63	5,400	180	56	51	2.8	727	7.5
June 7-8	4,410	--	--	36	17	63	--	136	0	71	78	--	2.4	--	361	.49	4,300	160	48	46	2.2	603	7.4
June 9	2,610	--	--	67	15	120	--	160	0	142	152	--	7.7	--	632	.86	4,450	230	99	53	3.4	967	7.7
June 10	2,510	--	--	72	17	183	--	162	0	131	242	--	10	--	767	1.04	5,200	250	118	61	5.0	1,300	7.7
June 11	2,190	--	--	66	16	170	--	164	0	113	255	--	8.3	--	778	1.06	4,600	230	96	62	4.9	1,280	7.8
June 12-18	2,007	--	--	83	20	220	--	192	0	176	305	--	7.0	--	957	1.30	5,190	290	132	62	5.6	1,650	7.7
June 19-20	7,340	--	--	34	8.5	44	--	108	0	41	58	--	3.8	--	260	.35	5,150	120	32	44	1.7	457	7.4
June 21-22, 24-25 ...	3,390	--	--	48	11	71	--	136	0	61	96	--	4.8	--	367	.50	3,360	165	54	48	2.4	647	7.3
June 23, 26-28	2,860	--	--	59	15	102	--	160	0	90	143	--	5.9	--	496	.67	3,630	210	79	51	3.1	873	7.4
June 29-30	3,445	--	--	40	11	62	--	112	0	55	89	--	3.7	--	317	.43	2,950	145	53	48	2.2	562	7.2
July 1	1,790	--	--	63	23	127	--	156	0	123	180	--	8.3	--	617	.84	2,980	250	122	52	3.5	1,070	7.1
July 2-10	1,064	--	--	88	29	242	--	200	0	192	345	--	6.5	--	1,030	1.40	2,960	340	176	61	5.7	1,730	7.6
July 11-20	587	13	.00	110	31	415	2.4	180	0	221	695	.3	1.4	.19	1,650	2.24	2,820	400	252	69	9.0	3,030	7.2
July 21-31	418	--	--	98	35	330	--	224	0	211	490	--	6.0	--	1,320	1.80	1,490	390	206	65	7.3	2,220	7.3
Aug. 1-6, 8-10.....	284	--	--	104	33	397	--	224	0	223	625	--	6.2	--	1,500	2.04	1,150	395	212	69	8.7	2,710	8.0
Aug. 7	275	--	--	140	44	830	--	232	6	317	1,230	--	--	--	2,680	3.64	1,990	530	330	77	16	4,640	8.3
Aug. 11-20	229	13	.00	95	32	397	6.9	224	0	188	600	.3	5.2	.29	1,480	2.01	915	370	186	69	9.0	2,630	7.6
Aug. 21-23, 26-31...	155	--	--	106	35	489	--	198	0	218	770	--	8.0	--	1,730	2.34	720	410	248	72	11	3,110	7.9
Aug. 24-25	194	--	--	88	32	396	--	188	0	191	610	--	7.8	--	1,420	1.93	744	350	196	71	9.2	2,530	8.0
Sept. 1-10	118	--	--	128	41	549	--	252	0	206	890	--	9.8	--	2,050	2.79	653	490	284	71	11	3,580	8.2
Sept. 11, 13-20	114	--	--	134	33	538	--	268	0	205	855	--	8.2	--	1,970	2.68	606	470	250	71	11	3,460	7.3
Sept. 12	204	--	--	64	22	244	--	160	0	114	380	--	9.7	--	968	1.32	533	250	119	68	6.7	1,760	8.0

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT ARKANSAS CITY, KANS.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Sept. 21-25, 1955 ...	128	--	--	130	45	546	--	288	0	181	870	--	8.0	--	1,980	2.69	684	510	274	70	11	3,620	8.1
Sept. 26-28	1,640	--	--	46	11	102	--	142	0	67	145	--	4.0	--	461	.63	2,040	160	44	58	3.5	873	7.8
Sept. 29-30	5,490	--	--	35	7.9	43	--	116	0	32	58	--	2.8	--	241	.33	3,570	120	25	44	1.7	456	7.8
Weighted average ..	647	--	--	73	18	213	--	a175	--	124	318	--	6.2	--	877	1.19	1,530	256	112	64	5.8	1,530	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT ARKANSAS CITY, KANS.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

ARKANSAS RIVER BASIN--Continued

MEDICINE LODGE RIVER NEAR KIOWA, KANS.

LOCATION.--At gaging station at bridge on State Highway 14, 200 feet downstream from Atchison, Topeka and Santa Fe Railway bridge, and 1½ miles northeast of Kiowa, Barber County.
DRAINAGE AREA.--914 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955
Water temperatures: October 1954 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,210 ppm Aug. 31; minimum, 115 ppm July 5.
Hardness: Maximum, 800 ppm Aug. 31; minimum, 100 ppm July 5.
Specific conductance: Maximum daily, 1,500 micromhos Aug. 31; minimum daily, 182 micromhos July 5.
Water temperatures: Maximum, 95°F July 16, 29; minimum, 33°F 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 1954 to September 1955 given in WSP 1391. No flow Oct. 1 to Dec. 3, July 30 to Aug. 5, 22-30, Sept. 11, 14-24.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Dec. 4-10, 1954	8.64	--	--	110	23	65	--	213	0	226	65	--	0.5	--	610	0.83	14	370	196	28	1.5	1,000	8.1
Dec. 11-20	21.7	14	0.00	94	18	55	4.7	178	6	188	62	--	2.3	0.00	535	.73	31	310	154	27	1.4	868	8.4
Dec. 21-31	26.4	--	--	88	20	52	--	194	0	174	58	--	2.2	--	540	.73	38	300	141	27	1.3	846	8.0
Jan. 1-10, 1955	42.0	--	--	98	18	50	--	210	0	158	63	--	1.9	--	521	.71	59	320	148	25	1.2	825	7.6
Jan. 11-20	19.4	--	--	98	18	51	--	212	0	159	57	--	1.8	--	516	.70	27	320	146	26	1.2	827	8.0
Jan. 21-31	19.4	16	.00	94	16	50	2.7	199	3	159	50	0.3	2.4	.01	512	.70	27	300	132	26	1.3	820	8.3
Feb. 1-10	23.3	--	--	84	15	45	--	188	0	151	48	--	2.8	--	472	.64	30	270	116	27	1.2	753	8.2
Feb. 11-20	36.1	16	.00	88	15	51	2.8	184	4	151	45	.3	2.6	.02	494	.67	48	280	122	28	1.3	801	8.3
Feb. 21-28	34.4	--	--	84	20	49	--	198	4	155	48	--	2.8	--	492	.67	46	290	122	27	1.3	791	8.3
Mar. 1-10	54.9	7.5	.00	82	15	54	2.9	161	0	162	60	.3	1.1	.01	471	.64	70	265	133	30	1.4	761	8.1
Mar. 11-20	40.6	--	--	80	21	53	--	177	0	177	58	--	.1	--	512	.70	56	285	140	29	1.4	794	8.0
Mar. 21-31	32.9	9.0	.00	83	23	53	3.5	202	0	172	56	.1	1.1	.11	528	.72	47	300	134	27	1.3	786	8.2
Apr. 1-10	43.0	--	--	74	23	54	--	178	0	166	58	--	1.8	--	521	.71	60	280	134	30	1.4	789	7.9
Apr. 11-20	50.8	--	--	78	24	49	--	194	0	172	50	--	1.6	--	512	.70	70	295	136	26	1.2	776	8.2
Apr. 21-30	22.0	--	--	84	26	59	--	161	0	214	70	--	1.4	--	570	.78	34	315	183	29	1.4	871	8.1
May 1-6	20.2	--	--	88	16	68	--	150	0	210	74	--	1.3	--	582	.79	32	285	162	34	1.8	901	8.0
May 7-10	48.0	--	--	76	13	52	--	162	0	147	53	--	1.6	--	448	.61	58	245	96	32	1.4	745	8.0
May 11-19	36.9	19	.00	83	17	48	4.0	148	0	193	56	.6	.6	.52	520	.71	52	276	154	27	1.3	794	7.2
May 20-25	231	--	--	91	19	35	--	214	0	145	42	--	1.1	--	483	.66	301	305	130	20	.9	723	7.8
May 26	1,550	--	--	30	7.5	3.7	--	100	0	35	5.0	--	4.4	--	149	.20	624	106	24	7	.2	201	6.3
May 27-31	190	--	--	122	20	36	--	188	0	220	42	--	1.6	--	591	.80	303	385	231	17	.8	835	7.6
June 1	60.0	--	--	88	22	56	--	146	0	205	62	--	3.1	--	567	.77	92	310	190	28	1.4	831	7.6
June 2-7	606	--	--	92	15	26	--	138	0	168	30	--	3.7	--	421	.57	689	290	177	16	.7	652	7.5
June 8-10	111	--	--	106	22	50	--	238	0	175	58	--	2.2	--	563	.77	169	355	160	23	1.2	877	7.5

June 11-17, 1955	96.4	--	--	98	24	53	--	202	0	190	64	--	2.0	--	581	.79	151	345	180	25	1.2	871	7.9
June 18	1,350	--	--	62	13	10	--	124	0	99	13	--	6.2	--	309	.42	1,130	210	108	9	.3	434	7.5
June 19-20	702	--	--	119	20	19	--	114	0	273	20	--	4.4	--	523	.71	991	380	286	10	.4	771	6.9
June 21-30	78.5	--	--	104	27	54	--	192	0	213	64	--	2.8	--	601	.82	127	370	212	24	1.2	896	7.7
July 1-4	29.5	--	--	109	30	70	--	204	0	247	81	--	.2	--	665	.90	53	395	228	28	1.5	1,000	7.6
July 5	48.0	--	--	26	8.5	3.0	--	112	0	4.9	4	--	4.8	--	115	.16	15	100	8	6	.1	182	7.4
July 6	73.0	--	--	86	29	34	--	164	0	184	54	--	2.6	--	487	.66	96	335	200	18	.8	761	7.7
July 7-10	18.5	--	--	108	44	62	--	190	0	303	85	--	.4	--	735	1.00	37	450	294	23	1.3	1,080	7.6
July 11-19	5.79	--	--	84	54	78	--	168	0	316	94	--	.0	--	751	1.02	12	430	292	28	1.6	1,120	7.6
July 20	149	--	--	133	30	20	--	112	0	336	25	--	5.9	--	626	.85	252	455	363	9	.4	869	7.6
July 21-29	20.3	21	.00	140	27	55	5.7	146	0	368	59	.3	.1	.08	764	1.04	42	460	340	20	1.1	1,080	7.0
Aug. 6	85.0	--	--	58	15	17	--	134	0	78	23	--	11	--	269	.37	62	205	95	15	.5	443	8.0
Aug. 7-9.....	31.7	--	--	83	23	32	--	148	0	184	46	--	3.6	--	462	.63	40	300	178	19	.8	731	8.0
Aug. 10	435	--	--	232	29	17	--	84	0	588	21	--	8.3	--	970	1.32	1,140	700	631	5	.3	1,200	7.9
Aug. 11-13.....	207	--	--	74	11	17	--	126	0	127	23	--	4.5	--	326	.44	182	230	127	14	.5	515	7.9
Aug. 14-17.....	31.2	--	--	112	24	43	--	160	0	253	58	--	1.9	--	600	.82	51	380	249	20	1.0	877	8.0
Aug. 18-21.....	6.15	--	--	138	31	60	--	188	0	314	76	--	1.6	--	744	1.01	12	470	316	22	1.2	1,070	8.1
Aug. 31.....	88.0	--	--	250	43	41	--	118	0	686	42	--	9.0	--	1,210	1.65	287	800	704	10	.6	1,500	8.0
Sept. 1-2	57.0	--	--	120	22	23	--	128	0	273	24	--	5.7	--	590	.80	91	390	285	11	.5	792	7.7
Sept. 3-4,7-10, 12-13	4.21	--	--	132	33	49	--	176	0	348	54	--	1.4	--	762	1.04	8.7	465	321	19	1.0	1,070	7.7
Sept. 5-6	28.0	--	--	83	18	31	--	156	0	162	32	--	4.2	--	459	.62	35	280	152	19	.8	665	7.7
Sept. 25-26	23.8	--	--	146	45	50	--	224	0	383	61	--	3.7	--	897	1.22	58	550	366	16	.9	1,220	7.9
Sept. 27-30	314	--	--	80	15	18	--	134	0	150	19	--	1.3	--	368	.50	312	260	150	13	.5	568	7.6
Weighted average...	58.1	--	--	91	18	33	--	a157	--	179	38	--	3.0	--	469	0.64	74	301	172	19	0.8	703	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

MEDICINE LODGE RIVER NEAR KIOWA, KANS.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

SALT FORK ARKANSAS RIVER AT GREAT SALT PLAINS RESERVOIR, NEAR JET, OKLA.

LOCATION.--Immediately below dam on Salt Fork Arkansas River, 0.6 mile upstream from gaging station, and 5½ miles northeast of Jet, Alfalfa County.
DRAINAGE AREA.--3,200 square miles above sampling station; 3,202 square miles above gaging station, of which 8 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955.
Water temperatures: October 1954 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 27,100 ppm Feb. 19-25, 27-28; minimum, 2,480 ppm Sept. 28.
Hardness: Maximum, 1,770 ppm Mar. 1-8, 10-13, 15-22, 24-31; minimum, 310 ppm Sept. 28.
Specific conductance: Maximum daily, 42,200 micromhos Mar. 9; minimum daily, 4,560 micromhos Sept. 28.
Water temperatures: Maximum, 88°F Aug. 24; minimum, freezing point Feb. 21, 24, Mar. 21, 26-27.
REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1954 to September 1955 given in WSP 1391. No appreciable inflow between sampling station and gaging station except during periods of heavy local runoff. No flow Nov. 1, 3-4, Feb. 18, 26, Mar. 9, 14, 23.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954	7.40	10	0.03	356	93	5,840	25	109		1,150	9,300	0.0		0.26	17,600	23.94	352	1,270	1,180	91	71	27,300	7.5
Feb. 19-25, 27-28, 1955	.30	4.0	.00	433	141	8,530	20	201		1,370	13,300	.0		.09	27,100	36.86	22	1,660	1,500	92	91	36,500	7.9
Mar. 1-8, 10-13, 15-22, 24-31	.38	7.9	.02	425	173	8,120	14	193		1,310	12,800	.0	1.4	.38	23,500	31.96	24	1,770	1,610	91	84	36,100	8.1
Apr. 1-30	1.52	5.0	.00	429	148	8,400	18	185		1,360	12,800	.1		.46	23,900	32.50	98	1,680	1,530	91	89	35,800	7.8
May 1-10	1.98	--	--	437	117	8,530	--	181		1,390	13,000	--		--	24,200	32.91	129	1,570	1,420	92	94	36,700	7.8
May 11-12, 14-15, 17-18	5.62	--	--	375	96	7,380	--	178		1,190	11,400	--		--	21,300	28.97	323	1,330	1,180	92	88	32,600	7.8
May 13, 16, 19-20	8.45	--	--	277	82	5,450	--	194		868	8,470	--		--	15,800	21.49	360	1,030	871	92	74	25,400	8.1
May 21-27	49.6	--	--	346	67	7,100	--	219		1,030	10,900	--		--	20,200	27.47	2,710	1,140	960	93	91	31,400	8.0
May 28-31	724	--	--	215	80	3,400	--	101		714	5,370	--		--	10,100	13.74	19,740	865	782	90	50	17,100	7.6
June 1-17	432	15	.00	215	49	2,800	10	125		313	4,480	.2		.11	8,540	11.61	9,960	736	634	89	45	14,300	7.4
June 18-19	2,185	--	--	215	46	2,320	--	143		279	3,780	--		--	7,280	9.90	42,950	727	610	87	37	12,200	7.7
June 20-24	3,998	16	.00	168	25	1,510	9.4	102		224	2,450	.3		.11	4,790	6.51	51,710	520	436	86	29	8,310	7.3
June 25-30	1,815	9.7	.00	148	24	968	7.8	103		202	1,600	.3		.0	3,260	4.43	15,980	470	386	81	19	5,690	7.2
July 1-25	308	8.0	.00	156	49	1,100	5.2	130		421	1,700	.2		.24	3,600	4.90	2,990	590	484	80	20	6,380	7.2
July 26-31	9.87	6.8	.00	170	57	1,470	--	130		485	2,300	.2		.24	4,840	6.58	129	660	554	83	25	8,390	7.4
Aug. 1-31	7.44	13	.00	217	59	3,070	6.6	151		570	4,770	.0		.18	8,960	12.19	180	785	662	89	48	15,200	8.1
Sept. 1-27, 29-30	66.1	10	.00	215	56	2,320	6.6	120		582	3,590	.0		.11	7,040	9.57	1,260	767	668	87	36	12,300	8.1
Sept. 28	36.0	--	--	92	20	800	--	102		218	1,280	--		--	2,480	3.37	241	310	226	85	20	4,560	8.1

ARKANSAS RIVER BASIN--Continued

SALT FORK ARKANSAS RIVER AT GREAT SALT PLAINS RESERVOIR, NEAR JET, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

POND CREEK NEAR LAMONT, OKLA.

LOCATION.--At county highway bridge, 1½ miles west of Lamont, Grant County.
DRAINAGE AREA.--317 square miles.
RECORDS AVAILABLE.--Chemical analyses: February 1951 to September 1955.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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 35°C)	pH
								Total	Non-carbonate				
Oct. 25, 1954	0.06	34	39	84	366	26	42	245	0	43	2.3	815	8.7
Nov. 4	.05	61	32	80	418	30	40	285	0	38	2.1	888	8.6
Jan. 4, 1955	.09	18	32	92	322	23	39	175	0	53	3.0	818	8.7
Feb. 1	.09	22	33	91	320	18	39	190	0	51	2.9	785	8.7
Mar. 22	.13	72	20	95	346	17	42	260	0	44	2.8	935	8.4
Apr. 5	.36	24	6.8	20	132	0	11	88	0	33	.9	260	7.8
May 3	.05	74	32	87	516	0	35	315	0	38	2.1	891	7.9
July 13	.05	54	17	58	258	0	53	204	0	38	1.8	640	8.2
Aug. 2	.01	24	23	58	218	0	47	154	0	45	3.0	587	8.1
Sept. 21	.01	16	34	106	330	0	49	180	0	56	3.4	820	8.2

ARKANSAS RIVER BASIN--Continued

SALT FORK ARKANSAS RIVER AT TONKAWA, OKLA.

LOCATION.--At gaging station on U. S. Highway 177 bridge in Tonkawa, Kay County, 4 miles downstream from Thompson Creek, 7.8 miles upstream from Chikaskia River, and at mile 33.8.
DRAINAGE AREA.--4,528 square miles, of which 8 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: June 1948 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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, 1954	0.81	136	46	--	118	0	2,700	530	434	--	--	8,700	8.1
Oct. 12	126	62	16	386	110	0	680	220	130	79	11	2,480	7.8
Oct. 25	68.4	231	73	--	145	4	4,580	876	750	--	--	14,100	8.3
Nov. 4	6.31	255	73	--	235	0	4,330	936	744	--	--	13,500	8.2
Nov. 15	5.14	215	83	--	231	4	3,640	877	681	--	--	11,700	8.3
Nov. 29	3.09	160	73	--	208	0	2,950	700	530	--	--	9,820	8.2
Dec. 15	4.99	180	63	--	306	0	2,550	710	460	--	--	8,690	8.1
Jan. 4, 1955	8.03	132	71	--	184	0	2,450	620	469	--	--	8,480	8.2
Jan. 17	6.06	176	61	--	264	0	2,700	690	474	--	--	8,980	8.2
Feb. 1	7.77	176	46	--	264	0	2,650	630	414	--	--	9,190	8.2
Feb. 14	14.6	148	51	--	128	0	3,000	580	475	--	--	9,630	8.2
Mar. 7	5.22	168	46	--	262	4	2,800	610	389	--	--	9,080	8.3
Mar. 22	61.6	100	29	--	200	0	1,100	370	206	--	--	3,970	8.2
Apr. 5	15.2	54	21	--	209	0	725	220	48	--	--	2,900	8.0
May 3	2.95	84	29	--	235	0	1,000	330	138	--	--	3,860	7.2
May 13	89.6	37	6.7	228	128	0	310	120	15	81	9.0	1,400	8.0
May 25	178	38	3.6	107	146	0	152	110	0	68	4.4	755	7.5
June 1	741	191	56	--	116	0	4,140	708	613	--	--	13,300	8.0
June 30	1,900	132	32	--	110	0	1,400	460	370	--	--	5,050	7.7
July 13	348	152	46	--	142	0	1,680	570	454	--	--	6,190	8.1
Aug. 2	51.0	216	20	--	186	0	2,400	620	468	--	--	8,240	7.8
Sept. 9	208	203	59	--	102	0	4,370	748	664	--	--	13,600	8.1
Sept. 21	25.4	144	44	--	160	4	2,300	540	402	--	--	7,850	8.4

CHIKASKIA RIVER NEAR BLACKWELL, OKLA.

LOCATION.--At gaging station on St. Louis-San Francisco Railway Co. bridge at northeast edge of Blackwell, Kay County, 0.2 mile downstream from Bitter Creek, and at mile 28.2.
DRAINAGE AREA.--1,859 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1951 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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, 1954	0.56	1,430	373	--	83	0	10,100	5,100	5,030	--	--	25,900	7.9
Oct. 12	19.8	880	98	--	80	0	2,200	2,600	2,530	--	--	7,170	8.0
Oct. 25	12.2	320	49	--	62	0	2,000	1,000	949	--	--	6,220	7.8
Nov. 4	1.06	954	122	--	117	0	6,210	2,880	2,780	--	--	16,900	8.1
Nov. 15	1.04	1,470	254	--	153	0	9,420	4,710	4,580	--	--	24,300	7.9
Nov. 29	.99	1,580	257	--	127	0	9,650	5,000	4,900	--	--	25,600	7.8
Dec. 15	1.66	1,840	253	--	138	0	10,400	5,630	5,520	--	--	27,000	7.7
Jan. 3, 1955	1.81	1,490	368	--	105	0	8,710	5,230	5,140	--	--	23,100	7.9
Jan. 17	15.2	192	88	--	254	0	1,100	840	632	--	--	4,120	8.2
Feb. 1	27.5	176	44	396	220	0	800	620	440	58	6.9	3,020	8.2
Feb. 14	16.2	188	46	357	122	0	775	660	560	54	6.0	2,950	8.1
Mar. 7	27.0	116	24	231	198	0	480	390	228	56	5.1	2,040	8.2
Apr. 5	33.6	90	26	183	156	0	380	330	202	55	4.4	1,650	8.0
Apr. 26	15.4	148	34	257	204	0	550	510	343	52	5.0	2,280	8.1
May 3	6.44	212	46	--	192	0	1,000	720	562	--	--	3,650	8.1
May 6	135	61	15	55	94	0	144	215	138	36	1.6	743	8.0
May 13	338	41	12	30	136	0	47	150	38	30	1.1	477	8.0
May 25	439	40	9.7	24	110	0	50	140	50	27	.9	443	7.5
June 1	453	78	26	55	226	0	110	300	115	28	1.4	844	8.1
June 28	266	62	20	91	168	0	155	236	98	46	2.6	945	8.1
July 5	230	102	26	133	236	0	265	360	166	45	3.0	1,310	7.7
July 13	183	76	26	94	194	0	165	296	137	41	2.4	987	8.2
Aug. 2	20.6	164	63	--	84	0	1,060	670	601	--	--	3,790	7.9
Sept. 9	2.10	480	151	--	152	0	2,800	1,820	1,700	--	--	8,720	8.0

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT RALSTON, OKLA.

LOCATION.--At gaging station at bridge on State Highway 18 at Ralston, Pawnee County, 2 miles downstream from Salt Creek, 2 miles upstream from Grayhorse Creek, and at mile 594.0.
DRAINAGE Area.--54,465 square miles, of which 7,615 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: January 1950 to September 1955.
Water temperatures: January 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 3,390 ppm Sept. 11-16; minimum, 189 ppm May 10.
Hardness: Maximum, 495 ppm Sept. 11-16; minimum, 88 ppm May 10.
Specific conductance: Maximum daily, 7,510 micromhos Sept. 14; minimum daily, 316 micromhos May 10.
Water temperatures: Maximum, 96°F July 6; minimum, 33°F Feb 10-12.
EXTREMES, January 1950 to September 1955.--Dissolved solids: Maximum, 3,390 ppm Sept. 11-16, 1955; minimum, 189 ppm May 10, 1955.
Hardness: Maximum, 582 ppm Jan. 5, 1951; minimum, 88 ppm May 10, 1955.
Specific conductance: Maximum daily, 7,510 micromhos Sept. 14, 1955; minimum daily, 316 micromhos May 10, 1955.
Water temperatures: Maximum, 97°F June 13-14, 1953, July 14, 19, 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-8, 1954	83.8	--	--	98	31	453	--	172	0	160	775	--	2.9	--	1,720	2.34	389	370	229	73	10	3,070	7.8
Oct. 9-10	164	--	--	83	17	341	--	134	0	112	588	--	2.2	--	1,340	1.82	593	275	165	73	8.9	2,390	8.1
Oct. 11-13, 15-20	266	--	--	96	22	385	--	147	0	117	675	--	3.3	--	1,420	1.93	1,020	330	210	72	9.2	2,630	8.0
Oct. 14	867	--	--	66	15	220	--	100	0	65	390	--	13	--	918	1.25	2,150	226	144	68	6.4	1,610	8.1
Oct. 21-24, 31	155	--	--	102	45	423	--	170	6	147	750	--	1.2	--	1,620	2.20	678	440	290	68	8.8	2,900	8.4
Oct. 25-30	415	--	--	74	23	308	--	128	2	105	498	--	2.8	--	1,120	1.52	1,250	280	172	71	8.0	2,020	8.3
Nov. 1-10	212	--	--	100	23	444	--	197	0	133	700	--	6.0	--	1,550	2.11	887	345	184	74	10	2,740	8.2
Nov. 11-20	168	--	--	108	28	495	--	201	2	149	775	--	2.5	--	1,740	2.37	789	385	217	74	11	3,060	8.3
Nov. 21-30	160	5.0	0.01	118	23	472	7.1	233	0	156	750	0.5	2.2	0.18	1,720	2.34	743	390	199	72	10	3,060	8.0
Dec. 1-10	165	--	--	128	21	467	--	239	0	156	725	--	3.6	--	1,650	2.24	735	405	209	71	10	3,010	8.0
Dec. 11-20	200	--	--	124	20	458	--	241	0	157	725	--	4.9	--	1,630	2.22	880	390	192	72	10	2,960	8.1
Dec. 21-31	264	5.5	.00	107	32	416	9.0	218	2	149	675	--	5.2	.00	1,580	2.15	1,130	400	218	69	9.0	2,880	8.3
Jan. 1-10, 1955	308	--	--	124	24	455	--	224	6	172	725	--	12	--	1,670	2.27	1,390	410	216	71	9.8	2,960	8.3
Jan. 11-20	344	--	--	124	32	460	--	231	0	182	750	--	10	--	1,780	2.42	1,650	440	250	69	9.5	3,160	7.9
Jan. 21-31	327	4.0	.00	121	38	465	9.5	232	0	178	750	--	7.1	.00	1,750	2.38	1,550	460	270	68	9.4	3,180	7.8
Feb. 1-10	436	--	--	108	32	430	--	221	0	157	700	--	11	--	1,620	2.20	1,910	400	219	70	9.4	2,860	8.1
Feb. 11-20	418	--	--	124	24	459	--	216	4	187	725	--	11	--	1,770	2.41	2,000	410	226	71	9.9	3,110	8.3
Feb. 21-24	526	--	--	112	27	425	--	217	5	172	650	--	12	--	1,570	2.14	2,230	390	204	70	9.4	2,780	8.4
Feb. 25-28	492	--	--	128	34	494	--	220	0	193	825	--	8.6	--	1,870	2.54	2,480	460	280	70	10	3,290	8.1
Mar. 1-10	461	5.0	.00	114	27	462	5.0	211	0	186	725	.5	4.2	.03	1,690	2.30	2,100	395	222	71	10	3,020	8.0
Mar. 11-14, 16-19	403	--	--	116	32	462	--	224	0	207	750	--	2.3	--	1,690	2.30	1,840	420	236	71	9.8	2,990	8.2
Mar. 15	580	--	--	96	18	345	--	162	0	150	540	--	7.8	--	1,280	1.74	2,000	315	182	70	8.5	2,200	8.1

Mar. 20, 1955	548	--	--	76	13	248	--	148	0	115	362	--	7.6	--	913	1.24	1,350	245	124	69	6.9	1,630	7.9
Mar. 21-31	466	7.5	.01	106	31	428	6.7	229	0	190	650	.6	4.5	.20	1,620	2.20	2,040	390	202	70	9.4	2,710	8.1
Apr. 1-10	429	--	--	110	32	443	--	229	0	207	700	--	4.3	--	1,680	2.28	1,950	405	218	70	9.6	2,950	8.0
Apr. 11-20	401	2.5	.01	98	33	393	7.7	211	0	191	650	.4	3.2	.14	1,620	2.20	1,750	380	207	69	8.8	2,670	7.8
Apr. 21-23	378	--	--	92	32	440	--	189	0	210	690	--	7.8	--	1,660	2.26	1,690	360	205	73	10	2,900	7.9
Apr. 24-30	622	--	--	80	24	337	--	161	0	175	530	--	5.9	--	1,320	1.80	2,220	300	168	71	8.5	2,320	7.7
May 1-7	448	--	--	90	29	395	--	221	0	197	635	--	4.6	--	1,520	2.07	1,840	345	164	71	9.2	2,680	7.7
May 8	678	--	--	75	25	275	--	134	0	119	485	--	3.5	--	1,140	1.55	2,090	290	180	67	7.0	1,990	6.9
May 9	5,890	--	--	46	10	65	--	144	0	31	109	--	1.4	--	356	.48	5,660	156	38	48	2.3	575	6.9
May 10	8,020	--	--	26	5.6	31	--	88	0	24	41	--	4.4	--	189	.26	4,090	88	16	43	1.4	316	7.6
May 11-12	6,510	--	--	26	8.0	42	--	90	0	27	64	--	3.3	--	236	.32	4,150	98	24	48	1.8	405	7.5
May 13-14	2,315	--	--	45	14	122	--	128	0	60	196	--	1.8	--	535	.73	3,340	170	65	61	4.1	957	7.8
May 15-16, 19	1,080	--	--	60	18	224	--	148	0	103	335	--	2.8	--	846	1.15	2,470	225	104	68	6.5	1,520	7.8
May 17-18	946	--	--	69	19	287	--	158	0	118	448	--	4.5	--	1,080	1.47	2,760	250	120	71	7.9	1,910	7.7
May 20	4,160	--	--	38	6.1	66	--	110	0	30	100	--	5.0	--	352	.48	3,950	120	30	54	2.6	564	7.6
May 21-23	7,540	--	--	26	6.1	48	--	82	0	27	72	--	1.6	--	242	.33	4,930	90	23	54	2.2	437	7.1
May 24-25	3,385	--	--	45	14	156	--	152	0	63	225	--	3.3	--	584	.79	5,340	170	46	67	5.2	1,040	7.5
May 26-29	21,750	--	--	32	7.3	37	--	104	0	21	61	--	2.2	--	232	.32	13,620	110	25	42	1.5	402	7.2
May 30-31	12,480	--	--	51	8.0	81	--	160	0	57	98	--	3.3	--	377	.51	12,700	160	29	52	2.8	609	7.7
June 1	6,100	--	--	68	18	288	--	128	0	105	480	--	3.9	--	1,120	1.52	18,450	245	140	72	8.0	1,950	7.7
June 2-7	3,912	--	--	112	21	750	--	158	0	217	1,150	--	--	--	2,480	3.37	26,190	365	236	82	17	4,170	7.8
June 8, 10	5,105	--	--	82	18	456	--	156	0	151	700	--	5.1	--	1,560	2.12	21,500	280	152	78	12	2,760	7.8
June 9	7,360	--	--	62	16	270	--	140	0	101	405	--	5.7	--	991	1.35	19,690	220	106	73	7.9	1,720	7.4
June 11-17	3,294	--	--	100	27	642	--	168	0	206	1,000	--	--	--	2,150	2.92	19,120	360	222	79	15	3,820	7.7
June 18-19	6,420	--	--	88	24	495	--	172	0	156	755	--	8.7	--	1,690	2.30	29,290	320	179	77	12	2,930	7.8
June 20	17,700	--	--	42	9.7	140	--	120	0	50	215	--	5.6	--	564	.77	26,950	145	46	68	5.1	958	7.0
June 21	23,400	--	--	33	10	92	--	100	0	59	136	--	5.2	--	400	.54	25,270	125	43	62	3.6	674	7.1
June 22	15,200	--	--	59	20	377	--	104	0	105	590	--	6.2	--	1,240	1.69	50,890	230	145	78	11	2,240	7.3
June 23-25	9,500	--	--	112	39	1,020	--	124	0	277	1,600	--	--	--	3,160	4.30	81,050	440	338	83	21	5,470	7.5
June 26-30	6,752	--	--	104	32	655	--	136	0	231	1,000	--	5.4	--	2,140	2.91	39,010	390	278	79	14	3,720	7.4
July 1	5,740	--	--	100	27	465	--	144	0	206	700	--	9.7	--	1,580	2.15	24,490	360	242	74	11	2,880	7.8
July 2-3	4,960	--	--	83	23	356	--	140	0	161	545	--	8.0	--	1,260	1.71	16,870	300	186	72	8.9	2,320	7.7
July 4-6	3,077	--	--	104	32	447	--	168	0	212	690	--	4.4	--	1,610	2.19	13,380	390	252	71	9.8	2,770	7.8
July 7, 9	3,095	--	--	85	26	296	--	164	0	165	475	--	4.5	--	1,150	1.56	9,610	320	186	67	7.2	2,060	7.7
July 8	3,810	--	--	69	21	228	--	160	0	121	335	--	6.4	--	859	1.17	8,840	260	129	66	6.1	1,570	7.3
July 10	2,600	--	--	104	34	412	--	176	0	214	660	--	9.0	--	1,600	2.18	11,230	400	256	69	9.0	2,690	7.9

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ARKANSAS RIVER AT RALSTON, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
July 11-20, 1955	1,970	8.0	0.00	106	31	440	6.0	218	0	169	730	0.3	1.0	0.04	1,620	2.20	8,620	392	214	71	9.7	2,870	7.9
July 21-22, 27-31	1,307	--	--	104	39	469	--	182	0	221	760	--	3.3	--	1,720	2.34	6,070	420	271	71	10	3,090	7.6
July 23-26	1,512	--	--	96	32	401	--	180	0	189	610	--	3.2	--	1,480	2.01	6,040	370	222	70	9.1	2,620	7.7
Aug. 1-3, 6-10	801	--	--	96	32	448	--	176	0	189	705	--	3.8	--	1,580	2.15	3,420	370	226	72	10	2,830	7.9
Aug. 4	1,600	--	--	42	9.7	127	--	92	0	60	205	--	7.1	--	514	.70	2,220	145	70	66	4.6	963	7.6
Aug. 5	970	--	--	82	22	327	--	146	0	128	535	--	4.0	--	1,190	1.62	3,120	295	176	71	8.3	2,120	8.0
Aug. 11-12, 14-20	675	--	--	82	29	362	--	166	0	154	600	--	3.3	--	1,370	1.86	2,500	325	189	71	8.7	2,450	7.4
Aug. 13	1,070	--	--	66	21	221	--	148	0	95	370	--	9.1	--	905	1.23	2,610	250	128	66	6.1	1,590	8.1
Aug. 21-29, 31	411	--	--	90	33	427	--	172	0	164	720	--	4.5	--	1,590	2.16	1,760	360	219	72	9.8	2,840	7.2
Aug. 30	405	--	--	106	38	571	--	168	2	184	950	--	4.8	--	2,030	2.76	2,220	420	279	75	12	3,650	8.3
Sept. 1-10	258	--	--	98	33	446	--	188	0	165	735	--	1.8	--	1,640	2.23	1,140	380	226	72	9.9	2,910	8.2
Sept. 11-16	326	--	--	132	40	1,060	--	144	0	298	1,700	--	--	--	3,390	4.61	2,980	495	377	82	21	6,060	7.8
Sept. 17-20	214	--	--	102	35	743	--	160	0	213	1,200	--	--	--	2,420	3.29	1,400	400	269	80	16	4,320	7.4
Sept. 21-24	165	--	--	104	38	698	--	180	0	205	1,100	--	--	--	2,250	3.06	1,000	415	268	79	15	4,190	7.9
Sept. 25-29	223	--	--	92	34	511	--	182	0	161	825	--	.6	--	1,760	2.39	1,060	370	221	75	12	3,280	7.9
Sept. 30	656	--	--	67	20	267	--	144	0	111	425	--	11	--	1,000	1.36	1,770	250	132	70	7.3	1,800	8.0
Weighted average	1,530	--	--	73	20	346	--	a145	--	127	541	--	--	--	1,230	1.67	5,080	264	145	74	9.2	2,150	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT RALSTON, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

ARKANSAS RIVER BASIN--Continued

CIMARRON RIVER NEAR KENTON, OKLA.

LOCATION.--At gaging station on county highway bridge, 1.5 miles upstream from Carrizo Creek, 1.7 miles northeast of Kenton, Cimarron County, and 2.2 miles downstream from Carrizozo Creek.
DRAINAGE AREA.--1,106 square miles, of which 68 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemcial analyses, in parts per million, water year October 1954 to September 1955

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. 1, 1954	0.98	100	101	345	330	0	70	665	394	53	5.8	2,350	8.0
Oct. 11	8.78	85	53	137	244	0	28	430	230	41	2.9	1,230	8.2
Oct. 18	3.24	88	97	235	272	0	45	620	397	45	4.1	1,790	8.0
Nov. 3	2.27	114	91	305	382	0	58	660	364	50	5.2	2,140	8.2
Nov. 16	1.48	113	107	331	386	0	63	720	404	50	5.4	2,270	8.2
Dec. 7	1.44	122	91	293	428	0	62	680	330	48	4.9	2,330	8.2
Dec. 21	1.22	123	83	292	414	10	62	650	294	49	5.0	2,360	8.3
Jan. 6, 1955	1.93	104	80	269	386	0	58	590	274	50	4.8	2,160	8.1
Jan. 19	1.37	109	107	289	422	0	62	710	364	47	4.7	2,160	8.0
Jan. 31	1.86	112	83	260	412	0	55	620	282	48	4.5	2,060	8.1
Feb. 15	1.74	96	83	258	398	0	60	580	254	49	4.6	2,100	8.1
Feb. 28	1.90	108	73	264	396	0	64	570	246	50	4.8	2,060	8.0
Mar. 14	.60	106	89	306	390	0	69	630	310	51	5.3	2,220	8.2
Apr. 13	.84	120	146	468	440	0	105	900	540	53	6.8	3,360	7.6
Apr. 30	.16	112	97	337	386	0	79	680	364	52	5.6	2,440	7.5
May 19	3,180	70	23	30	306	0	7.2	270	19	19	.8	603	7.0
May 21	555	54	38	43	254	0	8.0	290	82	24	1.1	821	7.1
May 24	84.5	72	39	85	240	0	16	340	144	35	2.0	994	7.1
June 16	9.61	83	58	204	284	0	50	445	212	50	4.2	1,810	7.2
June 22	85.7	64	17	32	266	0	14	230	12	23	.9	573	7.2
July 7	7.92	82	29	82	248	0	16	325	122	35	2.0	928	7.2
July 30	813	64	24	26	268	0	9.0	280	40	18	.7	546	7.1
Aug. 2	2.28	86	37	102	222	0	24	315	133	41	2.5	989	7.5
Aug. 29	2.29	74	49	151	220	0	54	388	208	46	3.3	1,350	6.8
Sept. 21	.44	100	93	325	334	0	65	630	356	53	5.6	2,310	7.9

CIMARRON RIVER NEAR MOCANE, OKLA.

LOCATION.--At gaging station at bridge on county highway, 6½ miles northeast of Mocane, Beaver County, and 13 miles upstream from Crooked Creek.
DRAINAGE AREA.--8,670 square miles, of which 4,365 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1955.
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 in winter months.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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. 20, 1954	55.1	93	41	270	248	6	520	400	187	59	5.9	2,220	8.3
Oct. 27	58.2	101	55	250	284	0	455	480	248	53	5.0	2,260	8.0
Nov. 2	61.8	101	46	256	270	0	470	440	219	56	5.3	2,270	8.1
Nov. 8	56.0	102	26	286	258	0	475	360	148	63	6.6	2,250	8.1
Nov. 18	65.7	106	43	299	300	0	450	440	194	60	6.2	2,240	7.9
Nov. 24	71.0	102	26	292	288	0	455	360	124	64	6.7	2,200	7.8
Nov. 29	60.6	92	32	303	270	0	460	360	139	65	6.9	2,180	8.0
Dec. 9	71.2	93	41	303	270	0	465	400	179	62	6.6	2,240	8.1
Dec. 14	78.8	93	34	337	260	0	490	370	157	66	7.6	2,240	8.0
Dec. 24	74.3	92	44	334	258	0	480	410	198	64	7.2	2,280	7.9
Jan. 3, 1955	88.8	90	55	328	258	0	460	450	238	61	6.7	2,070	7.8
Jan. 10	72.0	104	37	336	290	0	480	410	172	64	7.2	2,280	7.6
Jan. 14	77.1	98	45	354	260	0	500	430	217	64	7.4	2,270	7.8
Jan. 18	61.8	94	55	374	268	0	540	460	240	64	7.6	2,410	7.8
Jan. 28	76.6	95	64	350	268	0	490	500	280	60	6.8	2,280	7.9
Feb. 17	74.2	93	41	324	260	0	490	400	187	64	7.0	2,220	7.8
Feb. 22	250	112	29	341	290	0	530	400	162	65	7.4	2,210	7.7
Feb. 25	65.5	103	25	339	272	0	510	360	137	67	7.8	2,360	8.1
Mar. 9	68.9	92	27	325	256	0	480	340	130	68	7.7	2,210	7.7
Mar. 17	70.2	88	32	314	240	0	500	350	154	66	7.3	2,230	8.0
Mar. 24	71.6	88	39	341	288	0	460	380	144	66	7.6	2,220	7.1
Mar. 28	80.9	88	34	270	272	0	460	360	137	62	6.2	2,180	7.2
Apr. 7	65.5	76	34	332	230	0	490	330	142	69	7.9	2,280	7.2
Apr. 11	76.4	100	39	414	284	0	560	410	178	69	8.9	2,660	7.1
Apr. 14	6,084	80	22	143	256	0	200	290	80	52	3.7	1,260	7.2
Apr. 18	110	70	21	159	212	0	220	260	86	57	4.3	1,250	7.2
Apr. 22	87.0	88	33	227	264	0	330	355	138	58	5.2	1,780	7.3
Apr. 26	64.2	88	34	270	274	0	340	360	136	62	6.2	1,910	7.2

ARKANSAS RIVER BASIN--Continued

CIMARRON RIVER NEAR MOCANE, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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				
May 2, 1955	61.5	74	33	308	230	0	410	320	132	68	7.5	1,990	7.3
May 9	65.8	78	32	307	240	0	445	325	128	67	7.4	2,110	7.3
May 17	111	94	28	188	332	0	280	350	78	54	4.4	1,610	7.0
May 18	5,890	84	16	87	320	0	110	275	13	41	2.3	986	7.2
May 25	364	68	34	102	310	0	110	310	56	42	2.5	1,150	7.3
June 2	115	80	34	186	278	0	240	340	112	54	4.4	1,540	7.3
June 7	86.5	84	32	140	268	0	270	340	120	47	3.3	1,590	7.4
June 20	92.6	70	37	135	232	0	280	325	135	47	3.3	1,520	7.3
June 28	99.6	56	44	199	248	0	370	320	117	57	4.8	2,770	7.4
July 5	54.3	90	33	222	272	0	350	360	137	57	5.1	1,810	7.3
July 25	51.2	75	37	241	232	0	425	340	150	61	5.7	2,000	7.2
Aug. 11	97.3	62	23	148	196	0	225	248	88	56	4.1	1,210	7.9
Aug. 17	65.5	109	47	193	372	0	255	465	160	47	3.9	1,670	7.9
Aug. 26	33.5	90	38	305	248	0	468	380	177	64	6.8	2,210	7.9
Sept. 2	45.3	72	44	339	222	0	450	360	178	67	7.8	2,190	7.8
Sept. 20	39.2	76	44	372	238	0	530	372	177	69	8.4	2,460	7.7
Sept. 26	91.0	98	28	313	258	4	445	360	142	65	7.2	2,100	8.3
Sept. 29	50.8	88	40	334	272	0	480	384	161	65	7.4	2,310	7.5

CIMARRON RIVER NEAR WAYNOKA, OKLA.

LOCATION.--At gaging station on U. S. Highway 281 bridge, three-quarters of a mile downstream from Maine Creek, 5 miles south of Waynoka, Woods County, and at mile 247.0.
DRAINAGE AREA.--13,334 square miles of which 4,380 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: February 1951 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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. 7, 1954	0.40	294	82	--	191	8	6,710	1,070	900	--	--	19,100	8.3
Oct. 11	77.4	320	34	178	120	0	280	940	842	29	2.5	2,430	7.8
Oct. 25	.55	330	247	--	291	0	5,970	1,840	1,600	--	--	17,200	8.2
Nov. 23	1.33	255	78	--	243	6	3,880	955	746	--	--	12,600	8.3
Jan. 19, 1955	21.5	369	109	--	208	14	18,800	1,370	1,180	--	--	47,400	8.4
Feb. 1	34.2	526	60	--	141	0	3,490	1,560	1,440	--	--	12,300	8.2
Feb. 8	80.2	91	30	340	254	0	520	350	142	68	7.9	2,190	7.8
Feb. 14	23.6	355	140	--	219	12	22,300	1,460	1,260	--	--	52,700	8.4
Mar. 7	18.8	205	119	--	241	6	15,300	1,000	792	--	--	40,200	8.3
Mar. 21	11.5	423	147	--	124	0	11,800	1,660	1,560	--	--	33,300	8.0
Apr. 4	12.6	440	195	--	202	0	24,500	1,900	1,730	--	--	60,700	8.1
Apr. 18	434	100	31	--	196	0	2,800	375	214	--	--	9,460	7.8
May 2	537	468	103	--	166	0	15,700	1,590	1,450	--	--	42,200	7.4
May 4	82.8	321	95	--	113	0	9,650	1,190	1,100	--	--	27,800	7.6
May 6	955	237	85	--	136	0	10,900	940	828	--	--	30,500	7.8
May 7	282	266	41	--	171	0	5,760	834	694	--	--	17,800	8.1
May 9	66.7	183	58	--	142	0	5,470	697	580	--	--	16,900	7.9
May 16	5.82	265	66	--	190	4	8,510	931	769	--	--	24,300	8.3
June 7	332	160	39	--	206	18	3,190	559	360	--	--	10,500	8.5
June 16	379	344	49	--	136	0	2,350	1,060	948	--	--	8,440	7.8
July 5	--	190	74	275	112	0	390	780	688	43	4.3	2,340	8.0
July 11	19.0	326	106	--	179	0	6,550	1,250	1,100	--	--	16,700	8.2
July 21	28.2	191	82	--	139	4	6,260	814	694	--	--	18,600	8.4
Aug. 1	2.56	371	128	--	217	0	11,200	1,450	1,270	--	--	29,700	8.2
Aug. 11	137	183	39	--	132	0	3,740	618	510	--	--	11,900	8.1
Aug. 22	5.06	300	129	--	156	2	10,500	1,280	1,150	--	--	30,100	8.3
Aug. 31	26.1	198	36	--	136	0	1,400	640	528	--	--	5,580	8.2
Sept. 12	.52	127	78	--	84	0	4,180	637	568	--	--	12,900	7.8

ARKANSAS RIVER BASIN--Continued

TURKEY CREEK NEAR DRUMMOND, OKLA.

LOCATION.--At gaging station on county highway bridge, 2¼ miles northeast of Drummond, Garfield County, 2½ miles downstream from Clear Creek, and 9 miles southeast of Enid, Garfield County.
DRAINAGE AREA.--248 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1955.
Water temperatures: October 1947 to September 1948.
EXTREMES, 1947-48.--Dissolved solids: Maximum, 3,390 ppm Feb. 17-23; minimum, 79 ppm Aug. 9-10.
Hardness: Maximum, 938 ppm Feb. 17-23; minimum, 36 ppm Aug. 9-10.
Water temperatures: Maximum, 92°F July 26; minimum, 34°F Jan. 14.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 1955

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				
Nov. 23, 1954	0.07	126	82	394	372	6	710	650	335	57	6.7	3,110	8.3
Dec. 20	.72	99	54	334	328	16	575	470	174	61	6.7	2,610	8.5
Mar. 7, 1955	.05	64	95	--	206	0	1,080	550	381	--	--	4,300	8.0
Mar. 21	.07	56	83	--	270	0	875	480	259	--	--	3,540	8.0
Apr. 5	.03	64	95	--	257	0	1,050	550	340	--	--	4,130	8.1
Apr. 18	.20	114	82	--	280	14	1,200	620	367	--	--	4,650	8.5
May 9	534	14	2.7	27	62	0	32	46	0	56	1.7	246	7.5
June 7	6.91	46	16	120	204	0	160	180	13	59	3.9	966	8.0
June 21	1,560	13	2.8	10	46	0	6.5	44	6	33	.6	120	6.6
July 6	85.0	34	15	89	134	0	132	148	38	57	3.2	762	7.7
July 11	3.59	70	57	372	210	0	575	410	238	66	8.0	2,470	8.2
Aug. 1	.88	120	88	--	222	0	1,150	660	478	--	--	4,440	7.5
Aug. 11	13.3	228	239	--	250	0	2,790	1,550	1,340	--	--	10,000	8.1
Aug. 22	1.40	76	76	451	232	0	825	500	310	66	8.8	3,360	8.2
Sept. 13	.40	116	131	--	202	0	1,480	830	664	--	--	5,650	7.7

CIMARRON RIVER NEAR GUTHRIE, OKLA.

LOCATION.--At gaging station 125 feet upstream from Atchison, Topeka and Santa Fe Railway bridge, 1.2 miles downstream from Cottonwood Creek, 2½ miles north of Guthrie, Logan County, 6.5 miles upstream from Skeleton Creek (Ephriam Creek), and at mile 121.8.
DRAINAGE AREA.--16,892 square miles of which 4,926 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: May 1949 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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, 1954	0.81	65	65	354	298	0	560	430	186	64	7.4	2,530	8.0
Oct. 14	6.91	87	30	--	132	4	1,050	340	226	--	--	3,840	8.3
Oct. 26	1.24	117	75	--	388	14	1,450	600	258	--	--	5,290	8.3
Nov. 16	.56	92	44	356	546	0	580	410	0	65	7.6	2,950	8.0
Dec. 16	.42	82	48	449	344	0	650	400	118	71	9.8	2,990	8.2
Jan. 4, 1955	6.87	192	63	--	196	4	2,100	740	573	--	--	7,170	8.3
Jan. 12	4.67	200	68	--	236	8	2,200	780	573	--	--	7,780	8.4
Jan. 28	12.4	295	208	--	225	0	5,320	1,590	1,410	--	--	16,400	8.0
Feb. 4	57.9	188	56	--	184	0	3,490	699	548	--	--	11,100	8.2
Feb. 15	63.9	354	92	--	232	0	16,500	1,260	1,070	--	--	42,600	8.1
Feb. 21	30.7	242	80	--	203	12	7,450	933	746	--	--	21,900	8.4
Mar. 8	33.7	331	110	--	191	0	13,300	1,280	1,120	--	--	32,300	8.2
Mar. 31	11.2	250	90	--	203	0	11,800	994	828	--	--	18,400	7.8
Apr. 18	35.3	385	80	--	173	0	8,670	1,290	1,150	--	--	25,600	7.5
Apr. 19	489	202	109	--	433	0	7,940	952	597	--	--	23,400	7.6
Apr. 26	71.7	163	68	--	223	0	4,980	687	504	--	--	15,000	8.2
May 4	13.4	254	99	--	235	0	7,450	1,040	848	--	--	21,300	7.5
May 9	211	254	68	--	250	0	6,750	913	708	--	--	19,700	7.5
May 10	5,460	98	21	--	194	0	2,500	330	171	--	--	8,340	7.9
May 11	2,080	62	11	--	144	0	1,000	200	82	--	--	3,730	7.8
May 12	8,870	62	16	--	170	0	780	220	80	--	--	3,240	7.3
May 13	4,350	56	12	--	160	0	430	188	57	--	--	1,900	7.2
May 16	479	114	18	--	130	0	1,600	360	254	--	--	5,660	7.9
May 21	36,700	72	9.8	--	96	0	1,000	220	142	--	--	3,660	7.9
May 22	19,800	108	24	--	168	0	2,300	370	232	--	--	7,620	7.7
May 24	12,200	110	28	--	178	0	2,300	390	244	--	--	7,660	8.1
May 25	6,220	116	24	--	212	0	1,900	390	216	--	--	6,360	8.0
May 27	24,100	57	10	361	136	0	550	185	74	81	12	2,240	7.8

ARKANSAS RIVER BASIN--Continued

CIMARRON RIVER NEAR GUTHRIE, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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				
June 2, 1955	1,260	142	33	--	188	0	1,650	490	336	--	--	5,910	8.1
June 13	588	204	49	--	224	0	2,700	710	526	--	--	9,030	8.1
July 1	878	126	35	--	212	0	1,200	460	286	--	--	4,320	7.9
July 11	456	196	49	--	198	0	1,380	690	528	--	--	5,370	8.0
July 15	281	235	75	--	177	4	3,290	896	744	--	--	10,900	8.4
July 20	302	146	51	--	174	10	1,800	575	416	--	--	6,530	8.5
Aug. 2	142	234	90	--	183	6	4,720	953	793	--	--	14,800	8.4
Aug. 9	101	223	83	--	167	12	3,880	896	739	--	--	12,400	8.5
Aug. 24	82.9	247	92	--	189	14	4,270	994	816	--	--	13,700	8.6
Sept. 6	90.0	224	54	--	154	2	1,900	780	650	--	--	6,900	8.3
Sept. 13	183	62	18	346	120	0	500	230	132	77	9.9	2,060	7.3

SKELETON CREEK NEAR LOVELL, OKLA.

LOCATION.--At gaging station at bridge on State Highway 74, 2 miles upstream from Otter Creek, and 2¾ miles east of Lovell, Logan County, and at mile 14.6.
DRAINAGE AREA.--410 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1955.
Water temperatures: October 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,990 ppm Aug. 1, 3-8; minimum, 67 ppm June 1.
Hardness: Maximum, 650 ppm June 22-29; minimum, 38 ppm May 19-20, June 1.
Specific conductance: Maximum daily, 3,850 micromhos Aug. 4; minimum daily, 105 micromhos June 1.
Water temperatures: Maximum, 87°F Aug. 18; minimum, 35°F Feb. 10.
EXTREMES, 1950-55.--Dissolved solids: Maximum, 2,100 ppm Dec. 7-8, 1950; minimum, 67 ppm June 1, 1955.
Hardness: Maximum, 670 ppm Dec. 7-8, 1950; minimum, 38 ppm May 19-20, June 1, 1955.
Specific conductance: Maximum daily, 3,850 micromhos Aug. 4, 1955; minimum daily, 105 micromhos June 1, 1955.
Water temperatures: Maximum, 94°F July 12, 1954; minimum, freezing point on several 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 8, 10, 1954	3.54	--	--	53	12	107	--	206	0	70	120		4.0	--	523	0.71	5.0	180	11	56	3.5	882	7.7
Oct. 6-7, 9	2.93	--	--	36	9.2	59	--	153	1	33	68		6.0	--	287	.39	2.3	128	1	50	2.3	581	8.3
Oct. 11-12	3.10	--	--	52	15	119	--	212	4	72	130		3.5	--	511	.69	4.3	190	10	58	3.8	918	8.4
Oct. 13	3.30	--	--	39	7.4	65	--	168	0	36	72		4.6	--	328	.45	2.9	128	0	53	2.5	580	8.2
Oct. 14-20	2.59	--	--	70	23	194	--	317	8	104	225		3.7	--	812	1.10	5.7	270	0	61	5.1	1,430	8.4
Oct. 21, 24-25, 28, 30-31	1.42	--	--	70	22	186	--	304	9	94	210		3.3	--	762	1.04	2.9	265	1	60	5.0	1,350	8.5
Oct. 22-23, 26-27, 29	1.32	--	--	88	32	289	--	302	11	94	445		5.0	--	1,150	1.56	4.1	350	84	64	6.7	2,090	8.4
Nov. 1-2	1.15	--	--	84	29	258	--	258	24	104	375		11	--	1,060	1.44	3.3	330	78	63	6.2	1,840	8.7
Nov. 3-20	1.03	--	--	74	20	188	--	258	16	92	228		3.6	--	774	1.05	2.2	265	27	61	5.0	1,360	8.6
Nov. 21-30	1.94	10		101	29	263	18	400	16	135	310		3.1	0.00	1,090	1.48	5.7	370	16	59	5.9	1,910	8.5
Dec. 1-2	1.50	--	--	80	26	205	--	303	25	104	250		3.2	--	885	1.20	3.6	305	15	59	5.1	1,560	8.6
Dec. 3-10	2.28	--	--	84	45	279	--	478	2	141	310		17	--	1,170	1.59	7.2	395	0	61	6.1	2,020	8.3
Dec. 11-20	2.25	24	.02	85	36	250	22	410	10	139	300		11	.00	1,130	1.54	6.9	360	8	58	5.7	1,990	8.4
Dec. 21-31	2.03	--	--	80	34	278	--	397	0	140	295		44	--	1,130	1.54	6.2	340	14	64	6.6	1,970	8.1
Jan. 1-10, 1955	3.37	--	--	72	34	252	--	366	0	140	272		55	--	1,100	1.50	10	320	20	63	6.1	1,820	7.4
Jan. 11-20	3.80	29	.02	78	21	253	19	348	0	136	300		2.6	.22	1,090	1.48	11	280	0	64	6.6	1,870	7.5
Jan. 21-31	3.94	--	--	74	27	264	--	321	0	137	295		66	--	1,100	1.50	12	295	32	66	6.7	1,840	7.8
Feb. 1-3	3.17	--	--	60	37	286	--	313	0	144	310		66	--	1,120	1.52	9.6	300	44	67	7.2	1,930	8.1
Feb. 4-7	25.6	--	--	48	22	177	--	193	0	91	210		48	--	733	1.00	51	210	52	65	5.3	1,280	7.9
Feb. 8-10	4.73	--	--	30	12	93	--	104	0	57	105		27	--	407	.55	5.2	125	40	62	3.6	643	7.9
Feb. 11-13, 17-18	3.06	--	--	34	9.7	88	--	107	0	54	110		21	--	406	.55	3.4	125	38	61	3.4	713	7.7

ARKANSAS RIVER BASIN--Continued

SKELETON CREEK NEAR LOVELL, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 160°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 14-16, 19-20, 1955	3.00	--	--	48	18	128	--	184	0	76	158		20	--	579	0.79	4.7	195	44	59	4.0	1,060	7.8
Feb. 21-23	3.10	--	--	50	16	118	--	177	0	75	160		18	--	532	.72	4.5	190	45	57	3.7	1,010	8.0
Feb. 24-28	2.82	--	--	68	29	204	--	286	0	121	262		26	--	903	1.23	6.9	290	56	60	5.2	1,640	8.0
Mar. 1-10	2.60	--	--	78	32	270	--	338	0	144	312		39	--	1,090	1.48	7.7	325	48	64	6.5	1,930	8.1
Mar. 11-20	2.08	17	0.04	86	28	255	14	390	0	129	310	0.1	31	0.45	1,100	1.50	6.2	330	10	61	6.1	1,900	8.1
Mar. 21-23	2.40	--	--	76	34	245	--	350	0	124	282		27	--	1,020	1.39	6.6	330	43	62	5.9	1,740	8.2
Mar. 24-31	3.15	--	--	84	37	285	--	368	0	124	358		38	--	1,160	1.58	9.9	360	58	63	6.5	2,020	8.1
Apr. 1-10	4.23	--	--	74	33	294	--	393	0	142	328		30	--	1,140	1.55	13	320	0	67	7.1	1,980	8.0
Apr. 11-20	2.45	18	06	67	26	257	16	358	0	128	280		35	--	1,030	1.40	6.8	275	0	65	6.7	1,710	8.0
Apr. 21-30	1.73	--	--	80	35	350	--	480	0	139	382		21	--	1,270	1.73	5.9	345	0	69	8.2	2,200	8.2
May 1-7	3.03	--	--	78	32	350	--	507	6	128	392		2.0	--	1,300	1.77	11	325	0	70	8.4	2,260	8.3
May 8-10	4,010	--	--	14	1.7	20	--	62	0	19	18		3.1	--	133	.18	1,440	42	0	51	1.3	154	7.4
May 11-13	1,455	--	--	50	15	94	--	142	0	51	148		5.6	--	471	.64	1,850	185	68	52	3.0	810	7.7
May 14-18	35.0	--	--	86	21	192	--	220	0	78	310		5.8	--	872	1.19	82	300	120	58	4.8	1,470	7.9
May 19-20	4,755	--	--	13	1.3	12	--	54	0	7.0	8.0		3.7	--	80	.11	1,030	38	0	41	.8	127	7.3
May 21-22, 26-27	4,860	--	--	14	3.2	11	--	52	0	19	11		4.4	--	94	.13	1,230	48	6	33	.7	153	6.5
May 23-25, 29	141	--	--	62	35	133	--	218	0	106	205		7.8	--	706	.96	269	300	122	49	3.3	1,220	7.4
May 28	1,950	--	--	32	11	33	--	112	0	48	46		5.5	--	241	.32	1,270	125	33	36	1.3	440	7.1
May 30-31	71.0	--	--	92	44	180	--	278	0	131	320		8.0	--	1,020	1.39	196	410	182	49	3.9	1,720	7.8
June 1	45.0	--	--	10	3.2	6.8	--	40	0	13	7.5		6.2	--	67	.09	8.1	38	5	30	0.5	105	6.8
June 2-7	31.0	--	--	142	69	304	--	380	0	202	585		11	--	1,630	2.22	136	640	328	51	5.2	2,640	7.8
June 8	146	--	--	86	38	176	--	242	0	106	280		9.6	--	866	1.18	341	370	172	51	4.0	1,460	7.9
June 9	295	--	--	22	8.5	22	--	80	0	23	21		6.2	--	142	.19	113	90	25	35	1.0	236	7.1
June 10	52.0	--	--	34	13	58	--	112	0	63	80		5.8	--	289	.39	41	140	48	47	2.1	494	7.3
June 11-12	23.0	--	--	78	27	158	--	204	0	85	248		7.7	--	781		49	305	138	53	3.9	1,270	7.8
June 13-15	19.0	--	--	125	53	281	--	314	0	154	430		7.5	--	1,300	1.77	67	530	272	28	5.3	2,090	8.0
June 16	1,600	--	--	12	4.9	11	--	48	0	16	15		5.5	--	110	.15	475	50	10	32	.7	148	6.6
June 17-18	2,316	--	--	40	15	51	--	124	0	44	78		4.9	--	294	.40	1,840	160	58	41	1.8	522	7.5
June 19-20	3,065	--	--	66	26	104	--	188	0	61	173		6.2	--	575	.78	4,760	270	116	46	2.8	964	7.6
June 21	319	--	--	100	44	190	--	228	0	105	380		7.5	--	1,060	1.44	913	430	243	49	4.0	1,780	7.9
June 22-29	313	--	--	156	63	310	--	472	0	189	530		14	--	1,520	2.07	1,280	650	263	51	5.3	2,540	7.8
June 30	41.0	--	--	46	21	95	--	160	0	60	137		5.7	--	447	.61	49	200	69	51	2.9	783	7.6

July 1, 1955	41.0	--	--	142	69	326	--	364	35	221	500	20	--	1,490	2.03	165	640	282	53	5.6	2,510	8.6
July 2-4	18.3	--	--	93	41	234	--	268	0	92	410	8.5	--	1,060	1.44	52	400	180	56	5.1	1,880	8.1
July 5-7	113	--	--	48	21	86	--	160	0	66	145	6.9	--	464	.63	142	205	74	48	2.6	857	7.8
July 8-9	19.0	--	--	77	36	162	--	222	0	89	285	7.1	--	823	1.12	42	340	158	51	3.8	1,480	8.1
July 10	10.0	--	--	98	45	242	--	270	14	102	402	8.2	--	1,080	1.47	29	430	186	55	5.1	1,880	8.4
July 11-12	8.50	--	--	106	40	255	--	320	0	121	435	5.0	--	1,210	1.65	28	430	168	56	5.3	2,060	8.2
July 13-15	7.23	--	--	126	60	355	--	372	0	121	615	3.6	--	1,540	2.09	30	560	255	58	6.5	2,680	8.2
July 16-20	28.0	--	--	59	25	121	--	208	0	77	182	7.5	--	600	.82	45	250	80	51	3.3	1,080	8.0
July 21-24	40.0	--	--	70	31	145	--	252	0	89	240	4.8	--	709	.96	77	300	94	51	3.6	1,270	8.2
July 25, 27-28	7.30	--	--	94	39	232	--	310	10	95	362	6.6	--	1,020	1.39	20	395	124	56	5.1	1,820	8.3
July 26	7.30	--	--	54	23	99	--	196	0	63	162	5.6	--	539	.73	11	230	70	48	2.8	931	8.1
July 29-31	5.27	--	--	136	56	354	--	392	0	95	630	3.2	--	1,500	2.04	21	570	249	57	6.4	2,690	8.2
Aug. 1, 3-8	5.17	--	--	136	68	498	--	402	0	146	875	1.9	--	1,990	2.71	28	620	290	64	8.7	3,500	8.2
Aug. 2, 9-10	4.90	--	--	108	51	303	--	452	0	142	450	4.9	--	1,300	1.77	17	480	110	58	6.0	2,310	8.2
Aug. 11-20	5.86	--	--	116	54	320	--	436	24	164	500	2.9	--	1,440	1.96	23	510	112	58	6.2	2,550	8.5
Aug. 21-31	5.20	--	--	118	45	319	--	438	14	142	488	2.6	--	1,820	2.48	26	480	98	59	6.3	2,470	8.3
Sept. 1, 4, 6-8, 10	2.17	--	--	148	46	440	--	372	0	104	770	1.6	--	1,780	2.42	10	560	255	63	8.1	3,200	7.8
Sept. 2-3, 5, 9	2.35	--	--	108	44	322	--	392	0	170	460	1.9	--	1,330	1.81	84	450	129	61	6.6	2,350	7.8
Sept. 11-25	5.10	--	--	104	39	322	--	416	0	172	420	7.9	--	1,270	1.73	17	420	79	62	6.8	2,240	7.6
Sept. 26-30	109	--	--	46	20	81	--	154	0	52	137	5.0	--	428	.58	126	197	71	47	2.5	791	7.6
Weighted average	182	--	--	32	11	52	--	a107	--	37	77	5.2	--	287	0.39	141	125	38	47	2.0	472	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

SKELETON CREEK NEAR LOVELL, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

ARKANSAS RIVER BASIN--Continued

CIMARRON 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, 4 miles downstream from Wildhorse Creek, and at mile 87.3.
DRAINAGE AREA.--17,852 square miles, of which 4,926 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
Water temperatures: October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 20,500 ppm Feb. 18-20; minimum, 311 ppm May 20.
Hardness: Maximum, 1,320 ppm May 9; minimum, 92 ppm May 20.
Specific conductance: Maximum daily, 31,800 micromhos Feb. 18, 20; minimum daily, 507 micromhos May 20.
Water temperatures: Maximum, 88°F Oct. 1; minimum, 35°F Feb. 11-12, 20, Mar. 26.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 20,500 ppm Feb. 18-20, 1955; minimum, 311 ppm May 20, 1955.
Hardness: Maximum, 1,880 ppm Aug. 27-29, 1954; minimum, 92 ppm May 20, 1955.
Specific conductance: Maximum daily, 31,800 micromhos Feb. 18, 20, 1955; minimum daily, 507 micromhos May 20, 1955.
Water temperatures: Maximum, 88°F Oct. 1, 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1, 1954	2.30	--	--	183	71	2,330	--	213	8	306	3,740	--	--	--	6,830	9.29	42	748	560	87	37.2	11,500	8.4
Oct. 2-7	2.33	--	--	227	85	2,790	--	127	0	343	4,560	--	--	--	8,310	11.30	52	916	812	87	40	14,200	8.0
Oct. 8-10	1.57	--	--	199	71	2,280	--	128	0	320	3,830	--	--	--	7,040	9.57	30	787	682	86	35	12,300	8.0
Oct. 11	.90	--	--	191	44	2,090	--	128	4	297	3,440	--	--	--	6,380	8.68	16	658	546	87	35	11,000	8.4
Oct. 12-13	293	--	--	34	3.6	92	--	94	0	38	122	--	7.7	--	364	.50	288	100	23	67	4.0	639	7.8
Oct. 14	76.0	--	--	42	7.3	158	--	94	2	57	240	--	4.5	--	574	.78	118	135	54	72	5.9	1,060	8.4
Oct. 15-16	20.5	--	--	64	20	345	--	116	4	100	550	--	3.2	--	1,160	1.58	64	240	138	76	9.7	2,210	8.4
Oct. 17-20	7.92	--	--	100	32	741	--	164	6	159	1,150	--	2.3	--	2,300	3.13	49	380	236	81	17	4,140	8.5
Oct. 21-23	7.27	--	--	136	29	1,020	--	182	8	196	1,600	--	1.6	--	3,160	4.30	62	460	298	83	21	5,650	8.5
Oct. 24-28	5.04	--	--	168	37	1,280	--	192	8	205	2,100	--	1.2	--	4,000	5.44	54	570	399	83	23	6,910	8.4
Oct. 29-31	3.63	--	--	190	53	1,530	--	198	10	236	2,500	--	--	--	4,740	6.45	46	690	512	83	25	8,300	8.5
Nov. 1-4, 7	2.78	--	--	178	67	1,690	--	226	0	249	2,700	--	--	--	5,240	7.13	39	720	535	84	27	8,780	8.2
Nov. 5-6, 8-10	2.78	--	--	200	66	1,710	--	212	0	259	2,920	--	--	--	5,750	7.82	43	770	596	83	27	9,610	8.2
Nov. 11-20	2.26	10	0.03	214	60	1,850	9.2	216	0	263	3,080	0.1	--	0.34	5,900	8.02	36	780	603	84	29	9,880	7.8
Nov. 21-30	1.41	--	--	215	73	2,110	--	230	0	274	3,340	--	--	--	6,260	8.51	24	837	648	85	32	10,400	8.1
Dec. 1-10	1.36	--	--	215	59	2,060	--	213	0	268	3,340	--	--	--	6,080	8.27	22	778	604	85	32	10,600	8.0
Dec. 11-20	3.04	--	--	212	71	1,860	--	257	0	267	3,100	--	--	--	5,700	7.75	47	820	610	83	28	9,970	8.0
Dec. 21-27	3.23	--	--	184	54	1,790	--	193	0	243	2,950	--	--	--	5,320	7.24	46	680	522	85	30	9,130	7.8
Dec. 28-29	8.45	--	--	112	39	1,080	--	211	3	185	1,700	--	---	--	3,330	4.53	76	440	262	84	22	6,000	8.3
Dec. 30-31	12.5	--	--	72	22	508	--	168	0	77	8800	--	1.7	--	1,660	2.26	56	270	132	80	13	3,100	8.2

CIMARRON RIVER AT PERKINS, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Jan. 1, 1955	13.0	--	--	92	27	652	--	180	8	117	1,000	--	2.8	--	1,990	2.71	70	340	179	81	15	3,600	8.3
Jan. 2-5	13.5	--	--	116	41	890	--	266	7	166	1,350	--	--	--	2,770	3.77	101	460	230	81	18	4,990	8.4
Jan. 6-10	10.8	--	--	168	34	1,170	--	290	5	216	1,900	--	--	--	3,750	5.10	109	560	314	82	22	6,320	8.3
Jan. 11-20	12.0	8.0	0.01	176	39	1,220	12	256	0	211	1,950	--	--	0.00	3,740	5.09	121	600	390	81	22	6,690	8.2
Jan. 21-25	20.2	--	--	130	52	1,000	--	286	0	194	1,600	--	--	--	3,260	4.43	178	540	306	80	19	5,770	8.2
Jan. 26-27	18.5	--	--	126	40	906	--	286	6	188	1,400	--	--	--	2,900	3.94	145	480	236	80	18	5,120	8.3
Jan. 28-30	15.7	--	--	134	50	1,000	--	269	8	212	1,600	--	--	--	3,300	4.49	140	540	306	80	19	5,850	8.3
Jan. 31	15.0	--	--	172	54	1,730	--	215	21	316	2,650	--	--	--	5,180	7.04	210	650	439	85	30	8,800	8.5
Feb. 1-8, 10	71.3	--	--	172	46	1,860	--	222	0	323	2,850	--	--	--	5,460	7.43	1,050	620	438	87	32	9,530	8.1
Feb. 9	144	--	--	199	49	2,650	--	187	9	437	4,030	--	--	--	7,520	10.23	2,920	697	529	89	44	12,100	8.4
Feb. 11-13	76.7	--	--	164	56	2,390	--	207	0	400	3,590	--	--	--	6,780	9.22	1,400	638	468	89	41	11,100	8.2
Feb. 14-16	69.3	--	--	211	63	3,400	--	227	0	481	5,170	--	--	--	9,630	13.10	1,800	785	599	90	53	16,200	8.2
Feb. 17	74.0	--	--	238	85	4,630	--	219	16	521	7,040	--	--	--	12,700	17.27	2,540	942	736	91	66	20,700	8.4
Feb. 18-20	50.3	--	--	284	103	7,590	--	244	0	630	11,500	--	--	--	20,500	27.88	2,780	1,130	930	94	98	30,100	8.2
Feb. 21	36.0	--	--	241	104	6,290	--	213	16	558	9,790	--	--	--	17,400	23.66	1,690	1,030	829	93	85	26,900	8.4
Feb. 22-28	37.0	--	--	199	93	4,220	--	216	0	474	6,370	--	--	--	11,500	15.64	1,150	836	659	92	64	19,100	8.2
Mar. 1-2	31.0	--	--	230	102	5,140	--	195	0	570	7,850	--	--	--	14,200	19.31	1,190	993	833	92	71	23,200	8.1
Mar. 3, 10	28.0	--	--	203	85	4,040	--	209	0	520	6,170	--	--	--	11,300	15.37	854	856	684	91	60	18,800	8.2
Mar. 4-9	26.2	--	--	183	78	3,350	--	222	0	450	5,080	--	---	--	9,390	12.77	684	777	595	90	52	16,000	8.1
Mar. 11, 14-16	18.2	--	--	230	85	4,410	--	231	0	554	6,750	--	--	--	12,400	16.86	609	924	734	91	63	20,500	8.1
Mar. 12-13	19.5	--	--	270	101	5,500	--	242	0	842	8,370	--	--	--	15,400	20.94	811	1,090	892	92	72	24,600	8.2
Mar. 17-19	15.0	--	--	223	80	3,740	--	239	0	470	5,770	--	--	--	10,700	14.55	433	886	690	90	55	18,000	8.0
Mar. 20	37.0	--	--	164	73	2,830	--	177	5	366	4,440	--	--	--	8,200	11.15	819	708	554	90	46	13,400	8.3
Mar. 21-22	59.0	--	--	157	69	2,710	--	206	0	355	4,280	--	--	--	7,920	10.77	1,280	677	508	90	45	13,500	8.2
Mar. 23-27	39.0	--	--	142	57	1,990	--	228	0	306	3,140	--	--	--	5,950	8.09	627	589	402	88	36	10,200	8.1
Mar. 28-29	28.0	--	--	179	66	2,520	--	281	4	387	3,890	--	--	--	7,590	10.32	574	718	481	88	41	12,700	8.3
Mar. 30-31	22.0	--	--	199	78	2,930	--	262	0	452	4,580	--	--	--	8,610	11.71	511	817	602	89	45	14,500	8.1
Apr. 1-8	20.1	--	--	179	89	2,680	--	231	0	435	4,280	--	--	--	8,040	10.93	436	812	622	88	41	13,600	8.0
Apr. 9-10	20.0	--	--	132	50	1,850	--	236	0	326	2,900	--	--	--	5,670	7.71	306	535	342	88	35	9,770	8.0
Apr. 11-18	20.1	--	--	164	86	2,340	--	213	0	420	3,690	--	--	--	7,100	9.66	385	763	588	87	37	12,300	7.8
Apr. 19	51.0	--	--	276	100	5,040	--	204	0	840	7,630	--	--	--	14,400	19.58	1,980	1,100	933	91	66	21,600	8.2
Apr. 20-22	488	--	--	255	108	5,420	--	257	16	652	8,610	--	--	--	15,800	21.49	20,820	1,080	870	92	72	25,300	8.3
Apr. 23-30	131	--	--	167	75	3,340	--	250	0	431	5,170	--	--	--	9,790	13.31	3,460	726	521	91	54	16,400	8.2
May 1-8	22.5	--	--	199	97	3,730		213	0	522	5,860	--	--	--	11,000	14.96	668	894	720	90	54	18,400	7.9

May 9, 1955	1,810	--	--	309	134	5,050	--	214	4	735	8,120	--	--	--	15,300	20.81	74,770	1,320	1,140	89	60	24,000	8.3
May 10	8,310	--	--	39	7.9	94	--	154	0	19	130	--	4.8	--	397	.54	8,910	130	4	61	3.6	695	7.4
May 11, 13	9,415	--	--	56	13	582	--	148	0	118	900	--	4.0	--	1,770	2.41	44,990	195	74	87	18	3,310	7.8
May 12, 14-17	2,444	--	--	54	8.6	299	--	125	0	102	420	--	5.1	--	967	1.32	6,380	170	68	79	10	1,790	6.9
May 18-19	3,406	--	--	108	22	970	--	144	0	231	1,480	--	--	--	3,020	4.11	27,770	360	242	85	22	5,290	7.7
May 20	24,100	--	--	25	7.2	65	---	93	0	23	100	--	2.8	--	311	.42	20,240	92	16	61	3.0	507	7.4
May 21-22, 27, 31	28,080	--	--	88	22	589	--	126	0	191	900	--	3.7	--	1,930	2.62	146,300	310	207	81	15	3,320	7.6
May 23-26	13,850	--	--	108	29	1,350	--	186	0	209	2,100	--	--	--	4,050	5.51	151,400	390	238	88	30	7,100	7.8
May 28-30	11,450	--	--	71	20	312	--	126	0	186	450	--	2.6	--	1,130	1.54	34,930	260	157	72	8.4	2,050	7.6
June 1-9	1,619	--	--	136	44	1,030	--	200	0	258	1,600	--	--	--	3,280	4.46	14,340	520	356	81	20	5,610	7.8
June 10	1,730	--	--	136	49	596	--	184	0	330	900	--	--	--	2,160	2.94	10,090	540	389	71	11	3,700	7.9
June 11, 17	3,570	--	--	108	37	499	--	180	0	210	775	--	5.7	--	1,740	2.37	16,770	420	272	72	11	3,100	7.8
June 12	1,020	--	--	176	54	852	--	196	0	354	1,400	--	--	--	2,970	4.04	8,180	660	500	74	14	5,210	7.9
June 13-16	946	--	--	192	61	1,480	--	224	0	346	2,350	--	--	--	4,620	6.28	11,680	730	546	82	24	7,730	7.7
June 18-20	25,570	--	--	69	18	227	--	146	0	113	345	--	6.6	--	856	1.16	59,100	245	126	67	6.3	1,580	7.5
June 21-25	11,680	--	--	75	12	297	--	126	0	115	460	--	4.8	--	1,030	1.40	32,480	235	132	73	8.4	1,830	7.5
June 26-28	2,640	--	--	88	27	467	--	152	0	175	700	--	6.4	--	1,570	2.14	11,190	330	206	75	11	2,770	7.7
June 29-30	1,550	--	--	120	39	662	--	180	0	227	1,050	--	4.4	--	2,210	3.01	9,250	460	312	76	13	3,890	7.9
July 1-3, 10	1,190	--	--	140	41	728	--	196	0	269	1,200	--	--	--	2,550	3.47	8,190	520	360	75	14	4,350	7.6
July 4-9	1,623	--	--	136	41	929	--	198	0	245	1,500	--	--	--	3,030	4.12	13,280	510	348	80	18	5,240	7.5
July 11, 20	728	--	--	124	32	546	--	140	0	241	900	--	--	--	1,980	2.69	4,210	440	326	73	11	3,390	7.6
July 12-13	525	--	--	182	48	760	--	206	0	364	1,250	--	--	--	2,800	3.81	3,970	650	481	72	13	4,740	7.8
July 14	445	--	--	180	63	1,080	--	156	0	384	1,780	--	--	--	3,720	5.06	4,470	710	582	77	18	6,050	7.9
July 21-31	382	--	--	206	67	1,470	--	224	0	367	2,450	--	--	--	4,800	6.53	4,950	795	612	80	23	7,890	7.8
Aug. 1-10	175	19	.00	213	84	2,300	7.8	195	0	413	3,780	.1	--	.25	7,120	9.68	3,360	876	716	85	34	12,000	8.1
Aug. 11-13	219	--	--	227	82	2,350	--	185	4	435	3,780	--	--	--	7,210	9.81	4,260	905	747	85	34	12,300	8.3
Aug. 14, 17	344	--	--	202	67	1,700	--	194	0	462	2,650	--	--	--	5,310	7.22	4,930	780	621	83	26	9,280	8.2
Aug. 15-16	388	--	--	180	51	1,040	--	156	4	425	1,600	--	--	--	3,490	4.75	3,660	660	526	77	18	6,120	8.3
Aug. 18-20	231	--	--	235	73	2,490	--	167	0	493	3,980	--	--	--	7,530	10.24	4,700	886	749	86	36	12,900	8.2
Aug. 21-30	140	--	--	231	78	2,340	--	203	0	441	3,780	--	--	--	7,180	9.76	2,710	896	730	85	34	11,800	7.9
Aug. 31	113	--	--	168	68	1,670	--	176	2	345	2,600	--	--	--	5,180	7.04	1,580	700	552	84	27	8,980	8.3

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ARKANSAS RIVER BASIN--Continued

CIMARRON RIVER AT PERKINS, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Sept. 1-4, 1955 ...	93.0	--	--	168	66	1,790	--	138	0	351	2,900	--	--	--	5,620	7.51	1,390	690	577	85	30	9,160	8.0
Sept. 5-8	132	--	--	239	87	2,410	--	221	0	468	3,880	--	--	--	7,410	10.08	2,640	956	775	85	34	12,400	8.0
Sept. 9	296	--	--	240	49	1,450	--	154	0	569	2,250	--	--	--	4,850	6.60	3,880	800	674	80	22	8,120	8.0
Sept. 10	218	--	--	148	37	1,080	--	152	0	373	1,600	--	--	--	3,440	4.68	2,020	520	396	82	21	6,070	8.0
Sept. 11-12, 14-17..	176	--	--	128	27	668	--	176	0	236	1,050	--	--	--	2,280	3.10	1,080	450	290	77	14	4,000	7.8
Sept. 13, 18.....	280	--	--	152	39	982	--	176	0	321	1,600	--	--	--	3,290	4.47	2,490	540	396	80	18	5,730	8.0
Sept. 19-20	83.0	--	--	144	44	1,250	--	116	0	299	2,050	--	--	--	4,050	5.51	908	540	445	83	23	6,960	7.9
Sept. 21-22	114	--	--	152	66	1,670	--	84	0	367	2,650	--	--	--	5,140	6.99	1,580	650	581	85	28	8,820	8.0
Sept. 23-24.....	156	--	--	200	75	2,000	--	216	0	429	3,190	--	--	--	6,160	8.38	2,590	808	631	84	31	10,500	8.2
Sept. 25-27	136	--	--	94	35	778	--	184	0	151	1,200	--	--	--	2,410	3.28	885	380	229	82	17	4,400	8.1
Sept. 28	574	--	--	140	56	1,380	--	156	0	279	2,200	--	--	--	4,280	5.82	6,630	580	452	84	25	7,460	8.2
Sept. 29-30	1,157	--	--	94	31	481	--	140	0	230	750	--	3.8	--	1,700	2.31	5,310	360	246	74	11	3,050	8.1
Weighted average	1,349	--	--	90	24	644	--	a147	--	175	1,000	--	--	--	2,070	2.82	7,540	323	202	81	16	3,600	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

CIMARRON RIVER AT PERKINS, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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 (revised), of which 12,541 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1955.
Water temperatures: October 1946 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 9,600 ppm Apr. 24-25; minimum, 701 ppm May 30.
Hardness: Maximum, 1,120 ppm Dec. 27-31; minimum, 180 ppm May 30.
Specific conductance: Maximum daily, 15,800 micromhos Apr. 24; minimum daily, 1,190 micromhos May 30.
Water temperatures: Maximum, 90°F Aug. 1; minimum, freezing point Mar. 25-26.
EXTREMES, 1946-55.--Dissolved solids: Maximum, 10,900 ppm Sept. 4, 1954; minimum, 232 ppm July 18-20, 1950.
Hardness: Maximum, 2,010 ppm Sept. 4, 1954; minimum, 106 ppm July 2, 1947.
Specific conductance: Maximum daily, 16,900 micromhos Sept. 4, 1954; minimum daily, 379 micromhos July 19, 1950.
Water temperatures: Maximum, 96°F Aug. 7, 1947; 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 gaging station at Tulsa for water year October 1954 to September 1955 given in WSP 1391. 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 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-3, 1954	120	--	--	192	63	1,070	--	108	0	141	1,950	--	--	--	3,670	4.99	1,190	740	652	76	17	6,400	8.0
Oct. 4-10	95.0	--	--	178	50	922	--	126	0	140	1,650	--	--	--	3,170	4.31	813	650	547	76	16	6,920	8.0
Oct. 11-20	338	10	0.01	130	33	654	11	126	0	116	1,220	0.3	3.6	0.16	2,400	3.26	2,190	460	357	75	13	4,140	7.5
Oct. 21-23	265	--	--	192	37	816	--	122	6	157	1,500	--	.8	--	2,940	4.00	2,100	630	520	74	14	5,210	8.4
Oct. 24-27	296	--	--	248	39	1,020	--	134	4	132	1,900	--	.7	--	3,800	4.90	2,880	780	664	74	16	6,480	8.4
Oct. 28-30	440	--	--	172	25	696	--	142	4	107	1,300	--	1.0	--	2,510	3.41	2,980	530	407	74	13	4,510	8.4
Oct. 31	700	--	--	152	22	563	--	112	2	118	1,050	--	2.9	--	2,180	2.96	4,120	470	374	72	11	3,780	8.4
Nov. 1-2	494	--	--	134	28	619	--	120	4	91	1,120	--	--	--	2,240	3.05	2,990	450	345	75	13	3,930	8.4
Nov. 3-6	328	--	--	176	44	810	--	174	0	123	1,500	--	--	--	2,960	4.03	2,620	620	478	74	14	5,090	8.2
Nov. 7-10	252	--	--	210	55	971	--	186	2	140	1,750	--	--	--	3,550	4.83	2,420	750	594	74	15	5,930	8.3
Nov. 11-20	201	9.0	.02	212	56	978	14	138	0	150	1,950	.3	2.4	.32	3,930	5.34	2,130	780	647	73	15	6,440	7.8
Nov. 21-30	187	--	--	208	55	989	--	195	0	159	1,800	--	--	--	3,650	4.96	1,840	745	585	74	16	6,120	8.2
Dec. 1-10	170	--	--	232	44	1,080	--	197	0	158	1,900	--	--	--	3,720	5.06	1,710	760	598	76	17	6,350	8.1
Dec. 11-15, 17-20	243	--	--	292	49	1,320	--	197	0	171	2,400	--	--	--	4,550	6.19	2,990	930	768	76	19	7,840	7.8
Dec. 16	247	--	--	288	76	1,590	--	73	0	156	3,000	--	--	--	5,450	7.41	3,630	1,030	970	77	22	9,200	7.8
Dec. 21-26	245	--	--	248	59	1,160	--	190	0	151	2,220	--	--	--	4,250	5.78	2,810	860	704	75	17	7,240	8.1
Dec. 27-31	388	--	--	328	73	1,640	--	154	0	119	3,100	--	--	--	5,590	7.60	5,860	1,120	994	76	21	9,450	8.0
Jan. 1-4, 1955	548	--	--	304	76	1,560	--	198	0	151	2,800	--	10	--	5,250	7.14	7,740	1,070	908	76	21	8,910	7.9
Jan. 5-6	394	--	--	252	68	1,230	--	193	0	161	2,280	--	--	--	4,320	5.88	4,600	910	752	75	18	7,480	8.0
Jan. 7-10	360	--	--	216	51	1,030	--	191	0	165	1,850	--	--	--	3,630	4.94	3,530	750	594	75	16	6,300	8.0
Jan. 11-20	362	2.5	.00	228	32	1,090	19	194	0	158	1,900	--	--	.06	3,740	5.09	3,660	700	541	77	18	6,610	8.1

Jan. 21-24, 1955....	368	--	--	268	71	1,290	--	192	0	163	2,380	--	--	--	4,600	6.26	4,570	960	802	74	18	7,850	8.0
Jan. 25-31	378	--	--	228	56	1,100	--	194	0	170	1,950	--	--	--	3,820	5.20	3,900	800	641	75	17	6,560	8.0
Feb. 1-10	461	--	--	228	51	1,060	--	185	0	164	1,950	--	--	--	3,710	5.05	4,620	780	628	75	17	6,650	8.2
Feb. 11-12, 17	471	--	--	224	59	1,250	--	190	0	202	2,200	--	--	--	4,290	5.83	5,460	800	644	77	19	7,360	8.1
Feb. 13-16, 18-20 ..	539	--	--	200	49	1,040	--	192	0	195	1,780	--	--	--	3,540	4.81	5,150	700	542	76	17	6,160	8.0
Feb. 21-28.....	604	8.0	.00	184	51	1,080	12	182	0	192	1,850	.3	--	.04	3,700	5.03	6,030	670	521	77	18	6,370	7.8
Mar. 1-4	546	--	--	192	59	1,290	--	123	0	213	2,250	--	--	--	4,260	5.79	6,280	720	619	80	21	7,320	7.8
Mar. 5-7	515	--	--	176	49	1,040	--	138	0	210	1,800	--	--	--	3,600	4.90	5,010	640	527	78	18	6,220	8.0
Mar. 8-10	471	--	--	168	49	959	--	163	0	201	1,650	--	--	--	3,340	4.54	4,250	620	486	77	17	5,790	8.0
Mar. 11-15	461	--	--	180	56	1,050	--	168	0	214	1,800	--	--	--	3,650	4.96	4,540	680	542	77	18	6,300	8.1
Mar. 16-17	905	--	--	116	29	569	--	142	0	120	1,000	--	2.2	--	2,050	2.79	5,010	410	294	75	12	3,620	8.0
Mar. 18-19	518	--	--	156	46	799	--	175	0	165	1,420	--	--	--	2,800	3.81	3,920	580	436	76	15	4,990	8.1
Mar. 20	602	--	--	76	20	310	--	96	0	87	550	--	6.0	--	1,170	1.59	1,900	270	192	71	8.2	2,140	7.9
Mar. 21-31.....	843	4.0	.00	160	42	812	13	181	0	152	1,450	.2	2.9	.14	2,900	3.94	6,600	570	422	75	15	4,930	8.0
Apr. 1-10.....	487	--	--	176	53	924	--	186	0	200	1,600	--	--	--	3,320	4.52	4,370	655	502	75	16	5,810	8.0
Apr. 11-14.....	579	--	--	212	51	1,120	--	174	0	191	2,000	--	--	--	3,990	5.43	6,240	740	598	77	18	6,800	8.0
Apr. 15-20.....	451	--	--	154	40	844	--	163	0	197	1,450	--	--	--	2,970	4.04	3,620	550	416	77	16	5,160	7.6
Apr. 21-23.....	459	--	--	170	45	940	--	149	0	193	1,620	--	--	--	3,330	4.53	4,130	610	488	77	17	5,720	7.8
Apr. 24-25.....	650	--	--	219	70	3,350	--	236	0	411	5,120	--	--	--	9,600	13.06	16,850	835	642	90	50	16,000	8.0
Apr. 26-28.....	690	--	--	156	44	1,700	--	208	0	292	2,700	--	--	--	5,240	7.13	9,760	570	400	87	31	9,100	7.9
Apr. 29-30.....	850	--	--	104	28	714	--	170	0	145	1,180	--	--	--	2,440	3.32	5,600	375	236	81	18	4,310	7.9
May 1-10	801	--	--	146	40	935	--	166	0	184	1,620	--	--	--	3,300	4.49	7,140	530	394	79	18	5,640	7.7
May 11.....	11,800	--	--	151	36	1,170	--	204	0	128	2,000	--	--	--	3,780	5.14	120,400	525	358	83	22	6,450	7.9
May 12, 15, 19-20 ..	13,160	--	--	100	9.8	613	--	143	0	151	955	--	3.9	--	1,990	2.71	70,710	290	173	82	16	3,610	7.6
May 13-14, 16-18...	8,676	--	--	80	12	343	--	136	0	90	520	--	4.6	--	1,150	1.56	26,940	200	88	79	11	2,090	7.8
May 21-22, 26-28...	37,980	--	--	84	17	609	--	156	0	173	960	--	3.5	--	2,000	2.72	205,100	280	152	83	18	3,560	7.7
May 23-25	33,430	--	--	92	17	846	--	151	0	151	1,320	--	--	--	2,620	3.56	236,500	300	178	86	21	4,730	7.7
May 29, 31.....	38,650	--	--	64	11	284	--	140	0	112	388	--	3.9	--	966	1.31	100,800	205	90	74	8.0	1,720	7.7
May 30	42,500	--	--	55	10	195	--	139	0	83	270	--	5.9	--	701	.95	80,440	180	66	70	6.3	1,190	7.2
June 1	14,300	--	--	67	13	211	--	132	0	106	320	--	5.8	--	863	1.17	33,320	220	112	68	6.2	1,480	7.6
June 2-3	9,025	--	--	91	20	373	--	140	0	138	580	--	5.5	--	1,340	1.82	32,650	310	196	72	9.2	2,280	7.4
June 4-10	6,219	--	--	112	27	686	--	172	0	185	1,060	--	--	--	2,350	3.20	39,460	390	249	79	15	3,830	7.8
June 11-13	7,570	--	--	92	23	542	--	148	0	184	860	--	5.7	--	1,860	2.56	38,430	325	204	78	13	3,320	7.9

ARKANSAS RIVER BASIN--Continued

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

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
June 14-15, 1955	6,240	--	--	124	37	658	--	172	0	237	1,040	--	--	--	2,330	3.17	39,260	460	319	76	13	4,030	7.9
June 16-20	14,030	--	--	69	21	280	--	128	0	132	430	--	5.7	--	1,050	1.43	39,780	260	155	70	7.6	1,850	6.7
June 21-23	39,970	--	--	66	16	265	--	116	0	147	400	--	5.0	--	987	1.34	106,500	230	135	71	7.5	1,720	7.6
June 24-27	17,900	--	--	78	16	360	--	130	0	120	590	--	5.2	--	1,360	1.85	65,730	260	154	75	9.7	2,380	7.4
June 28-30	9,847	--	--	94	23	548	--	146	0	177	890	--	6.2	--	1,960	2.67	52,110	330	210	78	13	3,350	7.7
July 1-5	6,962	--	--	109	36	537	--	156	0	196	850	--	5.0	--	1,870	2.54	35,150	420	292	74	11	3,160	7.8
July 6-8	5,113	--	--	124	34	632	--	188	0	212	1,000	--	4.2	--	2,130	2.90	29,400	450	296	75	13	3,770	7.5
July 9	7,570	--	--	140	46	847	--	204	0	224	1,400	--	--	--	2,880	3.92	58,860	540	373	77	16	5,120	8.1
July 10	5,860	--	--	83	27	338	--	160	0	149	550	--	4.9	--	1,290	1.75	20,410	320	189	70	8.2	2,350	7.8
July 11-12	4,625	--	--	90	28	409	--	160	0	163	625	--	4.9	--	1,420	1.93	17,730	340	209	72	9.6	2,530	7.7
July 13-17	2,878	--	--	128	59	548	--	184	0	235	875	--	3.7	--	1,950	2.65	15,150	480	329	71	11	3,330	7.8
July 18-20	2,213	--	--	140	49	727	--	192	0	241	1,180	--	--	--	2,480	3.37	14,820	550	392	74	13	4,340	7.9
July 21-22, 28-31	1,757	--	--	144	46	826	--	140	0	229	1,400	--	--	--	2,850	3.88	13,520	550	436	77	15	4,920	7.7
July 23-27	2,132	--	--	124	41	648	--	176	0	199	1,080	--	--	--	2,270	3.09	13,070	480	336	75	13	3,850	7.8
Aug. 1-5, 8-10	1,090	--	--	136	52	932	--	124	0	213	1,550	--	--	--	3,050	4.15	8,980	555	454	79	17	5,500	7.9
Aug. 6-7	1,700	--	--	108	34	615	--	140	0	152	1,030	--	--	--	2,070	2.82	9,500	410	296	77	13	3,900	8.1
Aug. 11-13, 17-19	1,011	--	--	142	52	1,030	--	112	0	214	1,700	--	--	--	3,360	4.57	9,170	570	478	80	19	6,020	7.7
Aug. 14-16, 20	1,136	--	--	112	44	693	--	122	0	168	1,200	--	--	--	2,430	3.30	7,450	460	360	77	14	4,500	7.7
Aug. 21-29	699	--	--	168	51	1,030	--	134	0	228	1,800	--	--	--	3,540	4.81	6,680	630	520	78	18	6,040	7.6
Aug. 30	2,510	--	--	72	20	313	--	120	0	63	560	--	3.9	--	1,200	1.63	8,130	260	162	72	8.4	2,180	8.0
Aug. 31	872	--	--	116	34	639	--	116	0	123	1,100	--	--	--	2,240	3.05	5,270	430	335	76	13	3,960	8.1
Sept. 1-9	539	--	--	204	81	1,230	--	168	0	235	2,280	--	--	--	4,450	6.05	6,480	840	702	76	18	7,650	7.5
Sept. 10-13, 16	537	--	--	265	82	1,800	--	144	0	299	3,140	--	--	--	6,080	8.27	8,820	997	879	80	25	10,100	7.8
Sept. 14-15	548	--	--	192	67	1,340	--	160	0	291	2,300	--	--	--	4,580	6.23	6,780	755	624	79	21	7,720	8.2
Sept. 17-20	629	--	--	168	56	1,120	--	136	0	262	1,880	--	--	--	3,740	5.09	6,350	650	538	79	19	6,380	7.7
Sept. 21-30	473	--	--	208	63	1,240	--	144	0	203	2,180	--	--	--	4,290	5.83	5,480	780	662	78	19	7,280	7.6
Weighted average	3,227	--	--	97	23	560	--	a147	--	155	902	--	--	--	1,910	2.60	16,640	336	216	78	13	3,350	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955

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

ARKANSAS RIVER BASIN--Continued

VERDIGRIS RIVER NEAR LENAPAH, OKLA.

LOCATION.--At gaging station at county highway bridge, 2¾ miles east of Lenapah, Nowata County, 4¼ miles upstream from Cedar Creek, and at mile 144.6
DRAINAGE AREA.--3,639 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1955.
Water temperatures: October 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 790 ppm Oct. 6-10; minimum, 130 ppm June 27-28.
Hardness: Maximum, 250 ppm Feb. 11-22; minimum, 50 ppm Oct. 25-27.
Specific conductance: Maximum daily, 1,590 micromhos Oct. 10; minimum daily, 177 micromhos Oct. 12.
Water temperatures: Maximum, 91°F July 25-26, 29; minimum, 39°F Jan. 15, 27.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 790 ppm Oct. 6-10, 1954; minimum, 130 ppm June 27-28, 1955.
Hardness: Maximum, 304 ppm Oct. 4-5, 9-10, 1951; minimum, 50 ppm Oct. 25-27, 1954.
Specific conductance: Maximum daily, 1,590 micromhos Oct. 10, 1954; minimum daily, 177 micromhos Oct. 12, 1954.
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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 1954	90.0	--	--	57	15	144	--	a124	42	270	--	1.4	--	614	0.84	149	205	103	60	4.4	1,170	8.3
Oct. 6-10	36.6	--	--	69	13	194	--	148	46	350	--	6.4	--	790	1.07	78	226	104	65	5.6	1,530	7.4
Oct. 11	3,350	--	--	50	10	141	--	96	44	252	--	8.7	--	568	.77	5,140	166	88	65	4.8	1,080	8.2
Oct. 12	12,200	--	--	17	2.3	15	--	40	12	24	--	7.1	--	139	.19	4,580	52	19	38	.9	177	7.8
Oct. 13-20	858	--	--	32	4.9	33	--	82	21	55	--	4.9	--	191	.26	442	100	33	42	1.4	373	7.8
Oct. 21-24, 28-31	253	--	--	30	5.6	28	--	76	20	52	--	6.4	--	200	.27	137	98	36	38	1.2	351	7.8
Oct. 25-27	4,287	--	--	18	1.2	23	--	45	19	28	--	5.7	--	139	.19	1,610	50	13	50	1.4	198	7.5
Nov. 1-10	76.2	--	--	43	5.5	41	--	90	27	80	--	9.6	--	292	.40	60	130	56	41	1.6	499	8.0
Nov. 11-20	14.0	9.0	0.02	48	8.8	35	3.3	111	32	76	0.0	10	0.04	290	.39	11	156	65	32	1.2	555	8.0
Nov. 21-30	6.64	--	--	50	8.0	42	--	122	32	75	--	7.0	--	311	.42	5.6	158	58	37	1.5	536	8.0
Dec. 1-10	5.28	--	--	54	6.2	40	--	124	35	80	--	5.0	--	311	.42	4.4	160	58	35	1.4	556	8.0
Dec. 11-20	10.2	--	--	52	7.4	40	--	122	37	80	--	4.0	--	315	.43	8.7	160	60	35	1.4	555	7.8
Dec. 21-31	54.5	1.5	.00	54	7.4	48	4.3	122	36	89	--	3.7	.01	320	.44	47	165	65	38	1.6	573	8.2
Jan. 1-4, 1955	568	--	--	60	11	77	--	133	52	128	--	9.2	--	462	.63	709	194	85	46	2.4	789	7.9
Jan. 5-10	930	--	--	37	6.2	29	--	92	33	52	--	7.5	--	275	.37	691	118	42	35	1.2	403	7.7
Jan. 11-20	87.9	--	--	56	5.5	39	--	126	38	69	--	8.5	--	332	.45	79	162	59	34	1.3	540	7.7
Jan. 21-31	68.0	6.5	.02	64	8.6	61	3.4	149	54	95	.2	16	.02	426	.58	78	195	73	40	1.9	715	8.0
Feb. 1-10	124	--	--	68	12	74	--	151	62	122	--	12	--	449	.61	150	220	96	42	2.2	809	8.1
Feb. 11-22	298	4.0	.01	72	17	90	3.0	148	63	175	.2	12	.01	584	.79	470	250	128	43	2.5	967	7.9
Feb. 23-28	224	--	--	78	9.8	74	--	166	65	135	--	11	--	462	.63	279	235	99	41	2.1	861	7.8

a Includes equivalent of 2 parts per million of carbonate (CO_3)

Mar. 1-10, 1955 ..	97.3	1.5	.01	68	12	58	3.2	172	54	105	.1	8.4	06	430	0.58	113	220	79	36	1.7	719	7.9
Mar. 11-19	119	--	--	76	12	66	--	162	68	120	--	8.5	--	482	.66	155	240	108	37	1.9	804	8.2
Mar. 20	475	--	--	56	12	60	--	132	56	105	--	7.8	--	409	.56	525	188	80	41	1.9	665	8.2
Mar. 21-31	582	5.0	.06	66	12	50	2.6	155	53	100	.0	8.4	.00	412	.56	647	215	88	33	1.5	668	7.9
Apr. 1-10	181	--	--	72	9.8	56	--	160	63	92	--	9.7	--	431	.59	211	220	89	35	1.6	704	7.4
Apr. 11-20	134	--	--	67	13	58	--	163	58	95	--	7.2	--	435	.59	157	220	86	36	1.7	720	7.6
Apr. 21-30	53.2	--	--	58	11	52	--	147	58	85	--	3.9	--	398	.54	57	190	70	37	1.6	643	7.8
May 1-10.....	29.3	--	--	44	13	60	--	133	56	97	--	1.9	--	367	.50	29	165	56	44	2.0	659	7.9
May 11-20	1,263	--	--	50	1.2	44	--	123	38	77	--	5.2	--	317	.43	1,080	130	29	42	1.7	547	7.3
May 21-23	1,401	--	--	46	11	36	--	116	46	65	--	4.5	--	294	.40	1,110	160	65	33	1.2	468	7.1
May 24-25.....	2,480	--	--	35	7.9	26	--	84	42	45	--	3.7	--	237	.32	1,590	120	51	32	1.0	367	6.4
May 26-27	8,820	--	--	53	9.2	53	--	120	42	106	--	2.9	--	384	.52	9,140	170	72	40	1.8	601	7.4
May 28, 31	10,490	--	--	46	8.5	31	--	124	32	62	--	3.3	--	297	.40	8,410	150	48	31	1.1	461	7.4
May 29-30	11,130	--	--	30	5.1	12	--	86	17	26	--	4.4	--	186	.25	5,590	96	26	21	.5	255	7.2
June 1-10	430	--	--	51	10	36	--	130	32	75	--	5.0	--	342	.47	397	170	64	32	1.2	514	7.4
June 11-20.....	495	--	--	59	10	41	--	132	36	83	--	5.9	--	314	.43	420	188	80	32	1.3	559	7.4
June 21-26.....	980	--	--	35	15	28	--	120	30	59	--	5.1	--	246	.33	651	148	50	29	1.0	442	7.4
June 27-28.....	6,990	--	--	21	7.7	11	--	64	14	14	--	6.8	--	130	.18	2,450	84	32	22	.5	193	7.0
June 29-30.....	1,535	--	--	34	8.5	20	--	98	21	40	--	4.8	--	191	.26	792	120	40	27	.8	330	7.2
July 1-10	200	10	.03	38	8.5	22	3.4	108	32	41	.3	2.9	.26	214	.29	116	130	42	26	.8	370	7.0
July 11-20	24.5	--	--	36	8.8	32	--	90	50	46	--	3.1	--	240	.33	16	126	52	36	1.2	375	6.5
July 21-26	44.2	--	--	42	6.1	26	--	128	26	52	--	.0	--	221	.30	26	130	25	30	1.0	407	7.7
July 27-29	27.3	--	--	50	8.5	38	--	142	27	76	--	.0	--	284	.39	21	160	44	34	1.3	521	7.1
July 30-31	24.5	--	--	56	12	63	--	138	29	137	--	.1	--	379	.52	25	190	77	42	2.0	700	7.7
Aug. 1-10	8.83	2.2	.01	53	12	74	6.2	136	33	140	.1	.0	.06	394	.54	9.4	180	68	46	2.4	768	7.5
Aug. 11-20	3.95	--	--	50	11	79	--	132	35	141	--	.0	--	413	.56	4.4	172	64	50	2.6	753	7.7
Aug. 21-31	3.71	--	--	49	11	79	--	140	33	139	--	.0	--	408	.55	4.1	166	52	51	2.7	735	8.2
Sept. 1-10	5.71	--	--	46	11	61	--	126	29	120	--	1.8	--	362	.49	5.6	160	57	46	2.1	673	7.3
Sept. 11-20	7.23	1.0	.00	46	12	67	6.2	136	32	120	.2	.0	.07	372	.51	7.3	166	54	46	2.3	697	7.9
Sept. 21-30	190	--	--	43	9.1	65	--	120	27	115	--	2.2	--	342	.47	175	145	46	49	2.4	641	7.3
Weighted average.	515	--	--	41	7.3	36	--	102	31	65	--	5.5	--	275	0.37	382	132	49	37	1.4	443	--

ARKANSAS RIVER BASIN--Continued

VERDIGRIS RIVER NEAR LENAPAH, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

SAND CREEK NEAR OKESA, OKLA.

LOCATION.--A quarter of a mile upstream from county highway bridge, half a mile north of Okesa Osage County.
DRAINAGE AREA.--285 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1951 to July 1955.

Chemical analyses, in parts per million, November 1954 to July 1955

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				
Nov. 3, 1954	3.25	18	18	6.5	64	0	20	120	68	10	0.3	159	8.1
Dec. 14	.23	27	5.0	9.5	102	2	16	88	1	19	.4	254	8.4
Jan. 3, 1955	7.58	30	13	8.4	100	0	17	130	48	12	.3	226	8.1
Feb. 1	2.31	34	6.1	11	110	0	20	110	20	18	.5	246	7.9
Mar. 2	3.64	48	4.9	15	130	0	20	140	34	19	.5	373	8.0
Apr. 4	24.8	41	4.3	14	148	0	16	120	0	20	.6	312	8.1
May 2	4.03	42	6.1	17	112	2	25	130	34	22	.6	336	8.3
June 7	14.9	32	4.9	11	102	0	15	100	16	19	.5	227	7.1
July 13	.10	30	7.1	13	118	0	13	104	8	22	.6	238	7.8

VERDIGRIS RIVER NEAR INOLA, OKLA.

LOCATION.--At gaging station at bridge on State Highway 33, 6 miles downstream from Dog Creek, 6 miles west of Inola, Rogers County, and at mile 48.8.
DRAINAGE AREA.--7,911 square miles.
RECORDS AVAILABLE.--Chemical anslyses: October 1947 to September 1955.
Water temperatures: October 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,470 ppm Oct. 11-12; minimum, 157 ppm Oct. 26-29.
Hardness: Maximum, 485 ppm Oct. 11-12; minimum, 65 ppm Oct. 26-29.
Specific conductance: Maximum daily, 4,580 micromhos Oct. 9-12; minimum daily, 193 micromhos Oct. 27.
Water temperatures: Maximum, 93°F July 31, Aug. 1; minimum, freezing point on several days during December and January.
EXTREMES, 1947-55.--Dissolved solids: Maximum, 2,470 ppm Oct. 11-12, 1954; minimum, 91 ppm June 22-30, July 1-2, 1948.
Hardness: Maximum, 500 ppm Feb. 20-22, 1948; minimum, 48 ppm Oct. 4, 1953.
Specific conductance: Maximum daily, 4,580 micromhos Oct. 9-12, 1954; minimum daily, 143 micromhos June 24, 1948.
Water temperatures (1950-55): 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-2, 1954 ...	21.0	--	--	88	20	341	--	a174	19	650	--	1.7	--	1,260	1.71	71	300	157	71	8.6	2,490	8.3
Oct. 3-8	11.7	--	--	122	16	507	--	173	16	900	--	1.4	--	1,730	2.35	55	370	228	75	11	3,320	7.6
Oct. 9-10	9.30	--	--	128	39	756	--	a186	17	1,350	--	--	--	2,450	3.33	62	480	328	77	15	4,580	8.3
Oct. 11-12	33.5	--	--	120	45	724	--	a174	17	1,340	--	--	--	2,470	3.36	223	485	342	76	14	4,580	8.3
Oct. 13-14	8,335	--	--	27	4.5	25	--	68	16	46	--	5.0	--	186	.25	4,190	88	30	39	1.2	323	8.0
Oct. 15-18	1,948	--	--	32	2.9	42	--	70	14	85	--	5.7	--	240	.33	1,260	92	34	50	1.9	431	7.0
Oct. 19-20	289	--	--	36	5.4	58	--	82	16	107	--	6.2	--	300	.41	234	112	45	53	2.4	574	7.9
Oct. 21-24, 30-31.	631	--	--	39	5.5	68	--	82	17	130	--	6.2	--	326	.44	555	120	53	55	2.7	601	7.8
Oct. 25	267	--	--	40	9.7	104	--	83	17	190	--	6.4	--	438	.60	316	140	72	62	3.8	835	7.3
Oct. 26-29	5,679	--	--	22	2.4	23	--	51	18	38	--	5.9	--	157	.21	2,410	65	23	43	1.2	263	7.5
Nov. 1-10.....	348	--	--	43	7.4	70	--	90	25	138	--	5.0	--	366	.50	344	138	64	52	2.6	659	8.0
Nov. 11-14.....	117	--	--	48	11	77	--	100	26	155	--	5.9	--	402	.55	127	165	83	50	2.6	771	8.0
Nov. 15-20.....	67.8	--	--	54	9.8	112	--	104	25	220	--	6.4	--	524	.71	96	175	90	58	3.7	938	7.8
Nov. 21-29.....	43.9	--	--	60	5.0	131	--	109	22	248	--	11	--	614	.64	73	170	80	63	4.4	1,090	7.7
Nov. 30.....	33.0	--	--	76	16	248	--	116	26	452	--	12	--	1,010	1.37	90	255	160	68	6.8	1,790	8.1
Dec. 1-4, 6, 8....	33.9	--	--	61	10	158	--	121	28	295	--	15	--	679	.92	62	195	96	64	4.9	1,260	7.9
Dec. 5, 7, 9-10...	35.5	--	--	68	16	223	--	126	28	425	--	19	--	917	1.25	88	235	132	67	6.3	1,720	7.9
Dec. 11.....	38.0	--	--	78	11	247	--	132	26	458	--	20	--	986	1.34	101	240	132	69	6.9	1,830	8.2
Dec. 12-20.....	49.6	--	--	56	17	143	--	132	26	272	--	22	--	672	.91	90	210	102	60	4.3	1,230	7.9
Dec. 21-31.....	109	5.5	0.00	56	12	111	8.7	124	25	210	--	15	0.23	529	.72	156	190	88	55	3.5	1,010	7.9

a Includes equivalent of 2 parts per million of carbonate (CO_3).

Jan. 1, 8-10, 1955	1,202	--	--	64	12	111	--	100	47	225	--	14	--	636	.86	2,060	210	128	53	3.3	1,040	7.5
Jan. 2-7	1,358	--	--	60	7.4	56	--	123	39	112	--	11	--	415	.56	1,520	180	79	40	1.8	675	7.6
Jan. 11-20	282	--	--	60	15	126	--	99	35	265	--	11	--	707	.96	538	210	129	57	3.8	1,130	7.5
Jan. 21-31	169	9.0	.04	68	5.0	122	3.6	112	40	225	.1	13	.07	630	.84	283	190	98	58	3.9	1,040	7.7
Feb. 1-7	140	--	--	60	12	124	--	121	33	228	--	19	--	595	.81	225	200	101	57	3.8	1,110	7.9
Feb. 8-10	486	--	--	58	6.2	83	--	122	40	140	--	17	--	430	.58	564	170	70	51	2.8	788	7.8
Feb. 11-20	388	2.5	.06	72	7.4	124	4.7	112	59	230	.3	13	.02	699	.95	732	210	118	56	3.7	1,120	7.3
Feb. 21, 23-28	987	--	--	67	9.2	98	--	130	52	180	--	11	--	518	.70	1,380	205	98	51	3.0	936	7.5
Feb. 22	1,660	--	--	53	7.3	49	--	116	44	80	--	8.7	--	317	.43	1,420	162	67	40	1.7	546	8.0
Mar. 1-3	338	--	--	80	15	110	--	138	68	225	--	13	--	713	.97	651	260	147	48	3.0	1,110	7.7
Mar. 4-10	188	--	--	86	16	140	--	138	60	270	--	16	--	810	1.10	411	280	167	52	3.6	1,270	7.8
Mar. 11-15	120	--	--	88	17	148	--	140	67	290	--	17	--	851	1.16	276	290	176	53	3.8	1,330	7.5
Mar. 16	780	--	--	84	15	110	--	136	81	220	--	17	--	717	.98	1,510	270	158	47	2.9	1,070	8.2
Mar. 17	555	--	--	88	22	239	--	108	52	485	--	17	--	1,220	1.69	1,830	310	222	63	5.9	1,910	7.7
Mar. 18-19	178	--	--	62	18	171	--	79	36	340	--	9.0	--	866	1.18	416	230	166	62	4.9	1,340	7.6
Mar. 20	461	--	--	56	8.9	75	--	90	58	148	--	5.5	--	509	.69	634	176	102	48	2.5	749	7.9
Mar. 21-24	7,092	--	--	39	7.4	57	--	71	33	110	--	4.5	--	376	.51	7,200	128	70	49	2.2	558	7.6
Mar. 25-31	1,480	--	--	60	9.8	78	--	105	37	156	--	8.4	--	464	.63	1,850	190	104	47	2.5	796	7.5
Apr. 1-10	535	10	.04	61	12	80	3.4	129	50	156	.0	7.9	.06	482	.66	696	200	94	46	2.5	813	7.6
Apr. 11-20	476	--	--	67	13	96	--	132	56	188	--	10	--	598	.81	769	220	112	49	2.8	974	7.3
Apr. 21-30	193	--	--	66	13	110	--	142	51	210	--	7.0	--	630	.86	326	220	104	52	3.2	1,050	7.2
May 1-10	182	--	--	64	9.8	123	--	129	50	232	--	11	--	664	.90	326	200	94	57	3.8	1,120	7.0
May 11, 13-20	4,036	--	--	47	6.7	62	--	112	29	105	--	2.4	--	356	.48	3,880	145	53	48	2.2	583	7.6
May 12	2,110	--	--	69	6.8	135	--	102	75	240	--	2.4	--	662	.90	3,770	200	116	59	4.2	1,050	7.7
May 21, 23-28	9,469	--	--	38	7.0	50	--	96	33	80	--	2.5	--	260	.35	6,650	124	38	47	2.0	484	7.2
May 22, 29-31	23,280	--	--	30	5.1	27	--	85	28	42	--	1.6	--	176	.24	11,060	96	26	38	1.2	318	7.2
June 1-10	4,093	--	--	42	8.5	24	--	120	20	48	--	4.2	--	221	.30	2,440	140	42	27	.9	371	7.3
June 11-16	1,387	--	--	53	9.2	39	--	134	22	80	--	5.4	--	292	.40	1,090	170	60	33	1.3	498	7.4
June 17-18	2,070	--	--	28	7.3	28	--	66	20	56	--	4.3	--	202	.27	1,130	100	46	38	1.2	329	7.0
June 19-20	780	--	--	56	11	68	--	110	40	134	--	5.8	--	418	.57	880	185	95	44	2.2	693	7.3
June 21-27	1,517	--	--	53	16	52	--	132	34	106	--	5.7	--	358	.49	1,470	196	88	37	1.6	633	7.4
June 28-30	6,117	--	--	29	8.6	20	--	88	21	38	--	3.5	--	185	.25	3,060	108	36	29	.8	316	7.2

ARKANSAS RIVER BASIN--Continued

VERDIGRIS RIVER NEAR INOLA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
July 1-5, 1955	852	--	--	34	11	31	--	96	23	70	--	2.5	--	231	0.31	531	130	52	34	1.2	417	7.0
July 6-10	221	--	--	45	14	56	--	120	28	124	--	2.0	--	355	.48	212	172	74	41	1.9	634	7.5
July 11-15	111	--	--	50	15	76	--	132	25	154	--	2.2	--	417	.57	125	185	77	47	2.4	746	7.5
July 16-20	89.2	--	--	55	20	99	--	144	28	198	--	1.7	--	495	.67	119	220	102	49	2.9	891	7.5
July 21-23	48.7	--	--	53	15	77	--	148	23	164	--	.4	--	434	.59	57	195	74	46	2.4	806	7.8
July 24-26	38.7	--	--	64	17	165	--	150	25	295	--	1.4	--	676	.92	71	230	107	61	4.7	1,230	7.8
July 27-31	35.2	--	--	70	20	182	--	160	27	410	--	1.3	--	871	1.18	83	255	124	61	5.0	1,570	7.7
Aug. 1-5	35.8	--	--	73	19	255	--	158	33	444	--	2.4	--	908	1.23	88	260	130	68	6.9	1,730	8.0
Aug. 6-7	26.0	--	--	66	21	185	--	158	33	360	--	1.6	--	769	1.05	54	250	120	62	5.1	1,460	8.0
Aug. 8-10	61.0	--	--	56	17	120	--	152	30	222	--	.2	--	525	.71	86	210	86	55	3.6	1,020	8.0
Aug. 11-15	24.6	--	--	66	17	182	--	152	29	345	--	1.3	--	734	1.00	49	235	110	63	5.2	1,420	8.0
Aug. 16-20	19.2	--	--	71	20	243	--	152	33	460	--	.7	--	940	1.28	49	260	136	67	6.6	1,780	8.0
Aug. 21-29	38.6	--	--	74	21	255	--	152	32	490	--	3.6	--	1,030	1.40	107	270	146	67	6.7	1,920	7.7
Aug. 30-31	346	--	--	46	11	71	--	154	37	112	--	27	--	403	.55	376	160	34	49	2.4	765	8.0
Sept. 1-7	106	--	--	37	7.9	69	--	88	24	122	--	12	--	338	.46	97	125	53	55	2.7	636	6.9
Sept. 8-11	50.0	--	--	59	15	155	--	108	35	305	--	6.6	--	680	.92	92	210	122	62	4.7	1,270	7.4
Sept. 12-15, 18-20	37.9	--	--	83	20	259	--	130	25	520	--	4.8	--	1,080	1.47	111	290	184	66	6.6	1,960	7.1
Sept. 16-17	42.5	--	--	104	27	363	--	136	24	720	--	4.2	--	1,450	1.97	166	370	258	68	8.2	2,560	7.7
Sept. 21-30	48.8	--	--	66	18	199	--	132	21	400	--	2.4	--	863	1.17	114	240	132	64	5.6	1,560	7.3
Weighted average	1,208	--	--	41	7.3	49	--	97	30	89	--	4.5	--	298	0.41	972	132	53	45	1.9	509	--

ARKANSAS RIVER BASIN--Continued

VERDIGRIS RIVER NEAR INOLA, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

LOST CREEK AT SENECA, MO.

LOCATION.--At gaging station on downstream side of Seneca Street Bridge in Seneca, McDonald County, half a mile upstream from Little Lost Creek, and 9¼ miles upstream from mouth.
DRAINAGE AREA.--42 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1951 to August 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, October 1954 to August 1955

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, 1954	9.30	48	2.4	2.3	128	0	5.5	130	25	4	0.1	265	7.6
Dec. 27	7.71	53	9.2	2.9	154	0	5.5	170	44	4	.1	281	7.5
Feb. 7, 1955	7.02	--	--	3.1	138	0	6.5	120	7	5	.1	252	7.9
Mar. 1	28.0	45	.6	2.8	108	0	6.5	115	26	5	.1	225	7.5
Apr. 4	30.5	38	2.4	1.9	113	0	6.0	105	12	4	.1	229	7.2
May 3	10.9	42	.7	5.0	133	0	6.0	108	0	9	.2	248	7.1
June 8	20.0	36	4.9	4.6	130	0	5.2	110	4	8	.2	243	6.9
July 6	31.1	35	5.5	4.5	116	0	5.2	110	15	8	.2	237	6.6
Aug. 2	9.13	48	2.4	3.6	142	0	6.0	130	14	6	.1	255	7.3

ELK RIVER NEAR TIFF CITY, MO.

LOCATION.--At gaging station on State Highway 43 bridge, three-quarters of a mile downstream from Blackfoot Branch, 2¾ miles upstream from Buffalo Creek, 3 miles southeast of Tiff City, McDonald County, and at mile 15.8.
DRAINAGE AREA.--872 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1947 to August 1955.
Water temperatures: October 1947 to September 1949.
EXTREMES, 1947-49.--Dissolved solids: Maximum, 162 ppm Aug. 11-20, 1949; minimum, 123 ppm Sept. 1-10, 1948.
Hardness: Maximum, 135 ppm Dec. 11-20, 1948, Jan. 1-10, 1949; minimum, 94 ppm Sept. 1-10, 1948.
Water temperatures: Maximum, 87°F Aug. 17, 1949; minimum, freezing point Jan. 21, 1948.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, October 1954 to August 1955

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, 1954	120	49	3.0	2.3	142	0	8.5	135	18	4	0.1	255	7.8
Dec. 27	81.2	44	3.6	2.8	142	0	7.0	125	8	5	.1	267	8.0
Feb. 7, 1955	463	50	2.4	2.4	142	0	7.0	135	18	4	.1	279	8.0
Mar. 1	724	46	2.4	2.4	128	0	8.0	125	20	4	.1	273	7.9
Apr. 4	698	8.8	21	3.0	128	0	5.0	110	5	6	.1	255	6.5
May 4	246	10	24	3.1	150	0	6.0	125	2	5	.1	265	6.9
June 8	508	38	7.1	2.1	146	0	4.5	124	4	4	.1	260	7.4
July 6	815	42	8.5	3.7	154	0	5.2	140	14	5	.1	281	7.2
Aug. 2	156	47	4.3	2.7	154	0	5.0	135	8	4	.1	260	7.1

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ARKANSAS RIVER BASIN--Continued

NEOSHO (GRAND) RIVER NEAR CHOUTEAU, OKLA.

LOCATION.--At bridge on county road between Locust Grove and Pryor, 5 miles upstream from Pryor Creek, and 7½ miles northeast of Chouteau, Mayes County.
DRAINAGE AREA.--11,546 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1950 to September 1955.
Water temperatures: October 1950 to September 1951.
EXTREMES, 1950-51.--Dissolved solids: Maximum, 215 ppm May 21-31; minimum, 134 ppm Feb. 18-20.
Hardness: Maximum, 137 ppm Apr. 1-10, May 21-31; minimum, 68 ppm Feb. 21-23.
Specific conductance: Maximum daily, 382 micromhos May 5; minimum daily, 145 micromhos Oct. 4.
Water temperatures: Maximum, 85°F July 31, Aug. 5-6, 14, 19-20, 31, Sept. 2-3; minimum, freezing point Dec. 6, Jan. 10, 30-31, Feb. 1.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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. 7, 1954	100	45	16	12	104	0	24	180	95	13	0.4	342	7.8
Dec. 2	1,890	42	6.1	9.7	92	0	12	130	54	14	.4	311	7.3
Jan. 5, 1955	3,720	42	6.1	10	98	0	16	130	50	14	.4	313	7.2
Feb. 25	5,400	44	3.6	11	100	0	15	125	43	16	.4	315	7.2
Mar. 30	5,470	42	4.9	10	108	0	14	125	36	15	.4	330	6.7
May 9	195	46	2.4	10	106	0	13	125	38	15	.4	303	7.5
June 2	2,950	42	11	9.3	98	0	11	150	70	12	.3	327	6.8
July 5	5,180	41	12	13	94	0	12	150	73	16	.5	326	6.8
Aug. 22	140	41	6.7	8.6	100	0	12	130	48	12	.3	293	6.7
Sept. 12	780	39	8.4	11	100	0	10	132	50	15	.4	305	7.5

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, Wagner 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 1955.
Water temperatures: October 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 216 ppm Nov. 1-30; minimum, 186 ppm April 1-30.
Hardness: Maximum, 152 ppm Nov. 1-30, Dec. 1-31; minimum, 122 ppm May 1-31.
Specific conductance: Maximum daily, 411 micromhos June 15, minimum daily, 279 micromhos May 24.
Water temperatures: Maximum, 89°F July 31, Aug. 1; minimum, 41°F Feb. 12.
EXTREMES, 1951-55.--Dissolved solids: Maximum, 233 ppm Nov. 1-30, 1952; minimum, 158 ppm Oct. 1-31, 1951.
Total hardness: Maximum, 171 ppm Dec. 1-31, 1952; minimum, 101 ppm Oct. 1-31, 1951.
Specific conductance: Maximum daily, 424 micromhos Feb. 16, 1953; minimum daily, 200 micromhos Oct. 30, 1951.
Water temperatures: Maximum, 89°F, July 31, Aug. 1, 1955; 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 1954 to September 1955 given in WSP 1391. 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 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954 ..	578	4.0	0.01	50	6.1	15	2.7	122	52	20	0.1	1.0	0.06	214	0.29	334	150	50	17	0.5	376	8.0
Nov. 1-30.....	1,456	3.0	.02	51	6.1	14	2.8	a124	52	20	.1	1.6	.02	216	.29	854	152	50	16	.5	376	8.3
Dec. 1-31	1,592	1.5	.00	48	7.8	17	3.5	126	51	23	--	1.2	.03	215	.29	924	152	49	19	.6	382	8.2
Jan. 1-31, 1955 ..	3,527	6.2	.00	48	4.9	15	3.3	114	49	22	--	3.5	.03	208	.28	1,980	140	46	18	.5	369	7.9
Feb. 1-28.....	2,345	1.0	.00	46	4.4	14	1.8	101	46	17	.1	5.9	.00	201	.27	1,270	133	50	18	.5	325	7.7
Mar. 1-31.....	3,453	1.2	.01	42	6.6	13	2.5	102	50	19	.0	8.0	.00	192	.26	1,790	132	48	17	.5	332	7.7
Apr. 1-30.....	2,998	1.0	.00	40	5.8	13	2.7	95	45	14	.1	7.8	.03	186	.25	1,510	124	46	18	.5	312	7.5
May 1-31	3,005	3.1	.00	42	4.1	11	2.8	92	44	14	.3	7.7	.01	192	.26	1,560	122	46	16	.4	320	6.9
June 1-30.....	4,116	3.2	.00	44	5.4	14	2.9	94	52	17	.3	7.5	.03	200	.27	2,220	132	55	18	.5	341	6.7
July 1-31.....	6,758	5.8	.00	43	8.9	11	1.7	101	54	12	.2	.0	.01	196	.27	3,580	144	61	14	.4	332	6.2
Aug. 1-31.....	2,119	3.6	.00	41	6.7	14	2.9	102	51	14	.3	4.6	.09	188	.26	1,080	130	46	19	.5	329	7.5
Sept. 1-30	2,655	5.6	.00	40	8.3	14	2.9	108	50	14	.1	3.0	.03	191	.26	1,370	134	46	18	.5	327	7.7
Weighted average	2,890	3.6	--	44	6.5	13	2.6	103	50	16	--	4.4	--	198	0.27	1,540	136	52	17	0.5	338	--

a Includes equivalent of 2 parts per million of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955

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

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 1955.
Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 140 ppm Nov. 1-30; minimum, 110 ppm Apr. 1-30.
Hardness: Maximum, 96 ppm Nov. 1-30; minimum, 82 ppm May 1-31, Aug. 1-31.
Specific conductance: Maximum daily, 354 micromhos Feb. 19; minimum daily, 150 micromhos July 23.
Water temperatures: Maximum, 63°F Oct. 4; minimum, 42°F Feb. 13, 20.
EXTREMES, 1953-55.--Dissolved solids: Maximum, 140 ppm Nov. 1-30, 1954; minimum, 100 ppm Dec. 1-31, 1953.
Hardness: Maximum, 96 ppm Nov. 1-30, 1954; minimum, 80 ppm Feb. 1-28, 1954.
Specific conductance: Maximum daily, 354 micromhos Feb. 19, 1955; minimum daily, 150 micromhos July 23, 1955.
Water temperatures: Maximum, 64°F Aug. 24, 1954; minimum, 42°F Feb. 13, 20, 1955.
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 1954 to September 1955 given in WSP 1391. 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 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954..	83.9	12	0.01	33	1.6	7.5	2.3	95	3.5	18	0.1	4.3	0.06	136	0.18	31	89	11	15	0.3	227	7.6
Nov. 1-30.....	87.8	5.5	.00	33	3.3	9.5	2.9	100	4.5	18	--	4.6	.01	140	.19	33	96	14	17	.4	239	8.2
Dec. 1-31.....	90.2	2.5	.01	33	1.3	8.3	2.8	98	4.1	17	--	3.7	.00	124	.17	30	88	8	16	.4	232	8.0
Jan. 1-31, 1955..	90.3	1.0	.00	34	1.7	10	2.6	100	8.0	20	--	1.4	.07	134	.18	33	92	10	18	.4	242	8.1
Feb. 1-28.....	154	1.0	.00	34	.7	7.2	1.6	99	8.6	13	.0	1.8	.00	122	.17	51	88	7	15	.3	229	8.0
Mar. 1-31.....	980	.0	.00	32	1.9	4.3	1.7	102	10	11	.0	2.0	.00	116	.16	307	88	4	10	.2	210	8.0
Apr. 1-30.....	1,269	1.0	.00	30	3.4	4.1	2.0	a108	6.9	5.4	.0	1.7	.02	110	.15	377	89	0	9	.2	207	8.3
May 1-31	804	4.5	.00	33	.5	4.2	2.4	88	16	8.0	.2	3.5	.10	116	.16	252	82	10	10	.2	201	6.5
June 1-30	1,783	6.5	.00	30	2.7	4.8	2.1	80	11	10	.1	4.8	.08	118	.16	568	86	21	11	.2	197	6.5
July 1-31	517	8.4	.00	30	3.2	6.2	1.0	81	9.1	11	.0	4.4	.03	115	.16	161	88	22	13	.3	204	6.8
Aug. 1-31.....	818	8.4	.03	30	1.7	8.6	1.9	92	8.6	11	.0	3.5	.12	119	.16	263	82	6	18	.4	210	7.5
Sept. 1-30	481	10	.01	32	2.9	8.6	1.9	102	7.8	10	.0	2.2	.01	128	.17	166	92	8	16	.4	223	7.5
Weighted average	597	4.8	--	31	2.3	5.6	2.0	93	9.7	9.8	--	3.2	--	117	0.16	189	87	11	12	0.3	207	--

a Includes equivalent of 2 parts per million of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	59	--	49	46	44	48	50	51	52	52	52
2	60	56	56	48	46	44	45	48	51	58	53	52
3	60	57	56	48	46	45	49	49	51	54	52	61
4	63	57	56	49	44	45	49	49	52	57	53	62
5	60	60	56	48	44	44	48	49	51	52	52	60
6	60	58	56	48	44	44	49	--	50	52	56	52
7	58	58	52	48	44	44	49	49	50	52	54	52
8	60	57	56	48	44	44	49	50	52	52	52	52
9	60	57	56	48	44	44	43	49	53	54	52	53
10	58	57	46	48	44	44	48	48	52	54	52	59
11	60	60	54	47	43	45	49	48	50	52	52	54
12	60	57	50	47	44	45	48	49	50	51	52	52
13	59	60	50	47	42	47	48	48	50	52	57	54
14	60	59	52	47	43	45	48	50	50	52	53	53
15	57	62	52	48	43	45	48	50	51	52	52	53
16	60	57	52	47	43	45	44	48	51	54	52	54
17	58	57	52	47	44	44	51	49	50	53	52	58
18	57	56	52	47	44	45	49	50	54	52	52	55
19	58	56	52	46	44	44	50	50	54	54	52	55
20	57	58	49	46	42	46	50	50	53	53	58	55
21	57	58	49	46	43	45	49	50	53	53	54	55
22	57	58	49	46	43	44	49	50	51	54	52	55
23	60	57	50	45	43	47	49	49	51	52	52	54
24	58	56	50	46	44	48	50	50	50	54	52	60
25	58	56	52	45	44	48	49	49	--	51	52	62
26	58	56	50	45	44	44	49	50	52	51	53	54
27	57	56	49	45	44	46	50	50	51	52	--	54
28	57	56	49	45	46	47	49	50	52	52	53	54
29	57	56	48	45	--	47	49	--	51	52	54	54
30	58	56	48	45	--	48	50	49	52	54	53	54
31	57	--	48	45	--	48	--	50	--	54	53	--
Average	59	57	52	47	44	45	48	49	51	53	53	55

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, 19 miles north of Amarillo, Potter County, and at mile 537.7.
DRAINAGE AREA.--19,445 square miles of which 4,069 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: July 1948 to October 1949, February 1950 to September 1955.
Water temperatures: August 1949 to September 1955.
Sediment records: August 1949 to September 1952.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,720 ppm Feb. 1-10; minimum, 354 ppm Aug. 7-10.
Hardness: Maximum, 579 ppm Feb. 1-10; minimum, 130 ppm July 22-31.
Specific conductance: Maximum daily, 3,330 micromhos May 17; minimum daily, 466 micromhos Aug. 8.
Water temperatures: Maximum, 74°F July 23; minimum, freezing point Dec. 9.
EXTREMES, 1948-55.--Dissolved solids: Maximum, 2,320 ppm Dec. 25-29, 1952; minimum, 285 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 (1949-55): 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 sums of 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 15-20, 1954	75.0	24		68	27	244		226	198	288	1.2	14		993	1.35	201	280	96	65	6.3	1,650	8.0
Oct. 6-14	3,507	16		37	14	163		188	130	148	.8	4.5		607	.83	5,750	150	0	70	5.8	1,030	7.8
Oct. 21-31	31.5	43		106	43	359		246	346	452	1.6	25		1,500	2.04	128	442	240	64	7.5	2,400	7.8
Nov. 1-10	18.5	58		126	52	346		257	387	440	2.8	49		1,590	2.16	79.4	528	318	59	6.5	2,490	7.8
Nov. 11-20	18.1	62		130	54	334		277	375	422	3.2	65		1,580	2.15	77.2	546	320	57	6.2	2,440	7.3
Nov. 21-30	17.1	68		124	53	304		274	354	375	3.6	71		1,490	2.03	68.8	528	303	56	5.7	2,350	7.3
Dec. 1-10	14.4	76		110	52	289		291	305	320	2.8	71		1,350	1.84	52.5	488	250	54	5.3	2,180	8.0
Dec. 11-20	8.70	76		86	47	242		339	227	235	2.8	100		1,180	1.60	27.7	408	130	56	5.2	1,870	7.0
Dec. 21-31	9.11	79		112	55	233		277	281	288	2.4	100		1,290	1.75	31.7	506	278	50	4.5	2,050	7.4
Jan. 1-31, 1955	14.8	77		134	56	333		330	370	400	3.6	74		1,610	2.19	64.3	565	294	56	6.1	2,440	7.4
Feb. 1-10	21.1	67		138	57	371		346	402	440	2.8	69		1,720	2.34	98.0	579	296	58	6.7	2,590	7.4
Feb. 11-17	12.4	86		112	53	286		291	305	335	3.6	101		1,420	1.93	47.5	498	259	56	5.6	2,230	7.3
Feb. 18-28	8.60	86		75	44	186		296	170	190	3.6	93		998	1.36	23.2	368	126	52	4.2	1,600	8.1
Mar. 1-10	8.36	72		68	38	141		307	110	125	2.8	101		856	1.16	19.3	326	74	48	3.4	1,390	7.0
Mar. 11-20	8.64	72		60	37	150		305	114	120	2.8	101		815	1.11	19.0	302	52	52	3.8	1,320	8.2
Mar. 21-31	9.75	72		67	36	150		314	112	125	2.4	105		835	1.14	22.0	315	58	51	3.7	1,340	7.1

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR AMARILLO, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955 ..	9.84	74		70	40	136		310	113	122	4.0	99		867	1.18	23.0	339	85	46	3.2	1,360	7.2
Apr. 11-20	13.0	78		66	39	125		334	110	102	4.0	67		815	1.11	28.6	325	52	46	3.0	1,220	7.4
Apr. 21-30	1,809	72		62	38	132		317	117	112	3.6	61		796	1.08	3,890	310	50	48	3.3	1,240	7.2
May 1-10.....	677	24		64	22	234		203	203	265	.8	6.1		a919	1.25	2,160	250	84	67	6.4	1,540	7.9
May 11-18.....	121	34		116	42	407		224	405	518	.8	11		1,640	2.23	536	462	278	66	8.2	2,670	7.9
May 19-28.....	2,801	22		46	16	149		198	133	140	1.2	4.0		n608	.83	4,600	181	19	64	4.8	1,010	8.0
May 29-31, June 1-2, 6-10	74.2	30		92	33	305		218	295	378	1.2	9.2		1,250	1.70	250	365	186	65	7.0	2,070	8.0
June 3-5.....	1,030	28		34	12	111		172	91	95	1.2	4.5		465	.63	1,290	134	0	64	4.2	742	8.2
June 11-18, 25-27.	33.6	50		128	49	350		246	412	450	1.6	15		1,580	2.15	143	521	320	59	6.7	2,550	7.9
June 19-22.....	1,327	22		38	13	98		176	88	86	1.0	4.0		a437	.59	1,570	149	5	59	3.5	754	8.0
June 23-24, 28-30.	44.2	36		72	26	162		192	195	190	1.2	7.8		793	1.08	94.6	286	128	55	4.2	1,310	7.6
July 1-10.....	108	44		67	31	172		275	172	180	1.6	7.2		a810	1.10	236	294	69	56	4.4	1,340	7.3
July 11-21.....	113	26		66	25	232		216	210	262	1.2	5.2		940	1.28	287	268	90	65	6.1	1,600	8.0
July 22-31.....	1,148	19		32	12	113		199	82	86	.8	3.5		a446	.61	1,380	130	0	65	4.3	773	7.9
Aug. 1-6	302	26		54	19	181		204	163	186	1.2	4.2		a734	1.00	599	212	46	65	5.4	1,230	8.0
Aug. 7-10	797	20		37	11	74		174	64	60	1.2	1.2		a354	.48	762	137	0	54	2.7	601	7.8
Aug. 11-20	516	24		40	13	121		197	108	98	1.2	2.5		506	.69	705	154	0	63	4.3	884	7.9
Aug. 21-22, 26-31.	34.5	50		83	34	232		262	243	260	1.6	16		1,050	1.43	97.8	347	132	59	5.4	1,680	7.7
Aug. 23-25	579	26		33	12	82		177	69	62	.8	4.0		383	.52	599	131	0	58	3.1	628	7.8
Sept. 1-10.....	11.6	63		82	40	211		338	205	215	3.6	30		1,020	1.39	31.9	369	92	55	4.8	1,640	7.5
Sept. 11-20, 24 ...	99.4	75		72	43	142		349	150	142	2.4	22		852	1.16	229	356	70	46	3.3	1,280	7.6
Sept. 21-23, 25-30	698	18		38	9.7	120		189	105	90	.8	2.8		a477	.65	899	135	0	66	4.5	796	8.1
Weighted average	367	29		48	19	153		214	132	144	1.4	13		651	0.89	645	198	22	63	4.7	1,080	--

a Sum of determined constituents.

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR AMARILLO, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once daily measurement, usually between 6 a. m. and 8 a. m.)

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

ARKANSAS RIVER BASIN--Continued

DEER CREEK NEAR HYDRO, OKLA.

LOCATION.--SW¼ Sec. 2, T. 12 N., R. 13 W., 1½ miles southeast of Hydro, Caddo County.
DRAINAGE AREA.--268 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1951 to August 1955.

Chemical analyses, in parts per million, October 1954 to August 1955

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. 18, 1954	2.83	100	17	25	210	16	14	320	122	15	0.6	664	8.7
Nov. 15	8.03	125	31	24	254	8	13	440	218	11	.5	1,100	8.4
Dec. 15	9.60	143	15	26	254	14	14	420	188	12	.6	882	8.5
Jan. 17, 1955	12.6	176	25	26	242	10	14	540	325	9	.5	976	8.4
Feb. 14	13.3	168	20	28	228	12	17	500	293	11	.5	1,010	8.5
Mar. 16	13.0	173	34	28	260	0	16	570	357	10	.5	1,050	8.2
Apr. 19	12.2	155	25	24	254	0	15	490	282	10	.5	951	8.1
June 23	20.7	117	17	20	228	0	12	360	173	11	.5	684	7.7
July 21	21.3	256	39	24	240	0	14	800	604	6	.4	1,350	7.9
Aug. 22	5.97	60	18	28	136	0	10	224	112	21	.8	548	7.9

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, 2¾ miles upstream from Lumpmouth Creek, and at mile 267.1.
DRAINAGE AREA.--25,229 square miles of which 4,801 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1948 to September 1955.
Water temperatures: October 1948 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,450 ppm Oct. 11; minimum, 173 ppm May 19.
Hardness: Maximum, 580 ppm Oct. 11; minimum, 120 ppm May 19.
Specific conductance: Maximum daily, 4,000 micromhos Oct. 11; minimum daily, 265 micromhos May 19.
Water temperatures: Maximum, 79°F July 27, Aug. 9; minimum, freezing point on several days during November to March.
EXTREMES, 1948-55.--Dissolved solids: Maximum, 2,450 ppm Oct. 11, 1954; minimum, 173 ppm May 19, 1955.
Hardness: Maximum, 778 ppm Jan. 28-31, 1951; minimum, 120 ppm May 19, 1955.
Specific conductance: Maximum daily, 4,000 micromhos Oct. 11, 1954; minimum daily, 226 micromhos May 23, 1952.
Water temperatures: Maximum, 97°F July 11, 1952; 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific coaductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-4, 1954	4.38	--	--	42	9.5	24	--	155	0	40	14	--	3.9	--	216	0.29	2.6	144	17	27	0.9	404	8.2
Oct. 5-6	3.00	--	--	45	9.6	48	--	131	2	88	40	--	1.7	--	298	.41	2.4	152	41	41	1.7	546	8.3
Oct. 7-10	3.10	--	--	72	16	33	--	248	2	80	21	--	1.2	--	350	.48	2.9	246	40	23	.9	581	8.3
Oct. 11	1,550	--	--	150	50	632	9.6	194	0	612	825	--	1.8	--	2,450	3.33	10,250	580	421	70	11	4,000	8.2
Oct. 12-20	552	--	--	84	27	311	--	221	0	263	370	--	6.6	--	1,210	1.65	1,890	320	139	68	7.6	2,080	8.1
Oct. 21-25	22.8	--	--	70	23	237	--	196	10	219	268	--	5.6	--	981	1.33	60	270	93	66	6.3	1,640	8.6
Oct. 26-27	11.5	--	--	79	25	165	--	200	18	185	185	--	3.9	--	798	1.09	25	300	106	54	4.1	1,320	8.7
Oct. 28-29	5.70	--	--	85	24	126	--	210	18	185	120	--	3.2	--	669	.91	10	310	108	47	3.1	1,080	8.7
Oct. 30-31	3.85	--	--	93	12	49	--	228	13	139	34	--	2.5	--	499	.68	5.2	280	72	28	1.3	725	8.7
Nov. 1-10	7.16	--	--	96	16	36	--	223	8	144	30	--	1.3	--	459	.62	8.9	306	110	20	.9	688	8.4
Nov. 11-20	9.07	21	0.02	100	17	32	3.6	238	0	162	20	0.2	1.0	0.18	487	.66	12	318	123	18	.8	709	8.2
Nov. 21-30	10.3	--	--	114	24	34	--	244	16	189	20	--	.7	--	559	.76	16	382	156	16	.8	780	8.5
Dec. 1-4, 6-10	9.07	--	--	118	15	31	--	258	0	174	16	--	1.1	--	517	.70	13	355	144	16	.7	797	8.2
Dec. 5	9.30	--	--	86	16	46	--	154	0	203	33	--	1.4	--	496	.67	12	280	154	26	1.2	882	8.1
Dec. 11-20	8.99	--	--	124	13	32	--	276	0	174	17	--	1.8	--	538	.73	13	365	139	16	.7	822	8.0
Dec. 21-31	12.1	14	.00	118	26	30	3.1	250	10	198	18	--	1.6	.00	555	.75	18	400	178	14	.6	832	8.5
Jan. 1-5, 1955	19.0	--	--	120	24	36	--	253	0	220	22	--	2.5	--	592	.81	30	400	192	16	.8	859	8.2
Jan. 2-4, 6-8, 10	15.3	--	--	126	24	33	--	262	0	237	16	--	2.2	--	605	.82	25	414	200	15	.7	868	8.1
Jan. 9	15.0	--	--	96	18	31	--	134	0	254	10	--	2.2	--	527	.72	21	312	202	18	.8	864	8.1
Jan. 11-20	15.7	--	--	128	24	33	--	254	0	253	18	--	2.5	--	622	.85	26	418	210	15	.7	880	8.1
Jan. 21-31	12.3	16	.00	140	22	33	2.2	247	0	264	14	.1	3.1	.01	648	.88	22	440	238	14	.7	940	8.1

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER AT BRIDGEPORT, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 160°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 1-3, 1955	17.7	--	--	120	18	32	--	206	0	254	16	--	2.9	--	587	0.80	28	375	206	16	0.7	836	8.2
Feb. 4, 6	57.0	--	--	96	22	68	--	192	0	226	60	--	4.4	--	602	.82	93	330	172	31	1.6	930	8.2
Feb. 5, 7	57	--	--	112	23	56	--	204	0	250	46	--	4.0	--	608	.83	57	375	208	25	1.3	910	8.2
Feb. 8-9	38	--	--	132	27	42	--	228	0	306	25	--	3.2	--	674	.92	38	440	253	17	.9	955	8.1
Feb. 10	17.0	--	--	160	34	66	--	248	0	323	92	--	5.4	--	833	1.13	38	540	337	21	1.2	1,220	7.9
Feb. 11-20	15.5	16	0.01	140	24	35	2.4	244	0	292	16	0.2	3.0	0.02	705	.96	30	450	250	14	.7	1,000	8.1
Feb. 21-28	15.2	--	--	140	29	32	--	255	0	292	16	--	2.8	--	670	.91	27	470	261	13	.6	958	8.0
Mar. 1	15.0	--	--	92	29	41	--	104	0	284	35	--	1.0	--	541	.74	22	348	263	20	1.0	916	8.1
Mar. 2-10	14.3	--	--	140	27	29	--	234	3	293	16	--	.7	--	647	.88	25	460	264	12	.6	941	8.3
Mar. 11-19	14.0	--	--	140	23	38	--	241	0	300	17	--	.7	--	661	.90	25	445	248	16	.8	921	8.1
Mar. 20	24.0	--	--	112	27	63	--	186	0	300	52	--	1.1	--	681	.93	44	390	238	26	1.4	1,040	8.1
Mar. 21-25, 27-31	15.7	--	--	146	27	34	--	268	0	293	15	--	.8	--	674	.92	29	475	256	13	.7	970	8.2
Mar. 26	13.0	--	--	138	37	61	--	184	0	403	37	--	1.2	--	820	1.12	29	495	344	21	1.2	1,180	8.0
Apr. 1-9	13.9	--	--	136	29	36	--	249	4	287	17	--	1.9	--	703	.96	26	460	250	15	.7	930	8.3
Apr. 10	20.0	--	--	132	27	45	--	254	3	277	28	--	2.2	--	713	.97	39	440	227	18	.9	936	8.3
Apr. 11-13, 15-16, 19-20	16.0	--	--	134	26	39	--	269	0	285	16	--	1.9	--	687	.93	30	440	220	15	.7	949	8.1
Apr. 14, 18	16.0	--	--	136	29	36	--	266	0	304	16	--	1.7	--	715	.97	31	460	242	15	.7	969	8.2
Apr. 17	17.0	--	--	104	27	43	--	142	0	304	35	--	2.4	--	622	.85	29	370	254	20	1.0	968	8.1
Apr. 21-30	11.1	--	--	136	27	37	--	266	0	286	18	--	1.8	--	715	.97	21	450	232	15	.8	977	7.9
May 1-2	9.30	--	--	134	31	45	--	264	0	301	24	--	.7	--	696	.95	17	460	244	18	.9	977	8.1
May 3	3,860	--	--	98	33	78	--	176	0	305	47	--	1.4	--	661	.90	6,890	380	236	31	1.7	1,020	8.0
May 4	4,080	--	--	110	45	371	--	260	0	380	472	--	1.3	--	1,570	2.14	17,300	460	247	64	7.5	2,570	8.0
May 5-8	1,122	--	--	92	38	314	--	220	0	329	368	--	.2	--	1,290	1.75	3,910	385	204	64	7.0	2,120	7.9
May 9	1,880	--	--	64	24	185	--	180	0	179	216	--	3.8	--	782	1.06	3,970	260	112	61	5.0	1,320	7.6
May 10	1,350	--	--	98	31	135	--	156	0	302	148	--	4.2	--	805	1.09	2,930	370	242	44	3.1	1,280	8.0
May 11	2,420	--	--	52	8.6	53	--	124	0	91	60	--	5.6	--	377	.51	2,460	165	64	41	1.8	536	7.2
May 12	3,420	--	--	100	17	84	--	140	0	260	92	--	5.1	--	697	.95	6,440	320	206	36	2.0	975	7.0
May 13-18	840	--	--	88	20	205	--	173	0	179	290	--	3.6	--	988	1.34	2,240	300	158	60	5.1	1,620	7.6
May 19	11,200	--	--	40	4.9	17	--	126	0	30	14	--	4.9	--	173	.24	5,230	120	17	24	.7	265	7.3
May 20	7,350	--	--	66	13	70	--	119	0	159	71	--	3.9	--	444	.60	8,810	220	122	41	2.0	702	7.4
May 21	10,400	--	--	99	27	140	--	168	0	231	188	--	6.8	--	872	1.19	24,490	360	222	46	3.2	1,310	7.6
May 22-25	8,100	--	--	94	31	230	--	238	0	240	270	--	.6	--	1,040	1.41	22,740	360	165	58	5.3	1,660	7.8
May 26	4,870	--	--	50	16	72	--	164	0	97	82	--	3.2	--	447	.61	5,880	190	56	45	2.3	668	7.6
May 27-31	798	--	--	85	29	198	--	208	0	239	235	--	5.0	--	927	1.26	2,000	330	160	57	4.7	1,530	7.7

June 1-5, 1955	314	--	--	92	34	237	--	218	0	258	260	--	5.5	--	1,060	1.44	899	370	192	58	5.4	1,730	7.8
June 6-8	1,714	--	--	93	29	121	--	152	0	273	145	--	.7	--	774	1.05	3,580	350	226	43	2.8	1,210	7.6
June 9	2,010	--	--	75	15	49	--	126	0	145	64	--	2.5	--	472	.64	2,560	250	147	30	1.3	706	7.4
June 10	1,100	--	--	90	29	162	--	168	0	237	204	--	7.3	--	894	1.22	2,660	345	208	51	3.8	1,410	7.6
June 11	1,580	--	--	90	43	200	--	214	0	260	250	--	7.5	--	969	1.32	4,130	400	224	52	4.4	1,580	7.3
June 12-13	380	--	--	64	28	142	--	184	0	172	165	--	5.0	--	678	.92	696	275	124	53	3.7	1,140	7.5
June 14	510	--	--	54	22	101	--	152	0	160	115	--	8.3	--	535	.73	737	225	100	49	2.9	872	7.4
June 15	3,900	--	--	48	12	24	--	140	0	49	28	--	7.1	--	237	.32	2,500	170	56	23	.8	404	7.3
June 16	670	--	--	102	28	43	--	118	0	280	45	--	5.7	--	562	.76	1,020	370	274	20	1.0	833	7.3
June 17-20	861	--	--	93	31	72	--	138	0	248	92	--	3.8	--	626	.85	1,460	360	247	30	1.6	989	7.4
June 21, 30	1,974	--	--	72	24	111	--	166	0	181	125	--	3.3	--	648	.88	3,450	280	144	46	2.9	1,010	7.4
June 22, 29	1,490	--	--	64	23	67	--	178	0	120	91	--	3.1	--	494	.67	1,990	255	109	36	1.8	803	7.4
June 23-27	1,438	--	--	82	35	179	--	200	0	218	225	--	3.5	--	855	1.16	3,320	350	186	53	4.2	1,450	7.5
June 28	729	--	--	39	13	25	--	136	0	47	30	--	6.4	--	227	.31	729	150	38	27	.9	349	7.3
July 1-4	801	--	--	56	22	112	--	168	0	131	128	--	4.6	--	547	.74	1,180	230	92	51	3.2	897	7.6
July 5	6,840	--	--	44	12	32	--	144	0	54	31	--	5.7	--	250	.34	4,620	160	42	30	1.1	402	7.5
July 6	1,450	--	--	96	20	49	--	124	0	256	48	--	6.2	--	549	.75	2,150	320	218	25	1.2	817	7.7
July 7-19	82.9	--	--	110	33	53	--	130	0	307	61	--	3.5	--	655	.89	147	410	304	22	1.1	974	7.0
July 20-23, 26-27	96.2	--	--	118	35	127	--	152	0	308	178	--	3.9	--	880	1.20	229	440	316	39	2.6	1,360	7.6
July 24-25	97.5	--	--	62	20	46	--	128	0	132	61	--	4.0	--	398	.54	105	235	130	30	1.3	653	7.5
July 28-31	629	--	--	110	40	250	--	236	0	290	340	--	3.5	--	1,190	1.62	2,020	440	246	55	5.2	1,930	7.8
Aug. 1-7	295	--	--	78	33	238	--	232	0	235	302	--	5.8	--	1,020	1.39	812	330	140	61	5.7	1,770	8.1
Aug. 8, 10	659	--	--	66	21	103	--	202	0	148	115	--	1.8	--	578	.79	1,030	250	84	47	2.8	981	8.1
Aug. 9	314	--	--	80	29	202	--	186	0	254	230	--	6.2	--	928	1.26	787	320	168	58	4.9	1,590	8.0
Aug. 11	624	--	--	67	23	125	--	154	0	205	150	--	7.1	--	655	.89	1,100	260	134	51	3.4	1,120	7.9
Aug. 12-20	411	--	--	73	29	200	--	200	0	200	255	--	2.6	--	872	1.19	968	300	136	59	5.0	1,540	7.6
Aug. 21-22	82.5	--	--	74	29	205	--	218	0	211	265	--	6.6	--	952	1.29	212	305	126	59	5.1	1,560	8.2
Aug. 23-27	31.9	--	--	65	23	134	--	192	0	170	160	--	7.2	--	694	.94	60	255	98	53	3.7	1,090	8.1
Aug. 28	3.30	--	--	62	24	79	--	172	0	170	82	--	3.6	--	541	.74	4.8	255	114	40	2.2	872	8.1
Aug. 29-31	4.53	--	--	78	23	29	--	224	0	137	18	--	2.3	--	420	.57	5.1	290	106	18	.7	622	8.2

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER AT BRIDGEPORT, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Chlorids (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 (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Sept. 1-10, 1955.....	12.1	--	--	78	15	23	--	180	0	131	16	--	5.2	--	375	0.51	12	255	108	16	0.6	594	6.8
Sept. 11-20.....	9.75	--	--	67	14	18	--	182	0	91	10	--	5.7	--	308	.42	8.1	225	76	15	.5	507	6.9
Sept. 21-23.....	1.97	--	--	53	19	28	--	174	0	112	13	--	.1	--	327	.44	1.7	210	68	23	.8	546	7.8
Sept. 24-26, 29-30...	65.5	--	--	93	21	27	--	168	0	201	20	--	1.9	--	465	.63	82	320	182	15	.7	729	7.8
Sept. 27	139	--	--	51	15	41	--	136	0	101	44	--	5.7	--	347	.47	130	190	78	32	1.3	573	7.8
Sept. 28	76.0	--	--	86	23	30	--	100	0	248	28	--	3.6	--	493	.67	101	310	228	17	.7	744	7.7
Weighted average ..	457	--	--	81	25	154	--	a 184	--	205	185	--	3.5	--	783	1.06	966	305	154	52	3.8	1,260	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER AT BRIDGEPORT, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

ARKANSAS RIVER BASIN--Continued

LITTLE RIVER NEAR NORMAN, OKLA.

LOCATION.--At gaging station at bridge on State Highway 9, 1 mile upstream from Dave Blue Creek, 3½ miles downstream from Rock Creek, 7.8 miles east of Norman, Cleveland County, and at mile 101.5.
DRAINAGE AREA.--120 square miles.
RECORDS AVAILABLE.--Chemical analyses: June 1951 to September 1955.
Water temperatures: October 1951 to September 1952.
EXTREMES, 1951-52.--Dissolved solids: Maximum, 446 ppm Feb. 23, 27-29; minimum, 125 ppm May 23.
Hardness: Maximum, 386 ppm Feb. 23, 27-29; minimum 76 ppm May 23.
Specific conductance: Maximum daily, 926 micromhos Feb. 28; minimum daily, 171 micromhos May 23.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, December 1954 to September 1955

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. 31, 1954	1.59	32	44	14	274	10	13	260	19	10	0.4	455	8.5
Mar. 2, 1955	1.18	26	45	16	304	6	14	252	0	12	.4	513	8.4
Apr. 12	1.45	22	43	17	268	14	17	230	0	14	.5	474	8.3
Apr. 25	.81	47	47	17	316	6	14	310	0	11	.4	618	8.3
May 2	.88	50	26	11	278	0	11	230	2	9	.3	495	8.2
May 23	12.5	43	20	28	236	0	42	190	0	24	.9	499	8.2
June 1	2.26	53	24	16	254	0	26	230	22	13	.5	544	8.2
July 12	.29	21	40	21	290	0	16	215	0	17	.6	459	7.7
July 21	.38	46	23	13	268	0	13	210	0	12	.4	444	7.8
Aug. 16	.15	50	24	14	296	0	10	225	0	12	.4	443	7.6
Aug. 24	.64	34	16	7.1	188	0	6.0	152	0	9	.3	297	7.4
Sept. 21	.08	16	30	28	232	0	18	164	0	27	1.0	393	8.1
Sept. 26	126	23	8.1	20	96	0	33	91	12	32	.9	291	7.3

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, 13 miles east of Norman, Cleveland County, and at mile 96.0
DRAINAGE AREA.--257 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Diasolved solids: Maximum, 1,090 ppm Oct. 27; minimum, 111 ppm May 19-20.
Hardness: Maximum, 340 ppm Dec. 1, 5-7, 9; minimum, 76 ppm May 19-20.
Specific conductance: Maximum daily, 2,020 micromhos Oct. 27; minimum daily, 156 micromhos Aug. 8.
Water temperatures: Maximum, 94°F July 11, Aug. 6; minimum, 39°F Mar. 21.
EXTREMES, 1953-55.--Dissolved solids: Maximum, 1,150 ppm Sept. 1-10, 1954; minimum, 111 ppm May 19-20, 1955.
Hardness: Maximum, 340 ppm Dec. 1, 5-7, 9, 1954; minimum, 73 ppm Oct. 26, 1953.
Specific conductance: Maximum daily, 2,180 micromhos Sept. 8, 1954; minimum daily, 156 micromhos Aug. 8, 1955.
Water temperatures: Maximum, 98°F July 11-12, 1954; minimum, 36°F Jan. 22-23, 1954.
REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1954 to September 1955 given in WSP 1391. No flow Dec. 2-4, 8, 10, July 26-29, Aug. 1-3.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct 1-2, 1954	20.4	--	--	23	15	36	--	136	5	26	41	--	5.4	--	225	0.31	12	119	0	40	1.4	412	8.4
Oct 3-7	.82	--	--	27	19	89	--	192	5	44	98	--	3.2	--	389	.53	.9	146	0	57	3.2	740	8.4
Oct 8-10	.33	--	--	30	23	143	--	228	4	71	170	--	2.3	--	564	.77	.5	169	0	65	4.8	1,050	8.4
Oct 11, 17-20	.22	--	--	37	29	158	--	224	10	84	194	--	2.2	--	624	.85	.4	210	10	62	4.7	1,160	8.6
Oct. 12-16	3.44	--	--	35	19	68	--	170	6	40	75	--	23	--	364	.50	3.4	165	16	47	2.3	676	8.5
Oct 21-26, 28-31	.62	--	--	43	30	174	--	244	10	101	200	--	2.4	--	680	.92	1.1	230	14	62	5.0	1,250	8.5
Oct. 27	.50	--	--	47	40	305	--	264	8	162	398	--	3.6	--	1,090	1.48	1.5	280	50	70	7.9	2,020	8.4
Nov. 1-10	.77	--	--	44	33	152	--	300	8	79	172	--	.5	--	664	.90	1.4	245	0	57	4.2	1,170	8.5
Nov. 11-16	.55	--	--	44	46	118	--	353	12	60	122	--	.1	--	583	.79	.9	300	0	46	3.0	1,050	8.5
Nov. 17-20	.35	--	--	54	45	183	--	324	12	97	236	--	1.4	--	788	1.07	.7	320	34	55	4.4	1,450	8.5
Nov. 21-30	.42	10	0.00	49	46	140	5.4	360	20	70	148	--	1.3	0.00	687	.91	.8	312	0	49	3.5	1,190	8.6
Dec. 1, 5-7, 9	.56	--	--	64	44	111	--	400	7	56	118	--	1.7	--	599	.81	.9	340	0	42	2.6	1,080	8.4
Dec. 11-20	1.18	--	--	60	41	94	--	394	0	46	100	--	1.3	--	537	.73	1.7	320	0	39	2.3	997	8.2
Dec. 21-26	1.17	--	--	54	43	94	--	406	0	44	100	--	1.3	--	555	.75	1.8	310	0	40	2.3	1,000	8.2
Dec. 27	5.20	--	--	32	13	30	--	158	0	19	34	--	1.8	--	260	.35	3.7	134	4	33	1.1	438	8.2
Dec. 28-31	3.25	--	--	56	37	48	--	351	0	22	50	--	5.0	--	414	.56	3.6	290	2	26	1.2	744	7.9
Mar. 1-10, 1955	1.34	8.0	.01	58	40	65	1.8	383	0	32	61	0.2	1.0	.00	453	.62	1.6	305	0	32	1.6	826	8.0
Mar. 11-19	1.83	--	--	48	44	61	--	368	0	44	68	--	1.8	--	452	.61	2.2	300	0	31	1.5	813	8.1
Mar. 20-24	31.3	--	--	40	23	26	--	226	0	27	28	--	3.2	--	268	.36	23	194	9	23	.8	474	8.0
Mar. 25-31	3.09	--	--	58	37	50	--	350	0	36	54	--	2.3	--	420	.57	3.5	290	3	27	1.3	742	8.2
Apr. 1-10	2.40	6.5	.00	50	41	54	3.0	379	0	28	60	.1	.8	.21	430	.58	2.8	295	0	28	1.4	717	8.2
Apr. 11-20	2.14	--	--	44	44	55	--	368	0	35	60	--	1.6	--	428	.58	2.5	290	0	29	1.4	770	8.2

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ARKANSAS RIVER BASIN--Continued

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

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Fluorids (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 21-27, 1955	1.96	--	--	34	49	63	--	349	6	36	68	--	1.8	--	433	0.59	2.3	285	0	32	1.6	772	8.4
Apr. 28-30	72.0	--	--	29	11	17	--	143	0	16	15	--	4.6	--	188	.26	37	116	0	24	.7	302	7.8
May 1-2	2.35	--	--	39	25	35	--	238	0	27	40	--	2.5	--	309	.42	2.0	200	5	28	1.1	513	7.7
May 3-9	1.66	--	--	46	34	64	--	312	0	42	70	--	.2	--	420	.57	1.9	255	0	35	1.7	744	8.0
May 10	26	--	--	32	11	8.7	--	142	0	16	8.0	--	3.9	--	166	.23	12	125	8	13	.3	256	7.7
May 11-12	514	--	--	30	8.5	9.0	--	128	0	17	14	--	3.0	--	152	.21	211	110	5	15	.4	265	7.3
May 13-14	22.5	--	--	35	18	26	--	184	0	17	34	--	4.2	--	234	.32	14	160	9	26	.9	427	7.2
May 15-18	67.0	--	--	40	33	40	--	284	0	27	45	--	2.4	--	338	.46	61	235	2	27	1.1	623	7.5
May 19-20	3,050	--	--	19	6.9	5.7	--	90	0	12	6.5	--	3.0	--	111	.15	914	76	2	14	.3	168	6.7
May 21	472	--	--	30	12	16	--	136	0	18	26	--	3.6	--	193	.26	246	124	12	22	.6	309	7.3
May 22-26	70.2	--	--	53	29	29	--	282	0	16	40	--	1.9	--	324	.44	61	250	19	20	.8	544	7.7
May 27	81.0	--	--	52	22	120	--	140	0	15	230	--	4.2	--	692	.94	151	220	106	54	3.5	1,010	7.5
May 28-31	12.8	--	--	46	27	35	--	258	0	20	46	--	2.6	--	324	.44	11	225	14	25	1.0	538	7.1
June 1-10	5.61	18	0.00	53	40	41	3.5	348	0	34	47	0.4	.5	0.36	409	.56	6.2	296	11	23	1.0	719	7.4
June 11-15	4.66	--	--	45	40	42	--	324	0	27	52	--	2.0	--	373	.51	4.7	275	10	25	1.1	646	7.9
June 16-20	228	--	--	26	12	12	--	118	0	9.7	20	--	3.7	--	152	.21	93	114	18	19	.5	258	7.3
June 21-23	5.20	--	--	48	23	99	--	184	0	42	160	--	3.0	--	483	.66	6.8	215	64	50	2.9	852	7.6
June 24-30	3.86	--	--	45	33	55	--	282	0	25	72	--	1.8	--	384	.52	4.0	250	19	32	1.5	687	7.3
July 1-10	1.41	12	.00	40	40	83	3.2	299	0	54	99	.2	.2	.40	483	.66	1.8	264	19	40	2.2	858	7.2
July 11-16	.48	--	--	41	46	122	--	326	0	74	150	--	.0	--	592	.81	.8	290	23	48	3.1	1,020	7.7
July 17	22.0	--	--	38	42	44	--	338	0	32	36	--	1.1	--	359	.49	21	268	0	26	1.2	621	7.8
July 18-20	1.83	--	--	24	21	28	--	150	0	33	34	--	2.4	--	216	.29	1.1	148	25	29	1.0	365	7.4
July 21-23	.60	--	--	30	24	55	--	184	0	39	84	--	1.2	--	303	.41	.5	172	21	41	1.8	521	7.6
July 24-25	.25	--	--	34	28	71	--	216	0	47	96	--	.5	--	382	.52	.3	200	23	44	2.2	689	7.6
July 30-31	.10	--	--	38	30	101	--	244	0	49	125	--	.8	--	464	.63	.1	220	20	50	3.0	841	7.7
Aug. 4-7	1.80	--	--	48	30	145	--	256	0	90	208	--	2.0	--	669	.91	3.3	240	30	57	4.1	1,160	8.1
Aug. 8-10	59.2	--	--	22	10	10	--	112	0	12	9.5	--	3.6	--	123	.17	20	96	4	18	.4	220	7.8
Aug. 11-13	7.43	--	--	22	7.1	17	--	106	0	11	19	--	5.5	--	140	.19	2.8	84	0	31	.8	241	7.7
Aug. 14-16	1.30	--	--	27	13	38	--	146	0	23	48	--	4.6	--	236	.32	.8	120	0	41	1.5	416	7.7
Aug. 17-20	.50	--	--	37	19	72	--	182	0	46	102	--	2.5	--	376	.51	.5	170	21	48	2.4	683	7.9
Aug. 21-23	3.60	--	--	35	18	91	--	198	0	49	110	--	2.2	--	420	.57	4.1	160	0	55	3.1	773	8.0
Aug. 24-25	1.50	--	--	27	15	39	--	158	0	23	46	--	2.8	--	240	.33	1.0	130	0	40	1.5	428	8.0
Aug. 26-29	.38	--	--	35	20	67	--	204	0	40	82	--	1.8	--	352	.48	.4	170	3	46	2.2	635	8.0
Aug. 30-31	4.30	--	--	27	18	22	--	182	0	16	20	--	3.1	--	204	.28	2.4	142	0	25	.8	351	8.0
Sept. 1-3	1.63	--	--	25	14	35	--	144	0	22	47	--	3.7	--	219	.30	1.0	120	2	39	1.4	410	7.3
Sept. 4-6	.83	--	--	33	18	64	--	172	0	37	88	--	3.3	--	328	.45	.7	158	17	47	2.2	619	7.7

Sept. 7-9, 1955.....	.53	--	--	38	22	99	--	194	0	57	130	--	1.9	--	447	.61	.6	184	25	54	3.2	858	7.6
Sept. 10-11	233	--	--	24	9.7	6.0	--	114	0	7.8	7.5	--	5.2	--	116	.16	73	100	6	12	.3	164	7.4
Sept. 12-14	2.90	--	--	21	10	26	--	104	0	13	41	--	3.2	--	176	.24	1.4	94	9	38	1.2	326	7.4
Sept. 15-16	.80	--	--	29	13	49	--	128	0	19	78	--	3.0	--	268	.36	.6	128	23	45	1.9	508	7.1
Sept. 17-20	.55	--	--	32	18	72	--	160	0	39	100	--	1.9	--	344	.47	.5	152	21	51	2.5	646	7.6
Sept. 21	.40	--	--	35	22	110	--	194	0	54	135	--	.1	--	452	.61	.5	180	21	57	3.6	846	8.0
Sept. 22-30	207	--	--	20	12	20	--	106	0	9.7	30	--	1.1	--	154	.21	86	100	13	30	.9	287	7.4

ARKANSAS RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955

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

LITTLE RIVER NEAR SASAKWA, OKLA.

LOCATION.--At gaging station on highway bridge, 2¾ miles northwest of Sasakwa, Seminole County, 8.7 miles downstream from Salt Creek, and at mile 24.1.
DRAINAGE AREA.--865 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1951 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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. 14, 1954	7.50	4,630	790		11	0	48,600	14,800	14,800			92,800	6.6
Nov. 9	4.33	6,300	1,550		82	0	65,800	22,100	22,000			117,000	7.2
Dec. 16	7.85	6,840	1,760		75	0	70,800	24,300	24,200			124,000	7.1
Mar. 2, 1955	62.5	1,110	290		65	0	11,400	3,960	3,910			30,500	7.6
Apr. 12	68.0	2,200	467		49	0	21,500	7,460	7,420			50,800	7.5
June 1	79.0	774	243		175	0	7,240	2,930	2,790			20,500	7.9
July 11	5.44	2,900	770		112	0	30,400	10,400	10,300			66,100	7.5
Aug. 16	15.8	367	115		116	0	3,740	1,390	1,300			11,200	8.2
Sept. 21	5.40	553	170		98	0	5,770	2,080	2,000			16,300	8.1

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, 2¼ miles north of Seiling, Blaine County, 2¾ miles downstream from Deep Creek, and at mile 422.6.
DRAINAGE AREA.--12,261 square miles of which 4,847 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: February 1951 to August 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, May to August 1955

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				
May 4, 1955	259	94	28	117	300	0	192	350	104	42	2.7	1,380	7.8
May 6	549	53	12	48	196	0	70	180	20	37	1.6	676	8.1
May 7	225	42	8.5	38	150	0	62	140	17	37	1.4	588	8.0
May 8	113	42	8.5	57	136	0	66	140	28	47	2.1	577	7.9
May 9	98.4	62	13	60	152	0	101	210	86	38	1.8	841	8.2
May 10	60.9	59	15	48	136	0	66	210	98	33	1.4	690	8.1
May 11	75.3	50	8.5	40	138	0	56	160	47	35	1.4	578	8.0
May 12	84.1	53	14	47	126	0	64	190	87	35	1.5	640	8.1
May 16	17.5	80	17	69	140	0	113	270	156	36	1.8	983	7.8
May 18	3,590	50	8.5	49	164	0	81	160	26	40	1.7	660	8.0
May 19	3,350	46	8.5	41	150	0	56	150	27	37	1.5	542	8.0
May 20	7,480	47	10	40	158	0	55	160	30	35	1.4	559	7.7
May 21	7,530	49	13	50	168	0	67	175	38	38	1.6	614	7.9
May 23	3,930	54	16	46	200	0	75	200	36	33	1.4	730	7.7
May 24	2,530	53	17	51	188	0	80	200	46	36	1.6	732	7.8
May 25	2,760	54	17	58	204	0	96	205	38	38	1.8	783	7.3
June 1	609	56	17	72	178	0	108	210	64	43	2.2	823	7.8
June 6	340	67	15	78	184	0	143	230	79	42	2.2	974	7.8
June 20	6,230	46	12	34	164	0	35	164	30	31	1.2	477	7.8
June 21	8,660	50	9.7	50	164	0	56	165	30	40	1.7	587	7.9
July 5	1,030	56	9.8	56	148	0	80	180	58	40	1.8	590	7.3
July 11	135	82	35	167	180	0	238	348	200	51	3.9	1,480	8.2
July 21	324	47	14	77	154	0	86	175	49	49	2.5	693	8.0
Aug. 1	40.8	109	27	171	240	0	195	390	194	49	3.8	1,350	7.5
Aug. 11	17.0	80	48	162	158	0	215	395	266	47	3.5	1,550	7.8
Aug. 22	11.4	80	32	120	212	0	158	330	156	44	2.9	1,200	8.0
Aug. 31	.37	88	46	157	148	0	195	410	288	45	3.4	1,530	7.9

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 2½ 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 1955.
Water temperatures: October 1954 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 722 ppm May 15; minimum, 140 ppm May 20.
Hardness: Maximum, 315 ppm Aug. 21-30; minimum, 80 ppm May 20.
Specific conductance: Maximum daily, 1,210 micromhos May 15, Aug. 28; minimum daily, 187 micromhos May 20.
Water temperatures: Maximum, 87°F Aug. 1; minimum, 63°F May 20.
REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1954 to September 1955 given in WSP 1391. No flow Oct. 1 to May 11, Aug. 31, Sept. 1-3, 5-25.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 12-14,16-19, 1955	130	--	--	62	18	95	--	130	165	120	--	3.0	--	562	0.76	197	230	124	47	2.7	909	7.1
May 15	161	--	--	76	22	126	--	151	173	165	--	9.9	--	722	.98	314	280	156	49	3.3	1,210	7.6
May 20	2,140	--	--	28	2.4	18	--	89	35	8.0	--	4.5	--	140	.19	809	80	7	33	.9	187	7.2
May 21-23	991	--	--	28	6.8	17	--	100	28	16	--	1.9	--	160	.22	428	98	16	27	.8	259	7.6
May 24-31	1,353	--	--	44	9.7	46	--	132	68	54	--	2.6	--	312	.42	1,140	150	42	40	1.6	540	7.7
June 1-10	1,505	16	0.00	48	12	60	6.6	136	87	79	0.8	2.9	0.25	388	.53	1,580	170	58	42	2.0	675	7.1
June 11-15	263	--	--	56	24	63	--	174	109	93	--	3.8	--	442	.60	314	240	98	36	1.8	803	7.6
June 16-18	554	--	--	40	17	24	--	118	43	55	--	3.7	--	270	.37	404	170	74	23	.8	464	7.4
June 17, 20	381	--	--	29	12	12	--	110	24	17	--	4.6	--	160	.22	165	120	30	18	.5	284	7.3
June 19	717	--	--	53	18	55	--	168	84	74	--	4.9	--	417	.57	807	205	68	37	1.7	670	7.6
June 21	428	--	--	37	10	18	--	126	33	21	--	6.3	--	193	.26	223	134	31	23	.7	340	7.0
June 22-30	615	--	--	51	20	51	--	164	83	79	--	4.3	--	404	.55	671	210	76	35	1.5	689	7.5
July 1	260	--	--	66	31	71	--	218	111	105	--	1.8	--	503	.68	353	290	112	35	1.8	805	7.8
July 2-10	1,405	--	--	48	19	47	--	156	78	76	--	1.3	--	356	.49	1,360	200	72	34	1.4	623	7.5
July 11-20	154	19	.00	45	25	60	5.0	170	95	80	.7	.4	.07	428	.58	178	215	76	37	1.8	734	7.0
July 21-22	126	--	--	80	24	75	--	246	126	80	--	.0	--	577	.78	196	300	98	35	1.9	966	7.9
July 23-31	175	--	--	53	20	55	--	176	82	80	--	.0	--	407	.55	192	215	71	36	1.6	698	7.7
Aug. 1-4	60.0	--	--	62	21	67	--	204	96	92	--	2.5	--	466	.63	75	240	73	38	1.9	800	8.1
Aug. 5-10	32.8	--	--	72	28	85	--	234	127	118	--	2.5	--	579	.79	51	295	104	39	2.2	957	8.2
Aug. 11, 13-15	41.0	--	--	53	20	61	--	174	97	75	--	2.6	--	431	.59	48	215	72	38	1.[illegible]	714	8.0
Aug. 12	42.0	--	--	30	11	28	--	98	61	44	--	5.7	--	236	.32	27	122	42	33	1.1	396	7.8
Aug. 16-20	9.30	--	--	72	31	101	--	236	157	128	--	1.9	--	644	.88	16	305	112	42	2.5	1,040	8.1
Aug. 21-30	2.67	--	--	66	37	128	--	220	192	150	--	.8	--	703	.96	5.1	315	134	47	3.1	1,190	8.1
Sept. 4, 26-30	3.08	--	--	33	10	26	--	108	50	32	--	4.5	--	218	.30	1.8	125	36	31	1.0	387	7.4
Weighted average	161	--	--	46	15	49	--	143	77	68	--	2.6	--	351	0.48	153	176	60	38	1.6	604	--

ARKANSAS RIVER BASIN--Continued

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

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								--	68	75	87	--
2								--	--	78	82	--
3								--	73	79	80	--
4								--	73	80	80	--
5								--	74	78	77	--
6								--	71	80	79	--
7								--	73	79	84	--
8								--	75	80	80	--
9								--	69	80	80	--
10								--	65	81	80	--
11								--	64	81	80	--
12								--	65	82	77	--
13								--	70	82	79	--
14								--	71	80	80	--
15								--	73	82	72	--
16								69	73	82	77	--
17								70	70	77	74	--
18								68	72	80	78	--
19								65	73	78	73	--
20								63	75	78	80	--
21								64	73	78	81	--
22								67	79	80	77	--
23								70	79	83	77	--
24								72	--	81	--	--
25								73	77	81	--	--
26								70	78	81	75	--
27								70	80	80	81	71
28								72	76	82	85	85
29								70	72	83	76	73
30								70	76	83	74	69
31								71	--	86	--	--
Average								--	73	80	78	--

NORTH CANADIAN RIVER NEAR WETUMKA, OKLA.

LOCATION.--At gaging station at bridge on U. S. Highway 75, 2.3 miles upstream from Wewoka Creek, 2½ miles northeast of Wetumka, Hughes County, and at mile 84.4.
DRAINAGE AREA.--14,290 square miles, of which 4,899 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 25,800 ppm Feb. 8; minimum, 870 ppm May 20-24.
Hardness: Maximum, 4,640 ppm Dec. 31; minimum, 208 ppm Oct. 12.
Specific conductance: Maximum daily, 37,100 micromhos Dec. 31; minimum daily, 850 micromhos May 21.
Water temperatures: Maximum, 87°F Aug. 9-10; minimum, freezing point on Dec. 30, Jan. 13, 23, 27, 29, Feb. 11-12.
EXTREMES, 1953-55.--Dissolved solids: Maximum, 25,800 ppm Feb. 8, 1955; minimum, 381 ppm May 2, 1954.
Hardness: Maximum, 4,640 ppm Dec. 31, 1954; minimum, 115 ppm May 2, 1954.
Specific conductance: Maximum daily, 37,100 micromhos Dec. 31, 1954; minimum daily, 621 micromhos May 2, 1954.
Water temperatures: Maximum, 92°F Aug. 24-25, 1954; minimum, freezing point on several 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 1954 to September 1955 given in WSP 1391. No flow Oct. 1-11.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C): Parts per million	Dissolved solids (residue at 180°C): Tons per acre-foot	Dissolved solids (residue at 180°C): Tons per day	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 12, 1954	26.0			62	13	223		66	14	450		2.8		1,010	1.37	71	208	154	70	6.7	1,670	7.7
Oct. 13-14	12.8			260	68	1,280		72	37	2,550		--		4,670	6.35	161	930	871	75	18	7,990	7.5
Oct. 15	12.0			486	121	2,360		74	74	4,730		--		8,720	11.86	283	1,710	1,650	75	25	13,700	8.1
Oct. 16-18	12.8			601	156	3,150		66	63	6,070		--		11,200	15.23	387	2,140	2,090	76	30	18,000	7.0
Oct. 19-20	10.6			758	194	4,290		80	56	8,130		--		14,800	20.13	424	2,690	2,620	78	36	23,000	7.9
Oct. 21, 25-31	19.4			616	159	2,750		72	64	5,720		--		10,000	13.60	524	2,190	2,130	73	26	16,700	7.8
Oct. 22-23	23.5			486	189	2,280		82	68	4,780		--		8,250	11.22	523	1,990	1,920	71	22	13,900	8.1
Oct. 24	26.0			248	44	867		84	22	1,800		--		3,240	4.41	227	800	731	70	13	5,850	8.2
Nov. 1-10	16.5			596	156	3,120		52	102	6,160		--		11,000	14.86	490	2,130	2,090	76	29	17,600	7.0
Nov. 11-13, 15-20	17.7			656	186	3,500		52	105	6,880		--		12,300	16.73	588	2,400	2,360	76	31	19,100	7.5
Nov. 14	19.0			326	82	1,380		a133	36	2,800		--		5,170	7.03	265	1,150	1,040	72	18	5,170	8.4
Nov. 21, 27	15.5			468	117	2,190		137	47	4,380		--		7,800	10.61	326	1,650	1,540	74	23	12,900	8.1
Nov. 22-24, 28-30	16.0			717	173	3,650		68	94	7,250		--		13,300	18.09	575	2,500	2,440	76	32	20,500	7.4
Nov. 25-26	16.0			308	78	1,410		150	28	2,850		--		5,120	6.96	221	1,090	967	74	19	8,710	8.2
Dec. 1, 3-4, 6-9	19.3			747	179	3,770		86	87	7,350		--		13,300	18.09	693	2,600	2,530	76	32	21,100	7.4
Dec. 2, 5	17.5			557	127	2,960		144	66	5,670		--		10,300	14.01	487	1,910	1,790	77	29	16,400	7.9
Dec. 10	23.0			399	84	2,230		122	49	4,190		--		7,570	10.30	470	1,340	1,240	78	26	12,500	8.2
Dec. 11-17	35.0			660	181	3,400		111	77	6,610		--		12,000	16.32	1,130	2,390	2,300	76	30	19,300	7.4
Dec. 18	39.0			1,100	257	5,710		98	58	11,300		--		20,200	27.47	2,130	3,800	3,720	77	40	30,400	7.8
Dec. 19-20	40.0			864	227	4,670		71	83	9,020		--		16,200	22.03	1,750	3,090	3,030	77	37	25,000	7.6

a Includes equivalent of 6 parts per million of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

NORTH CANADIAN RIVER NEAR WETUMKA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Dec. 21-27, 1954.	49.6			810	185	4,030		117	78	7,940		--		14,000	19.04	1,870	2,780	2,680	76	33	22,300	7.2
Dec. 28-30	116			541	126	2,700		124	47	5,270		--		9,240	12.57	2,890	1,870	1,770	76	27	15,400	7.8
Dec. 31	107			1,340	315	7,430		79	77	14,300		--		24,600	33.46	7,110	4,640	4,580	78	47	37,100	8.0
Jan. 1, 6-10, 1955	77.2			685	146	3,460		137	69	6,720		--		12,100	16.46	2,520	2,310	2,200	77	31	18,300	7.8
Jan. 2-5	84.0			480	112	2,440		124	56	4,650		--		8,650	11.76	1,960	1,660	1,560	76	26	13,600	7.3
Jan. 11-22, 25-31	65.4			706	163	3,610		116	79	6,890		--		12,100	16.46	2,140	2,430	2,340	76	32	19,500	7.3
Jan. 23-24	59.0			966	221	5,030		137	81	9,900		--		17,200	23.39	2,740	3,320	3,210	77	38	26,700	7.8
Feb. 1-5	47.6			558	109	2,810		117	72	5,330		--		10,300	14.01	1,320	1,840	1,740	77	28	15,900	7.8
Feb. 6-7	80.0			716	147	3,460		119	81	6,770		--		12,700	17.27	2,740	2,390	2,290	76	31	19,500	8.0
Feb. 8	93.0			1,280	325	7,390		114	82	14,200		--		25,800	35.09	6,480	4,530	4,440	78	48	35,500	8.1
Feb. 9-10	92.5			618	72	2,740		135	67	5,280		--		10,300	14.01	2,570	1,840	1,730	76	28	15,400	8.2
Feb. 11, 16-20...	79.0			518	97	2,480		108	57	4,780		--		8,730	11.87	1,860	1,690	1,600	76	26	14,200	7.6
Feb. 12-15.....	63.8			715	133	3,530		99	79	6,900		--		12,700	17.27	2,190	2,330	2,250	77	32	19,900	7.8
Feb. 21-22	94.5			598	60	2,510		94	61	4,830		--		8,980	12.21	2,290	1,740	1,660	76	26	14,500	7.7
Feb. 23-24	71.0			1,030	180	5,050		125	77	9,990		--		18,200	24.75	3,490	3,310	3,210	77	38	27,200	7.8
Feb. 25-28	60.8			637	134	3,220		106	73	6,370		--		11,500	15.64	1,890	2,140	2,050	77	30	18,100	7.6
Mar. 1-10	43.8	13	0.02	755	145	3,590	58	113	77	7,000	0.0	11	0.73	12,800	17.41	1,510	2,480	2,390	75	31	19,800	7.7
Mar. 11-19	35.1			683	169	3,520		94	76	6,950		--		12,700	17.27	1,200	2,400	2,320	76	31	20,100	7.7
Mar. 20-21, 23-25	263			194	45	965		89	35	1,880		--		3,550	4.83	2,520	670	597	76	16	6,200	7.5
Mar. 22, 28-31 ..	129			542	128	2,820		79	77	5,480		--		10,100	13.74	3,520	1,880	1,820	77	28	16,200	6.7
Mar. 26-27	114			328	47	1,430		87	40	2,900		--		5,250	7.14	1,620	1,010	938	75	20	8,920	7.7
Apr. 1-10	80.7			526	121	2,740		68	68	5,280		--		9,960	13.55	2,170	1,810	1,750	77	28	15,700	7.4
Apr. 11-12	97.0			581	146	3,090		63	71	5,970		--		11,200	15.23	2,930	2,050	2,000	77	30	17,400	7.5
Apr. 13-15	132			359	89	1,840		81	42	3,640		--		6,760	9.19	2,410	1,260	1,190	76	23	10,900	7.1
Apr. 16-20	58.8			691	184	3,800		88	71	7,350		--		13,800	18.77	2,190	2,480	2,410	77	33	20,800	7.0
Apr. 21-30	49.3			675	179	3,770		71	68	7,250		--		13,500	18.36	1,800	2,420	2,360	77	33	20,400	6.9
May 1-5, 9	44.7			714	170	3,710		104	62	7,390		--		13,800	18.77	1,670	2,480	2,400	76	32	21,100	7.2
May 6-8, 10	45.8			517	100	2,520		123	55	4,980		--		9,520	12.95	1,180	1,700	1,600	76	27	14,900	7.3
May 11-13	118			398	67	1,920		104	52	3,780		--		6,880	9.36	2,190	1,270	1,180	77	23	11,400	7.5
May 14	143			904	125	4,410		105	35	8,720		--		15,600	21.22	6,020	2,770	2,680	78	36	23,500	7.8
May 15	205			312	59	1,540		112	46	3,100		--		5,910	8.04	3,270	1,020	928	77	21	9,440	7.5
May 16	205			216	29	1,020		111	35	2,010		--		3,700	5.03	2,050	660	569	77	17	6,210	7.6

May 17-18, 1955	178		502	92	2,460	121	69	4,880	--	8,980	12.21	4,320	1,630	1,530	77	26	14,200	7.5
May 19	2,140		220	51	1,100	110	16	2,200	--	4,180	5.68	24,150	760	670	76	17	6,670	7.6
May 20-24	7,470		67	15	207	116	18	378	4.8	870	1.18	17,550	230	135	66	5.9	1,450	7.5
May 25-26	1,165		96	20	328	120	26	670	4.4	1,310	1.78	4,120	320	222	69	8.0	2,250	7.6
May 27	710		132	29	477	128	53	950	6.8	2,060	2.80	3,950	450	345	70	9.8	3,170	7.7
May 28-29	711		172	48	673	148	40	1,350	--	2,590	3.52	4,970	625	504	70	12	4,440	7.8
May 30-31	525		248	61	940	182	44	1,950	--	3,730	5.07	5,290	870	721	70	14	6,150	7.9
June 1-10	227		370	77	1,650	152	58	3,300	--	6,240	8.49	3,820	1,240	1,120	74	20	10,100	7.8
June 11-19	218		471	154	2,230	110	122	4,490	--	8,390	11.41	4,940	1,810	1,720	73	23	13,700	6.9
June 20	690		320	95	1,480	138	104	2,900	--	5,540	7.53	10,320	1,190	1,080	73	19	8,930	7.9
June 21	1,210		168	48	739	104	35	1,450	--	2,740	3.73	8,950	615	530	72	13	4,580	7.7
June 22	1,100		160	46	619	156	46	1,200	--	2,420	3.29	7,190	590	462	70	11	3,970	7.8
June 23-30	755		108	32	380	142	65	730	9.9	1,530	2.08	3,120	400	284	67	8.3	2,730	7.6
July 1	432		120	34	374	158	104	750	8.4	1,580	2.15	1,840	440	310	65	7.8	2,780	8.0
July 2-6	406		152	49	506	176	105	1,050	--	2,140	2.91	2,350	580	436	65	9.1	3,730	7.9
July 7-10	1,465		86	28	227	164	89	425	6.3	1,010	1.37	4,000	330	196	60	5.4	1,830	7.8
July 11-13	745		80	24	224	148	80	405	5.0	956	1.30	1,920	300	178	62	5.6	1,740	7.8
July 14-15	324		98	31	286	168	82	540	2.8	1,260	1.71	1,100	370	232	63	6.5	2,120	7.9
July 16-17	433		136	44	464	162	84	900	5.8	1,890	2.57	2,210	520	388	66	8.8	3,290	7.9
July 18-19	289		152	49	569	164	86	1,100	--	2,240	3.05	1,750	580	446	68	10	3,950	7.9
July 20	226		596	183	2,880	115	98	5,840	--	10,200	13.87	6,220	2,240	2,150	74	26	16,700	8.1
July 21-22, 25-30	186		216	68	960	130	90	1,850	--	3,420	4.65	1,720	820	714	72	15	6,060	7.5
July 23-24, 31	211		359	118	1,620	76	81	3,340	--	6,000	8.16	3,420	1,380	1,320	72	19	10,400	7.7
Aug. 1, 7	298		344	93	1,690	124	87	3,300	--	5,820	7.92	4,680	1,240	1,140	75	21	9,940	8.2
Aug. 2-6	133		240	61	1,070	116	90	2,050	--	3,770	5.13	1,350	850	755	73	16	6,490	8.0
Aug. 8-10	156		140	41	582	104	28	1,200	--	2,210	3.01	931	520	435	71	11	3,870	7.9
Aug. 11	109		164	51	698	126	35	1,380	--	2,390	3.25	703	620	517	71	12	4,580	8.2
Aug. 12-17	92.7		351	113	1,750	64	66	3,490	--	6,190	8.42	1,550	1,340	1,290	74	21	10,700	7.8
Aug. 18-20	67.0		455	140	2,260	78	90	4,490	--	7,990	10.87	1,450	1,710	1,650	74	24	13,500	8.0
Aug. 21-31	53.8		414	131	2,060	129	61	4,180	--	7,470	10.16	1,090	1,570	1,460	74	23	12,500	8.1
Sept. 1-10	40.1		589	114	2,640	107	64	5,270	--	9,410	12.80	1,020	1,940	1,850	75	26	15,400	7.3
Sept. 11-16	76.0		514	119	2,400	106	54	4,830	--	8,750	11.90	1,800	1,770	1,680	75	25	14,200	7.6
Sept. 17-20	70.0		200	44	1,020	56	36	2,000	--	3,600	4.90	680	680	634	77	17	6,320	6.7

ARKANSAS RIVER BASIN--Continued

NORTH CANADIAN RIVER NEAR WETUMKA, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Sept. 21-25, 28, 1955	176			216	73	1,180		108	44	2,300		--		4,330	5.89	2,060	840	752	75	18	7,240	7.4
Sept. 26	258			1,040	295	5,850		135	71	11,500		--		19,700	26.79	13,720	3,810	3,700	77	41	29,600	8.0
Sept. 27	419			367	106	1,680		122	64	3,390		--		6,130	8.34	6,930	1,350	1,250	73	20	10,300	8.2
Sept. 29-30	536			72	17	307		124	16	570		6.2		1,120	1.52	1,620	250	148	73	8.4	2,110	8.0
Weighted average	256		.	199	50	881		124	47	1,720		--		3,270	4.45	2,260	702	600	73	14	5,340	--

ARKANSAS RIVER BASIN--Continued

NORTH CANADIAN RIVER NEAR WETUMKA, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

DEEP FORK NEAR BEGGS, OKLA.

(Formerly published as Deep Fork River near Beggs, Okla.)

LOCATION.--At gaging station at county highway bridge, 3 miles upstream from Adams Creek, 4 miles south of Beggs, Okmulgee County, 8 miles downstream from Flat Rock (Checkerboard) Creek, and at mile 85.0.
DRAINAGE AREA.--2,018 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1951 to September 1955.
Water temperatures: November 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 5,340 ppm Jan. 11-17; minimum, 87 ppm Sept. 27.
Hardness: Maximum, 1,310 ppm July 21; minimum, 16 ppm Sept. 27.
Specific conductance: Maximum daily, 10,500 micromhos Jan. 12; minimum daily, 166 micromhos May 23.
Water temperatures: Maximum, 94°F July 28; minimum, freezing point Mar. 26.
EXTREMES, 1951 to 1955.--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 micromhos Jan. 12, 1955; minimum daily, 166 micromhos May 23, 1955.
Water temperatures: Maximum, 96°F June 12, July 6, 1953; 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 1954 to September 1955 given in WSP 1391. No flow Oct. 1 to Dec. 26.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Dec. 27, 1954	2.80	--	--	72	39	224	--	240	0	28	425	--	1.0	--	966	1.31	7.3	340	144	59	5.3	1,770	8.0
Dec. 28	2.10	--	--	88	44	306	--	167	4	22	660	--	5.8	--	1,420	1.93	8.1	400	256	62	6.7	2,410	8.4
Dec. 29-30	2.40	--	--	44	19	153	--	60	0	16	332	--	2.6	--	706	.96	4.6	190	141	64	4.8	1,220	7.8
Dec. 31	6.10	--	--	160	68	576	--	126	8	21	1,220	--	--	--	2,440	3.32	40	680	564	65	9.6	4,250	8.4
Jan. 1-3, 1955	7.57	--	--	168	66	616	--	135	0	23	1,350	--	--	--	2,440	3.32	50	690	580	66	10	4,470	7.8
Jan. 4-6, 9	5.20	--	--	108	41	346	--	213	0	28	700	--	1.7	--	1,480	2.01	21	440	266	63	7.2	2,690	8.0
Jan. 7-8	4.10	--	--	76	32	224	--	223	0	23	410	--	.7	--	978	1.33	11	320	138	60	5.4	1,750	8.0
Jan. 10	5.00	--	--	212	73	775	--	149	0	33	1,680	--	--	--	2,850	3.88	38	830	708	67	12	5,470	8.2
Jan. 11-17	4.77	--	--	336	100	1,500	--	114	0	39	3,000	--	--	--	5,340	7.26	69	1,250	1,160	72	18	9,250	7.5
Jan. 18-20	17	--	--	164	44	657	--	150	0	35	1,300	--	--	--	2,440	3.32	112	590	467	71	12	4,420	7.8
Jan. 21-25, 28-30	15.2	--	--	90	41	309	--	188	0	35	615	--	1.3	--	1,360	1.85	56	395	241	63	6.8	2,370	8.1
Jan. 26-27, 31	15.3	--	--	108	52	403	--	200	0	45	810	--	.6	--	1,660	2.26	69	485	321	64	8.0	2,950	8.0
Feb. 1-3	15.7	--	--	140	73	498	--	212	0	77	1,000	--	1.0	--	2,180	2.96	92	650	476	62	8.5	3,620	8.2
Feb. 4-6	16.0	--	--	116	51	358	--	208	0	158	675	--	8.4	--	1,600	2.18	69	500	330	61	7.0	2,740	8.2
Feb. 7-9	16	--	--	100	41	295	--	190	0	151	508	--	7.3	--	1,300	1.77	57	420	264	60	6.3	2,250	8.0
Feb. 10	19.0	--	--	196	57	783	--	154	0	118	1,500	--	--	--	3,040	4.13	156	725	599	70	13	4,940	7.5
Feb. 11, 13-15	14.0	--	--	116	46	405	--	166	0	130	800	--	2.3	--	1,820	2.48	69	480	344	65	8.0	3,150	7.9
Feb. 12, 20	22.5	--	--	190	50	764	--	137	0	95	1,480	--	--	--	3,190	4.34	194	680	568	71	13	5,130	7.9
Feb. 16-18	16.3	--	--	84	37	300	--	174	0	121	540	--	.8	--	1,280	1.74	56	360	218	64	6.9	2,280	8.1
Feb. 19	34.0	--	--	48	12	182	--	94	0	62	295	--	2.9	--	669	.91	61	168	91	70	6.1	1,230	8.0

Feb. 21-22, 24-25, 1955	53.2	--	--	222	50	888	--	112	0	56	1,780	--	--	--	3,580	4.87	514	760	668	72	14	5,970	7.8
Feb. 23, 26-28	30.8	--	--	112	37	428	--	165	0	83	800	--	5.7	--	1,780	2.42	148	430	295	68	9.0	3,000	7.8
Mar. 1-10	21.6	4.0	.01	92	29	311	6.0	200	0	86	555	.4	3.2	.06	1,260	1.71	73	350	186	65	7.2	2,300	7.9
Mar. 11-19	15.1	--	--	84	31	299	--	242	0	100	455	--	2.3	--	1,150	1.56	47	335	136	66	7.1	2,030	8.0
Mar. 20	51.0	--	--	36	7.3	194	--	45	0	35	318	--	4.2	--	686	.93	94	120	83	78	7.7	1,180	7.3
Mar. 21-23	126	--	--	136	35	558	--	75	0	37	1,100	--	--	--	2,150	2.92	731	485	424	71	11	3,800	7.6
Mar. 24	56.0	--	--	104	34	433	--	139	0	73	825	--	5.1	--	1,680	2.28	254	400	286	70	9.4	2,750	8.0
Mar. 25-31	41.1	--	--	68	26	230	--	166	0	65	398	--	1.6	--	933	1.27	104	275	139	65	6.0	1,720	7.6
Apr. 1-3	62.0	--	--	64	33	214	--	212	0	74	362	--	2.4	--	918	1.25	154	295	122	61	5.4	1,630	8.0
Apr. 4	54.0	--	--	116	38	467	--	154	0	59	875	--	6.3	--	1,840	2.50	268	445	319	70	9.6	3,070	8.0
Apr. 5	44.0	--	--	90	35	349	--	190	0	75	650	--	5.5	--	1,480	2.01	176	370	214	67	7.9	2,400	8.1
Apr. 6-10	33.8	--	--	82	35	301	--	235	0	79	495	--	3.2	--	1,180	1.60	108	350	158	65	7.0	2,130	7.8
Apr. 11-12	108	--	--	60	22	259	--	82	0	35	505	--	4.0	--	1,070	1.46	312	240	173	70	7.3	1,890	7.5
Apr. 13-14	59.5	--	--	56	22	188	--	148	0	51	335	--	4.8	--	813	1.11	131	230	108	64	5.4	1,440	7.5
Apr. 15-18	33.8	--	--	106	33	381	--	169	0	59	725	--	5.5	--	1,570	2.14	143	400	262	67	8.3	2,730	7.8
Apr. 19-20	20.5	--	--	88	34	304	--	214	0	66	560	--	3.0	--	1,320	1.80	73	360	184	65	7.0	2,220	8.0
Apr. 21-30	14.6	3.0	.04	74	33	235	7.8	263	0	57	400	.4	.6	.36	995	1.35	39	320	104	61	5.7	1,740	7.8
May 1-5, 7-8	10.9	--	--	66	34	203	--	268	0	51	335	--	3.3	--	862	1.17	25	305	86	59	5.1	1,520	7.7
May 6	18.0	--	--	41	18	122	--	138	0	37	205	--	2.8	--	541	.74	26	175	62	60	4.0	954	7.7
May 9-10	10.6	--	--	82	28	272	--	230	0	22	505	--	2.6	--	1,160	1.58	33	320	132	65	6.6	2,080	7.9
May 11-12	21.0	--	--	70	31	229	--	245	0	25	405	--	4.2	--	1,030	1.40	58	300	99	62	5.7	1,770	7.9
May 13	56.0	--	--	84	34	328	--	230	0	68	590	--	11	--	1,350	1.84	204	350	162	67	7.6	2,400	8.1
May 14	53.0	--	--	272	66	1,240	--	128	0	49	2,500	--	--	--	5,090	6.92	728	950	845	74	17	8,030	7.9
May 15	49.0	--	--	114	45	472	--	197	0	84	915	--	6.4	--	2,000	2.72	265	470	308	69	9.5	3,330	7.9
May 16-17	71.0	--	--	92	31	268	--	285	0	69	465	--	3.2	--	1,180	1.60	226	355	122	62	6.2	2,030	8.0
May 18-19	168	--	--	55	26	160	--	244	0	51	252	--	4.8	--	703	.96	319	245	45	59	4.4	1,260	8.0
May 20	2,360	--	--	22	8.0	95	--	40	0	25	170	--	3.6	--	408	.55	2,600	88	55	70	4.4	691	6.9
May 21	3,010	--	--	24	7.3	42	--	28	0	12	98	--	2.9	--	314	.43	2,550	90	67	50	1.9	408	6.7
May 22, 24-27	7,132	--	--	16	1.0	26	--	54	0	7.4	32	--	.4	--	173	.24	3,330	44	0	56	1.7	235	6.8
May 23	4,130	--	--	14	3.6	19	--	34	0	23	26	--	3.1	--	106	.14	1,180	100	22	45	1.3	166	6.7
May 28-29	4,670	--	--	26	4.6	31	--	57	0	14	45	--	2.8	--	214	.29	2,700	84	12	45	1.5	348	7.1
May 30-31	1,970	--	--	36	6.1	42	--	112	0	14	75	--	2.2	--	284	.39	1,510	115	23	44	1.7	476	7.3

ARKANSAS RIVER BASIN--Continued

DEEP FORK NEAR BEGGS, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
June 1-6, 1955	374	--	--	39	17	66	--	147	0	20	105	--	2.5	--	352	0.48	355	168	48	48	2.2	648	7.3
June 7	202	--	--	84	27	240	--	146	0	30	485	--	2.5	--	1,090	1.48	594	320	200	62	5.8	1,880	7.6
June 8-10	131	--	--	50	24	105	--	192	0	51	165	--	1.8	--	524	.71	185	224	68	50	4.1	902	7.6
June 11-20	81.9	--	--	58	29	99	--	236	0	42	170	--	2.8	--	558	.76	123	265	72	45	2.6	989	7.8
June 21-22	156	--	--	60	34	114	--	256	0	49	190	--	2.6	--	604	.82	254	290	80	46	2.9	1,090	7.9
June 23-30	213	--	--	42	26	72	--	204	0	40	108	--	1.0	--	402	.55	231	210	43	43	2.2	734	7.6
July 1-10	55.7	6.8	0.00	52	24	80	2.4	230	0	40	130	0.1	.7	0.29	440	.60	68	230	42	43	2.3	858	6.7
July 11-17, 19	25.6	--	--	56	29	110	--	274	0	36	162	--	.4	--	528	.72	36	260	36	48	3.0	958	7.4
July 18, 20	26.5	--	--	74	35	205	--	262	0	37	360	--	.8	--	841	1.14	60	330	116	57	4.9	1,510	7.7
July 21	23.0	--	--	352	105	1,300	--	174	0	50	2,780	--	--	--	5,310	7.22	330	1,310	1,170	68	16	8,590	--
July 22-24	20.7	--	--	152	68	573	--	148	0	19	1,300	--	--	--	2,450	3.33	137	660	538	65	9.7	4,170	7.5
July 25	34.0	--	--	92	56	348	--	210	0	31	750	--	.7	--	1,530	2.08	140	460	288	62	7.1	2,640	7.9
July 26-31	36.5	--	--	64	34	175	--	290	0	54	255	--	.6	--	726	.99	72	300	62	56	4.4	1,270	7.8
Aug. 1-3	20.0	--	--	66	43	189	--	296	0	69	295	--	2.3	--	827	1.12	45	340	98	55	4.5	1,480	8.1
Aug. 4-5	245	--	--	21	5.2	70	--	40	0	12	130	--	3.0	--	285	.39	189	74	41	67	3.5	538	7.2
Aug. 6-7	158	--	--	34	15	94	--	116	0	28	164	--	4.0	--	417	.57	178	145	50	59	3.4	761	7.9
Aug. 8-9	42.0	--	--	26	9.5	71	--	70	0	12	131	--	3.3	--	308	.42	35	104	46	60	3.0	566	7.6
Aug. 10	30.0	--	--	86	28	296	--	48	0	9.5	670	--	4.2	--	1,240	1.69	100	330	290	66	7.1	2,250	7.6
Aug. 11	20.0	--	--	77	26	281	--	64	0	9.9	600	--	4.3	--	1,180	1.60	64	300	248	67	7.1	2,170	7.8
Aug. 12	12.0	--	--	147	45	576	--	60	0	10	1,200	--	--	--	2,220	3.02	72	550	501	69	11	4,080	7.6
Aug. 13	8.70	--	--	65	20	228	--	72	0	11	490	--	3.2	--	953	1.30	22	245	186	70	6.3	1,740	7.8
Aug. 14-15	8.85	--	--	48	16	161	--	84	0	12	325	--	5.5	--	671	.91	12	185	116	65	5.1	1,200	7.7
Aug. 16-20	10.1	--	--	43	19	102	--	152	0	26	180	--	3.2	--	490	.67	13	185	60	55	3.3	894	7.9
Aug. 21-31	8.53	--	--	38	20	84	--	184	0	29	130	--	.4	--	405	.55	9.3	178	27	51	2.7	780	8.0
Sept. 1-10	2.42	--	--	59	29	128	--	228	0	38	225	--	3.1	--	646	.88	4.2	265	78	51	3.4	1,180	7.5
Sept. 11-20	5.72	4.2	.01	65	35	158	4.5	266	0	49	260	.2	.2	.28	715	.97	11	305	87	52	3.9	1,390	7.9
Sept. 21-26, 28-29	16.5	--	--	59	37	178	--	262	0	49	285	--	.0	--	768	1.04	34	300	86	56	4.5	1,440	7.8
Sept. 27	75.0	--	--	2.8	2.2	26	--	10	0	2.9	44	--	4.2	--	87	.12	18	16	8	78	2.8	192	6.5
Sept. 30	78.0	--	--	23	13	69	--	110	0	27	105	--	2.3	--	326	.44	69	110	20	58	2.9	579	7.4
Weighted average	194	--	--	27	7.0	59	--	a81	--	16	98	--	--	--	310	0.42	162	96	30	57	2.6	498	--

a Includes equivalent of individual carbonats values shown above.

ARKANSAS RIVER BASIN--Continued

DEEP FORK NEAR BEGGS, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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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, 5½ miles upstream from Snake Creek, and at mile 18.8.
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 1955.
Water temperatures: September 1944 to February 1945, September 1946 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 12,600 ppm Feb. 10; minimum, 281 ppm Apr. 22.
Hardness: Maximum, 2,420 ppm Feb. 10; minimum, 76 ppm Apr. 22.
Specific conductance: Maximum daily, 19,900 micromhos Feb. 10; minimum daily, 469 micromhos Apr. 22.
Water temperatures: Maximum, 84°F July 29-30; minimum, freezing point on Jan. 31, Feb. 11-12.
EXTREMES, 1944-45, 1946-55.--Dissolved solids: Maximum, 12,600 ppm Feb. 10, 1955; minimum, 89 ppm Jan. 2, 5-7, 1948.
Hardness: Maximum, 2,420 ppm Feb. 10, 1955; minimum, 18 ppm Feb. 17, 1948.
Specific conductance: Maximum daily, 19,900 micromhos Feb. 10, 1955; minimum daily, 71.7 micromhos Jan. 2, 1948.
Water temperatures: Maximum, 88°F Sept. 4, 1944; 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Toas per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954.....	20.0	20	0.01	118	37	355	6.2	179	0	14	750	0.1	1.8	0.12	1,600	2.18	86.4	445	296	63	7.3	2,780	8.1
Oct. 11-15	56.0	--	--	120	34	328	--	148	6	17	700	--	1.0	--	1,410	1.92	213	440	308	62	6.8	2,570	8.4
Oct. 16.....	176	--	--	248	54	917	--	146	8	32	1,900	--	.6	--	3,400	4.62	1,820	840	707	70	14	6,240	8.4
Oct. 17.....	138	--	--	356	52	1,440	--	84	0	30	2,950	--	--	--	5,260	7.15	1,980	1,100	1,030	74	19	9,290	8.1
Oct. 18	388	--	--	474	89	2,160	--	88	0	42	4,430	--	--	--	7,520	10.23	7,880	1,550	1,480	75	24	13,100	8.1
Oct. 19-20.....	349	--	--	184	42	604	--	204	12	324	1,020	--	5.0	--	2,400	3.26	2,260	630	443	88	10	4,070	8.4
Oct. 21, 23, 28-31 ..	289	--	--	140	34	523	--	172	6	179	950	--	4.9	--	2,020	2.75	1,580	490	339	70	10	3,640	8.4
Oct. 22, 26-27.....	353	--	--	124	22	374	--	150	4	146	675	--	3.6	--	1,490	2.03	1,420	400	270	67	8.1	2,670	8.4
Oct. 24-25.....	622	--	--	196	27	727	--	146	2	130	1,400	--	2.4	--	2,800	3.81	4,700	600	477	72	13	4,920	8.3
Nov. 1-3	86.7	--	--	186	50	749	--	180	0	106	1,450	--	--	--	2,910	3.96	681	670	522	71	13	5,010	8.2
Nov. 4-10	69.4	--	--	224	71	968	--	190	0	84	1,850	--	--	--	3,650	4.96	684	850	694	71	14	6,280	8.0
Nov. 11-14	54.0	--	--	252	73	1,090	--	147	2	69	2,180	--	--	--	4,110	5.59	599	930	806	72	16	7,200	8.3
Nov. 15-20	55.0	--	--	294	87	1,280	--	169	0	54	2,550	--	--	--	4,760	6.47	707	1,090	952	72	17	8,100	8.0
Nov. 21-30	38.8	14	.02	342	94	1,430	13	207	0	46	2,880	.1	--	.21	5,490	7.47	575	1,240	1,070	71	18	9,100	7.9
Dec. 1-10	32.9	--	--	344	93	1,520	--	184	0	47	3,050	--	--	--	5,580	7.59	496	1,240	1,090	73	19	9,510	7.9
Dec. 11, 15-17, 20..	123	--	--	395	67	1,760	--	167	0	64	3,340	--	--	--	5,830	7.93	1,940	1,260	1,120	75	22	10,400	7.8
Dec. 12-13, 18	115	--	--	304	78	1,380	--	166	0	55	2,650	--	--	--	4,940	6.72	1,530	1,080	944	74	18	8,360	7.9
Dec. 14, 19	116	--	--	328	78	1,550	--	160	0	58	2,950	--	--	--	5,340	7.26	1,670	1,140	1,010	75	20	9,190	7.8
Dec. 21-27	113	--	--	415	108	1,910	--	149	0	52	3,940	--	--	--	7,190	9.78	2,190	1,480	1,360	74	22	11,900	8.0
Dec. 28-29	2,205	--	--	132	32	567	--	95	0	23	1,150	--	--	--	2,130	2.90	12,680	460	382	73	11	3,810	7.9
Dec. 30-31	3,375	--	--	88	20	326	--	73	0	15	675	--	4.8	--	1,310	1.78	11,940	300	240	70	8.2	2,370	7.6

Jan. 1, 10, 1955	1,182	--	--	264	59	1,280	--	80	0	34	2,480	--	--	--	4,430	6.02	14,140	900	834	76	19	7,790	7.8
Jan. 2-7	787	--	--	495	137	2,590	--	66	0	49	5,140	--	--	--	8,920	12.13	18,950	1,800	1,750	76	27	14,900	7.4
Jan. 8-9	288	--	--	356	86	1,890	--	94	0	49	3,600	--	--	--	6,390	8.69	4,970	1,240	1,160	77	23	10,700	7.8
Jan. 11-12, 14	335	--	--	320	73	1,570	--	108	0	48	3,000	--	--	--	5,440	7.40	4,920	1,100	1,010	76	21	9,130	7.9
Jan. 13, 15-16	587	--	--	288	59	1,310	--	97	0	42	2,550	--	--	--	4,630	6.30	7,340	960	880	75	18	7,890	7.8
Jan. 17-20	1,344	--	--	152	32	719	--	71	0	40	1,400	--	--	--	2,480	3.37	9,000	510	452	75	14	4,510	7.5
Jan. 21-24	770	--	--	224	44	1,000	--	90	0	33	2,000	--	--	--	3,750	5.10	7,800	740	666	75	16	6,310	7.9
Jan. 25-27	424	--	--	336	64	1,600	--	99	0	42	3,050	--	--	--	5,600	7.62	6,410	1,100	1,020	76	21	9,210	7.7
Jan. 28-31	278	--	--	424	112	2,240	--	116	0	51	4,250	--	--	--	7,240	9.85	5,430	1,520	1,420	76	25	12,400	7.8
Feb. 1-2	217	--	--	423	108	2,120	--	106	0	51	4,240	--	--	--	7,460	10.15	4,370	1,500	1,410	75	24	12,700	7.9
Feb. 3-4	244	--	--	367	94	1,790	--	108	0	46	3,540	--	--	--	6,350	8.64	4,180	1,300	1,210	75	22	10,900	7.7
Feb. 5	883	--	--	272	68	1,330	--	84	0	42	2,600	--	--	--	4,780	6.50	11,400	960	891	75	19	7,270	7.9
Feb. 6	2,280	--	--	184	42	849	--	74	0	34	1,700	--	--	--	3,130	4.26	19,270	630	570	75	15	5,380	7.8
Feb. 7-8	1,855	--	--	84	18	365	--	48	0	22	750	--	3.6	--	1,440	1.96	7,210	285	246	74	9.4	2,550	7.5
Feb. 9	1,400	--	--	336	83	1,670	--	87	0	48	3,250	--	--	--	5,940	8.08	22,450	1,180	1,110	75	21	10,000	7.9
Feb. 10	1,060	--	--	675	179	3,650	--	68	0	56	7,000	--	--	--	12,600	17.14	36,060	2,420	2,360	77	32	19,900	7.8
Feb. 11-13	567	--	--	446	111	2,410	--	75	0	49	4,580	--	--	--	8,290	11.27	12,690	1,570	1,510	77	26	13,800	7.8
Feb. 14-15	332	--	--	327	93	1,640	--	89	0	47	3,290	--	--	--	6,150	8.36	5,510	1,200	1,130	75	21	10,500	7.8
Feb. 16-18	250	--	--	296	84	1,430	--	110	0	47	2,800	--	--	--	5,090	6.92	3,440	1,000	910	76	20	8,660	7.8
Feb. 19	2,220	--	--	224	49	1,020	--	88	0	47	1,950	--	--	--	3,720	5.06	22,300	760	688	74	16	6,340	8.0
Feb. 20	9,280	--	--	45	6.7	125	--	71	0	19	242	--	3.2	--	578	.79	14,480	140	82	66	4.6	930	7.9
Feb. 21	7,270	--	--	43	7.4	114	--	74	0	15	212	--	3.6	--	513	.70	10,070	138	78	64	4.2	895	7.8
Feb. 22	5,750	--	--	29	5.2	72	--	56	0	15	138	--	3.5	--	357	.49	5,540	94	48	62	3.2	594	7.7
Feb. 23	4,450	--	--	48	8.5	186	--	47	0	13	350	--	2.2	--	772	1.05	9,280	155	116	72	6.5	1,220	7.5
Feb. 24-25	1,740	--	--	136	34	693	--	44	0	27	1,350	--	--	--	2,550	3.47	11,980	480	444	76	14	4,410	7.5
Feb. 26-28	822	--	--	240	59	1,220	--	59	0	33	2,450	--	--	--	4,440	6.04	9,850	840	792	76	18	7,640	7.6
Mar. 1	1,570	--	--	132	34	663	--	49	0	21	1,300	--	--	--	2,440	3.32	10,340	470	430	75	13	4,260	7.6
Mar. 2-3	1,965	--	--	104	22	469	--	63	0	23	900	--	4.6	--	1,770	2.41	9,390	350	298	74	11	3,110	7.7
Mar. 4	1,520	--	--	180	49	908	--	57	0	30	1,750	--	--	--	3,360	4.57	13,790	650	604	75	15	5,750	7.7
Mar. 5, 9-10	599	--	--	288	64	1,440	--	80	0	37	2,800	--	--	--	5,240	7.13	8,470	980	914	76	20	8,820	7.8
Mar. 6-8	563	--	--	351	94	1,860	--	68	0	37	3,590	--	--	--	6,640	9.03	10,090	1,260	1,200	76	23	11,000	7.6
Mar. 11-15	236	--	--	228	67	1,110	--	108	0	42	2,200	--	--	--	3,960	5.39	2,520	845	756	74	17	6,890	8.0
Mar. 16	1,400	--	--	140	33	598	--	91	0	38	1,180	--	--	--	2,330	3.17	8,810	485	410	73	12	3,940	7.9
Mar. 17	2,280	--	--	44	3.6	117	--	55	0	28	220	--	2.6	--	480	.65	2,930	125	80	67	4.6	859	7.5

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR WHITEFIELD, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Mar. 18-19, 1955	3,570	--	--	56	7.9	182	--	52	0	22	345	--	1.6	--	719	0.98	6,930	172	130	70	6.0	1,290	7.1
Mar. 20	11,400	--	--	29	5.7	76	--	52	0	21	140	--	2.4	--	350	.48	10,770	96	54	63	3.4	553	7.4
Mar. 21	23,700	--	--	42	4.9	95	--	82	0	16	180	--	2.3	--	445	.61	28,480	125	58	62	3.7	703	7.7
Mar. 22	22,000	--	--	108	23	459	--	71	0	30	900	--	4.6	--	1,750	2.38	104,000	365	307	73	10	2,910	7.5
Mar. 23	18,800	--	--	68	12	244	--	83	0	22	480	--	3.2	--	1,030	1.40	52,280	220	152	71	7.2	1,770	7.7
Mar. 24-25	11,410	--	--	38	8.5	141	--	50	0	18	272	--	1.8	--	650	.88	20,020	130	89	70	5.4	1,060	7.5
Mar. 26-31	1,539	--	--	92	12	358	--	71	0	38	700	--	3.7	--	1,460	1.99	6,070	260	222	74	9.3	2,410	7.4
Apr. 1, 5	1,510	--	--	80	23	347	--	69	0	35	675	--	5.0	--	1,480	2.91	6,030	295	238	72	8.8	2,390	7.7
Apr. 2-3	3,400	--	--	40	11	143	--	58	0	34	265	--	4.6	--	660	.90	6,060	145	98	66	5.2	1,060	7.6
Apr. 4	1,580	--	--	64	12	263	--	55	0	32	480	--	5.5	--	1,110	1.51	4,740	210	165	73	7.9	1,640	7.6
Apr. 6-7	1,068	--	--	160	37	730	--	64	0	47	1,420	--	--	--	2,770	3.77	7,990	550	498	74	14	4,820	7.5
Apr. 8-10	711	--	--	188	49	881	--	77	0	48	1,750	--	--	--	3,410	4.64	6,550	670	607	74	15	5,900	7.6
Apr. 11-13, 16-17	1,628	--	--	204	49	974	--	75	0	42	1,880	--	--	--	3,660	4.98	16,090	710	648	75	16	6,190	7.7
Apr. 14	7,600	--	--	80	12	335	--	65	0	33	625	--	4.3	--	1,300	1.77	26,680	250	196	74	9.2	2,120	7.7
Apr. 15, 18-20	1,974	--	--	160	34	732	--	77	0	40	1,460	--	--	--	2,880	3.92	15,350	540	477	75	14	4,900	7.6
Apr. 21	5,060	--	--	37	12	166	--	40	0	13	320	--	4.5	--	636	.88	8,890	140	107	72	6.1	1,100	7.2
Apr. 22	7,510	--	--	22	5.1	68	--	44	0	11	120	--	1.0	--	281	.38	5,700	76	40	66	3.4	469	7.2
Apr. 23	4,800	--	--	31	11	124	--	52	0	16	220	--	.8	--	521	.71	6,750	124	82	68	4.8	882	7.2
Apr. 24-25	2,060	--	--	59	19	260	--	56	0	36	490	--	1.6	--	1,060	1.47	6,010	225	179	72	7.5	1,830	7.2
Apr. 26-28	692	--	--	92	23	380	--	84	0	24	735	--	1.4	--	1,500	2.04	2,800	325	256	72	9.2	2,560	7.5
Apr. 29-30	414	--	--	128	34	526	--	101	0	32	1,070	--	--	--	2,180	2.96	2,440	460	377	71	11	3,660	7.6
May 1-4	302	--	--	172	51	736	--	116	0	30	1,500	--	--	--	3,080	4.19	2,510	640	545	71	13	5,050	7.7
May 5-6	285	--	--	478	148	2,290	--	101	0	54	4,780	--	--	--	8,550	11.63	6,580	1,800	1,720	73	23	14,300	7.8
May 7	370	--	--	264	95	1,410	--	96	0	40	2,900	--	--	--	5,610	7.63	5,600	1,100	1,020	74	18	8,830	7.7
May 8	2,100	--	--	172	56	800	--	101	0	33	1,600	--	--	--	3,190	4.34	16,090	660	577	72	14	5,230	7.9
May 9-10	2,085	--	--	162	62	446	--	246	0	33	970	--	9.0	--	2,440	3.32	13,740	660	458	59	7.5	4,010	8.0
May 11	1,300	--	--	136	41	526	--	154	0	197	940	--	--	--	2,190	2.98	7,890	510	384	69	10	3,540	7.8
May 12, 19	2,145	--	--	176	46	705	--	147	0	188	1,350	--	--	--	2,860	3.89	16,560	630	510	71	12	4,760	7.8
May 13, 15	8,430	--	--	104	29	417	--	119	0	100	800	--	6.9	--	1,700	2.31	38,690	360	282	70	9.3	2,940	7.7
May 14	9,560	--	--	196	44	864	--	114	0	82	1,700	--	--	--	3,410	4.64	88,030	670	576	74	15	5,590	7.8
May 16-17	3,630	--	--	92	22	293	--	136	0	150	480	--	6.3	--	1,290	1.75	12,640	320	206	67	7.1	2,060	7.7
May 18	1,820	--	--	114	32	390	--	153	0	141	675	--	6.4	--	1,630	2.22	8,010	415	290	67	8.3	2,680	7.8
May 20-31	32,100	14	0.00	62	12	147	5.2	123	0	15	378	0.6	2.6	0.03	719	.98	62,320	204	103	60	4.5	1,280	7.0

June 1-6, 1955	5,828	--	--	76	24	244	--	117	0	41	490	--	2.4	--	1,080	1.47	16,990	290	194	65	6.2	1,900	7.2
June 7-8	3,680	--	--	76	28	238	--	98	0	39	510	--	2.2	--	1,090	1.48	10,830	305	224	63	5.9	1,960	7.3
June 9	2,120	--	--	108	32	381	--	113	0	50	775	--	2.0	--	1,600	2.18	9,160	400	308	67	8.3	2,800	7.6
June 10	2,780	--	--	180	56	642	--	176	0	143	1,250	--	--	--	2,700	3.67	20,270	680	536	67	11	4,480	7.8
June 11-14	2,238	--	--	142	50	448	--	162	0	186	840	--	6.2	--	2,020	2.75	12,210	560	428	63	8.2	3,220	7.8
June 15-17	1,677	--	--	168	57	590	--	144	0	141	1,160	--	--	--	2,420	3.29	10,960	655	537	66	10	4,100	7.7
June 18	6,350	--	--	116	51	360	--	180	0	212	680	--	7.7	--	1,640	2.23	28,120	500	352	61	7.0	2,710	7.8
June 19-20	4,415	--	--	192	45	716	--	146	0	123	1,450	--	--	--	3,040	4.13	36,240	665	546	70	12	4,920	7.7
June 21-22	2,935	--	--	136	51	512	--	132	0	85	1,000	--	7.6	--	2,060	2.80	16,320	550	442	67	9.5	3,390	7.5
June 23-24	3,050	--	--	216	68	863	--	116	0	74	1,750	--	--	--	3,440	4.68	28,330	820	725	70	13	5,590	7.6
June 25-27, 29-30	2,746	--	--	136	54	494	--	146	0	120	950	--	7.6	--	2,090	2.84	15,500	560	440	66	9.1	3,510	7.5
June 28	3,010	--	--	110	43	336	--	144	0	209	600	--	13	--	1,420	1.93	11,540	450	332	62	6.9	2,340	7.8
July 1-3	2,667	--	--	112	37	352	--	170	0	135	630	--	7.1	--	1,390	1.89	10,080	430	290	64	7.4	2,540	7.9
July 4-5, 9	2,417	--	--	91	35	238	--	180	0	153	405	--	6.8	--	1,030	1.40	6,720	270	222	58	5.4	1,880	8.0
July 6-7	1,240	--	--	102	37	311	--	170	0	136	580	--	4.6	--	1,300	1.77	4,350	405	266	63	6.7	2,380	8.1
July 8, 10	2,220	--	--	125	43	421	--	156	0	136	810	--	7.3	--	1,700	2.31	10,190	490	362	65	8.3	3,080	8.2
July 11-17	1,232	--	--	98	28	267	--	154	0	122	480	--	4.3	--	1,160	1.58	3,860	360	234	62	6.1	2,050	7.7
July 18-20	1,352	--	--	112	41	331	--	158	0	104	640	--	4.4	--	1,410	1.92	5,150	450	320	62	6.8	2,570	7.8
July 21	1,400	--	--	73	24	239	--	96	0	49	460	--	3.1	--	927	1.26	3,500	280	202	65	6.2	1,730	7.9
July 22	801	--	--	174	40	636	--	112	0	52	1,300	--	--	--	2,460	3.35	5,320	600	508	70	11	4,350	8.1
July 23	690	--	--	232	74	1,040	--	102	0	64	2,050	--	--	--	3,790	5.15	7,060	885	802	72	15	6,660	8.2
July 24-31	379	--	--	328	107	1,560	--	108	0	98	3,120	--	--	--	5,610	7.63	5,740	1,260	1,170	73	19	9,970	7.7
Aug. 1-4	246	--	--	208	61	968	--	126	2	67	1,950	--	--	--	3,500	4.76	2,320	770	664	73	15	6,290	8.3
Aug. 5-6	700	--	--	272	103	1,300	--	124	2	142	2,600	--	--	--	4,780	6.50	9,030	1,100	995	72	17	8,070	8.3
Aug. 7-10	821	--	--	143	47	531	--	148	0	158	1,000	--	--	--	2,150	2.92	4,770	550	428	68	9.8	3,780	8.2
Aug. 11	652	--	--	250	87	1,190	--	140	0	123	2,300	--	--	--	4,190	5.70	7,380	960	866	73	17	7,220	8.1
Aug. 12	1,450	--	--	336	112	1,680	--	122	0	79	3,300	--	--	--	5,980	8.13	23,410	1,300	1,200	74	20	9,970	8.1
Aug. 13	2,690	--	--	160	56	684	--	138	0	114	1,300	--	--	--	2,480	3.37	18,010	630	517	70	12	4,140	7.9
Aug. 14-15	1,550	--	--	244	80	1,100	--	122	0	93	2,200	--	--	--	3,980	5.41	16,660	940	840	72	16	7,040	8.0
Aug. 16-17	898	--	--	180	61	783	--	128	0	112	1,550	--	--	--	2,970	4.04	7,200	700	595	71	13	5,290	8.0
Aug. 18-20	628	--	--	128	46	501	--	138	0	149	950	--	4.3	--	1,970	2.68	3,340	510	397	68	9.6	3,530	7.8
Aug. 21-22, 24-26	587	--	--	172	54	701	--	140	0	132	1,400	--	--	--	2,580	3.51	4,090	650	536	70	12	4,610	8.0
Aug. 23, 27-28, 30	857	--	--	122	39	470	--	126	0	99	900	--	2.8	--	1,810	2.46	4,190	465	362	69	9.5	3,270	7.9
Aug. 29	953	--	--	61	18	203	--	96	0	65	380	--	3.0	--	802	1.09	2,060	225	146	66	5.9	1,480	7.7
Aug. 31	3,370	--	--	90	21	306	--	110	0	48	580	--	--	--	1,180	1.60	10,740	310	220	68	7.6	2,150	7.8

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR WHITEFIELD, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Sept. 1-2, 1955	3,005	--	--	67	18	213	--	92	0	35	430	--	3.9	--	925	1.26	7,500	240	164	66	6.0	1,640	7.6
Sept. 3	1,400	--	--	454	123	2,170	--	68	0	42	4,380	--	--	--	8,420	11.45	31,830	1,640	1,580	74	23	13,200	7.7
Sept. 4-5	685	--	--	260	76	1,240	--	76	0	40	2,500	--	--	--	4,810	6.54	8,900	960	898	74	17	7,680	7.6
Sept. 6-10	258	--	--	208	49	919	--	112	0	36	1,800	--	--	--	3,550	4.83	2,470	720	628	74	15	5,980	7.7
Sept. 11, 13	321	--	--	176	49	747	--	106	0	42	1,500	--	--	--	2,780	3.78	2,410	640	553	72	13	4,910	7.7
Sept. 12, 15	368	--	--	248	66	1,010	--	112	0	40	2,120	--	--	--	3,900	5.30	3,880	890	798	71	15	6,790	7.8
Sept. 14	400	--	--	112	32	461	--	76	0	23	950	--	3.3	--	1,800	2.45	1,940	410	348	71	9.9	3,260	7.5
Sept. 16	400	--	--	375	108	1,770	--	80	0	41	3,590	--	--	--	6,520	8.87	7,040	1,380	1,310	74	21	11,100	7.7
Sept. 17-18	252	--	--	604	186	3,150	--	68	0	46	6,260	--	--	--	11,100	15.10	7,550	2,270	2,210	75	29	17,900	7.7
Sept. 19-20	202	--	--	280	76	1,340	--	84	0	36	2,750	--	--	--	4,890	6.65	2,670	1,010	941	74	18	8,410	7.7
Sept. 21-23	169	--	--	312	103	1,580	--	112	0	62	3,100	--	--	--	5,670	7.71	2,590	1,200	1,110	74	20	9,720	8.1
Sept. 24	1,640	--	--	208	73	1,040	--	106	0	49	2,020	--	--	--	3,740	5.09	16,560	820	733	73	16	6,590	7.9
Sept. 25-26, 28	6,923	--	--	46	16	162	--	94	0	23	305	--	1.0	--	646	.88	12,080	180	103	66	5.2	1,210	7.7
Sept. 27, 29-30	6,697	--	--	72	32	374	--	86	0	24	720	--	2.0	--	1,380	1.88	24,950	310	240	72	9.2	2,520	7.6
Weighted average	2,601	--	--	96	24	349	--	a109	--	41	678	--	--	--	1,420	1.93	9,970	338	248	69	8.2	2,440	--

a Includes equivalent of individual carbonate values shown above.

ARKANSAS RIVER BASIN--Continued

CANADIAN RIVER NEAR WHITEFIELD, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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, 6¼ 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 September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 1, 1954	0	1.2	0.07	13	3.2	4.9	1.7	54	6.8	6.8	0.3	0.8	69	46	1	122	7.1	5
Oct. 21	30	5.4	.21	11	2.4	2.7	2.2	39	5.2	3.0		3.0	85	37	5	95.0	7.0	60
Nov. 8	59	--	--	11	2.4	4.6	--	34	8.8	6.5		2.1	62	37	9	99.7	7.8	10
Dec. 10	11	--	--	12	2.6	13	--	42	6.6	15		.5	79	41	6	142	6.9	5
Jan. 13, 1955	525	--	--	8.5	1.6	2.7	.7	26	6.0	3.5		3.4	54	28	6	75.2	7.0	10
Feb. 9	439	--	--	6.8	1.4	2.0	--	26	7.2	3.5		1.5	62	28	6	72.0	7.4	20
Mar. 15	184	--	--	9.6	1.8	2.4	--	31	7.6	3.5		1.4	60	31	6	80.2	7.5	13
Apr. 6	520	--	--	9.0	1.3	2.2	.8	32	7.4	3.0		.4	59	28	2	69.2	7.8	17
June 15	3,740	--	--	4.9	2.0	1.0	2.5	20	4.2	3.2		1.0	54	20	4	52.2	6.5	30
June 29	73	--	--	12	1.9	2.6	1.3	48	2.8	3.0		.0	63	38	0	98.7	7.5	4
July 12	16	--	--	14	2.2	3.1	--	54	4.0	3.5		1.0	63	44	0	106	7.5	4
Aug. 12	22	--	--	13	1.8	3.4	--	50	1.0	3.5		.7	62	40	0	100	7.4	5
Sept. 28	1.4	--	--	12	1.8	3.0	--	46	3.0	4.2		.3	55	37	0	96.9	7.1	7

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 1955.
Water temperatures: October 1945 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,620 ppm Feb. 14-15; minimum, 144 ppm Mar. 20.
Hardness: Maximum, 550 ppm Feb. 14-15; minimum, 40 ppm Mar. 20.
Specific conductance: Maximum daily, 4,460 micromhos Feb. 15; minimum daily, 169 micromhos Mar. 20.
Water temperatures: Maximum, 88°F July 29; minimum, freezing point Feb. 12.
EXTREMES, 1945-55.--Dissolved solids: Maximum, 5,830 ppm Apr. 1, 1954; minimum, 144 ppm Mar. 20, 1955.
Hardness: Maximum, 1,100 ppm Apr. 1, 1954; minimum, 40 ppm Mar. 20, 1955.
Specific conductance: Maximum daily, 8,980 micromhos Apr. 1, 1954; minimum daily, 132 micromhos May 11, 1948.
Water temperatures: Maximum, 88°F Aug. 23, 1951, June 13, 1953, July 14, 18, 1954, July 29, 1955; minimum, freezing point Jan. 30, 1947, Dec. 22, 1953, Feb. 12, 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in perts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific coaductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-2, 1954	664	8.3	0.02	68	16	182	5.3	173	36	330	0.5	1.0	0.00	799	1.09	1,430	236	94	62	5.2	1,420	8.0	10
Oct. 3-4	566	8.8	.08	71	22	242	6.8	179	39	430	.5	2.0	.05	982	1.34	1,500	268	121	66	6.4	1,640	8.1	10
Oct. 5-10	530	10	.02	86	21	290	8.0	188	47	520	.5	2.0	.05	1,160	1.58	1,660	301	147	67	7.3	2,060	8.1	10
Oct. 11-12	639	10	.02	81	22	270	7.2	182	44	492	.5	2.5	.00	1,110	1.51	1,920	292	144	66	6.9	1,960	7.7	10
Oct. 13	1,220	--	--	65	17	210	--	149	39	380	--	2.0	.05	845	1.15	2,780	232	110	66	6.0	1,530	8.2	10
Oct. 14-16	2,282	8.8	.25	78	25	292	7.2	158	50	538	.5	2.5	.00	1,190	1.62	7,330	298	168	67	7.3	2,090	7.4	10
Oct. 17	7,840	--	--	62	14	177	--	131	38	322	--	3.1	.10	725	.99	14,960	212	104	64	5.3	1,330	8.0	10
Oct. 18-22	3,544	7.6	.02	46	10	101	4.3	98	34	185	.5	2.6	.00	497	.68	4,760	156	76	58	3.5	870	7.5	10
Oct. 23	4,300	--	--	73	20	272	--	97	44	520	--	2.2	--	1,050	1.43	12,190	264	184	69	7.3	1,880	7.0	10
Oct. 24	3,630	--	--	56	11	151	--	108	63	255	--	3.5	--	614	.84	6,020	184	96	64	4.8	1,120	7.7	10
Oct. 25-26	3,145	8.6	.06	43	11	108	4.4	95	45	183	.5	2.8	.05	490	.67	4,160	152	74	60	3.8	865	7.2	10
Oct. 27	2,160	--	--	54	13	149	--	112	58	260	--	2.0	.10	629	.86	3,670	188	96	63	4.7	1,130	8.2	10
Oct. 28	2,230	--	--	71	18	246	--	120	78	425	--	2.9	--	975	1.33	5,870	251	152	68	6.8	1,700	7.9	10
Oct. 29	4,390	--	--	112	32	519	--	123	81	945	--	2.4	.05	1,860	2.53	22,050	411	310	73	11	3,230	7.6	10
Oct. 30	10,700	--	--	62	13	155	--	126	56	270	--	1.5	--	655	.89	18,920	208	105	62	4.7	1,190	8.2	10
Oct. 31, Nov. 1-4	5,780	5.9	.04	44	8.8	85	4.5	93	38	150	.5	2.0	.10	428	.58	6,680	146	70	55	3.1	752	8.0	10

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT VAN BUREN, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Nov. 5-6, 1954	2,600	4.0	0.05	55	12	131	5.1	105	48	240	0.5	3.8	0.00	601	0.82	4,220	186	100	60	4.2	1,060	8.0	12
Nov. 7-8	2,560	4.3	.01	60	13	146	5.1	120	49	270	.5	2.1	.05	668	.91	4,620	203	104	60	4.4	1,180	7.4	10
Nov. 9-10	2,310	6.5	.02	70	16	205	6.2	120	55	375	.6	1.2	.10	876	1.19	5,460	240	142	64	5.8	1,540	7.2	10
Nov. 11-20	2,225	3.6	.00	65	14	146	5.4	133	57	270	.6	1.8	.05	688	.94	4,130	220	110	58	4.3	1,210	7.7	10
Nov. 21-30	2,165	4.8	.01	65	14	135	5.4	139	62	245	.6	.6	.05	651	.89	3,810	220	106	56	4.0	1,150	7.2	10
Dec. 1-2	1,870	4.8	.04	69	13	124	4.9	150	58	230	.6	.3	.10	626	.85	3,160	226	102	54	3.6	1,100	7.6	10
Dec. 3	2,100	--	--	79	17	178	--	148	65	330	--	1.1	.05	883	1.20	5,010	267	146	59	4.8	1,440	8.2	11
Dec. 4-6	2,053	3.2	.02	69	13	132	5.3	a 145	60	245	.6	.9	.05	673	.92	3,730	226	106	55	3.8	1,150	8.3	12
Dec. 7-10	1,485	2.4	.04	68	14	124	4.9	155	56	217	.1	1.8	.15	620	.84	2,490	227	100	54	3.6	1,070	8.2	5
Dec. 11-13	2,033	3.1	.00	72	14	148	5.6	147	61	268	.5	1.3	.05	706	.96	3,880	237	116	57	4.2	1,250	7.8	10
Dec. 14-15	2,240	3.8	.02	46	10	92	4.0	110	41	159	.5	.4	.05	422	.57	2,550	156	66	55	3.2	804	7.9	10
Dec. 16-17	2,760	3.2	.04	40	11	78	3.8	90	45	136	.6	.7	.05	389	.53	2,900	145	71	53	2.8	695	7.4	8
Dec. 18	3,090	--	--	49	11	101	--	98	40	192	--	1.6	--	534	.73	4,460	167	86	57	3.4	858	6.9	10
Dec. 19-20	2,920	3.1	.04	62	13	155	5.1	112	50	295	.6	1.2	.00	704	.96	5,550	208	116	61	4.7	1,250	7.8	8
Dec. 21-23	2,080	2.3	.02	67	15	178	5.0	115	49	335	.6	.9	.05	778	1.06	4,370	228	134	62	5.1	1,370	7.7	8
Dec. 24-25	2,165	2.4	.00	78	17	211	8.0	130	53	395	.6	.5	.10	916	1.25	5,350	264	158	63	5.6	1,600	7.8	8
Dec. 26-27	2,325	2.4	.02	82	23	260	8.1	136	61	490	.6	1.7	.05	1,110	1.51	6,970	299	188	65	6.5	1,920	7.4	10
Dec. 28	12,600	--	--	36	7.7	75	--	65	26	145	--	2.8	--	409	.56	13,910	122	68	57	3.0	658	6.6	15
Dec. 29-30	23,500	3.3	.08	27	7.0	58	3.5	58	22	106	.6	.9	.05	318	.43	20,180	96	49	56	2.6	525	7.1	15
Dec. 31	20,000	--	--	32	7.9	75	--	55	26	147	--	3.3	--	407	.55	21,980	112	68	59	3.1	650	6.6	13
Jan. 1-2, 1955	16,800	2.4	.13	21	5.7	46	2.9	46	20	82	.5	2.2	.05	236	.32	10,700	76	38	56	2.3	402	7.3	30
Jan. 3-4	12,150	2.9	.01	33	7.4	108	3.7	41	22	212	.4	2.8	.10	481	.65	15,780	113	80	67	4.4	844	7.2	45
Jan. 5	9,210	--	--	57	13	216	--	48	25	418	--	4.6	.05	925	1.26	23,000	196	156	71	6.7	1,520	7.1	10
Jan. 6-7	7,010	1.8	.00	110	28	437	7.4	80	45	880	.3	3.4	.10	1,640	2.23	31,040	390	324	70	9.6	3,070	7.2	30
Jan. 8-9	6,590	4.7	.00	102	23	390	10	97	52	755	.3	3.7	.05	1,370	1.86	24,380	349	270	70	9.1	2,690	7.3	20
Jan. 10	8,730	1.0	.00	89	24	324	11	109	54	620	.3	3.4	--	1,310	1.78	30,880	320	231	68	7.9	2,310	8.0	15
Jan. 11	9,930	--	--	71	14	184	--	106	42	352	--	6.5	--	867	1.18	23,250	234	148	63	5.2	1,430	6.8	10
Jan. 12-13	8,180	3.2	.00	57	15	138	4.9	93	48	275	.4	5.5	.05	670	.91	14,800	204	128	59	4.2	1,160	7.7	20

a Includes 2 parts per million of carbonate (CO_3).

Jan. 14-15, 1955..	8,070	3.6	.00	56	17	160	5.0	90	50	310	.5	3.8	.05	734	1.00	15,990	210	136	62	4.8	1,250	7.8	--
Jan. 16.....	10,200	--	--	48	10	123	--	72	40	232	--	5.7	--	588	.80	16,190	161	102	62	4.2	986	7.9	10
Jan. 17-18.....	10,300	4.0	.02	39	12	113	3.8	60	37	210	.5	3.0	--	511	.69	14,210	147	98	62	4.0	869	7.7	37
Jan. 19-20.....	10,300	5.2	.03	51	11	152	4.6	68	37	292	.5	2.9	.05	657	.89	18,270	172	116	65	5.0	1,150	7.5	13
Jan. 21-23.....	8,597	5.3	.02	49	10	114	4.0	80	42	212	.5	1.9	.05	541	.74	12,560	163	98	60	3.9	930	7.8	8
Jan. 24-27.....	6,852	4.2	.02	63	14	165	5.1	96	50	310	.5	3.7	.05	746	1.01	13,800	214	136	62	4.9	1,280	7.5	6
Jan. 28-29.....	6,280	4.0	.00	70	16	187	5.6	104	54	355	.4	3.6	.10	854	1.16	14,480	240	156	62	5.2	1,470	7.7	9
Jan. 30-31.....	6,590	3.9	.02	63	13	151	5.7	99	51	292	.4	4.0	.10	725	.99	12,900	210	130	60	4.5	1,230	7.8	8
Feb. 1.....	5,370	2.4	.01	63	15	156	5.4	98	51	300	.0	7.6	--	794	1.08	11,510	218	138	60	4.6	1,260	8.0	7
Feb. 2.....	4,390	2.6	.00	66	19	183	5.0	106	49	350	.0	3.7	--	897	1.22	10,630	242	156	62	5.1	1,440	7.5	6
Feb. 3-5.....	4,307	5.0	.01	77	17	212	5.3	118	52	410	.2	4.0	.00	924	1.26	10,750	260	164	63	5.7	1,670	7.5	--
Feb. 6.....	7,640	--	--	48	13	145	--	70	43	270	--	6.5	.00	718	.98	14,810	174	116	65	4.8	1,090	7.3	10
Feb. 7-8.....	7,850	4.8	.03	40	9.7	109	4.2	58	39	202	.0	2.7	.05	529	.72	11,210	140	92	62	4.0	864	6.7	8
Feb. 9.....	7,640	3.6	.03	46	14	170	4.9	53	28	338	.0	3.7	--	836	1.14	17,250	172	129	67	5.6	1,270	7.8	8
Feb. 10	6,590	--	--	28	9.6	87	--	48	19	167	--	1.6	--	461	.63	8,200	110	70	63	3.6	698	7.7	35
Feb. 11	5,370	--	--	48	11	140	--	65	28	278	--	1.2	.00	747	1.02	10,830	165	112	65	4.7	1,100	7.9	15
Feb. 12	4,770	1.1	.02	68	19	240	7.2	78	39	470	.0	2.0	--	1,080	1.47	13,910	248	184	67	6.6	1,750	8.1	9
Feb. 13	3,920	3.8	.04	115	30	458	10	92	50	905	.0	1.8	--	2,000	2.72	21,170	410	335	70	9.8	3,180	7.1	6
Feb. 14-15.....	3,095	5.5	.00	166	33	691	13	111	48	1,320	.3	4.6	.09	2,620	3.56	21,890	550	459	73	13	4,440	7.5	--
Feb. 16-17.....	4,110	7.5	.00	112	22	457	11	98	44	875	.3	2.4	.12	1,890	2.30	18,750	370	290	72	10	3,020	7.8	--
Feb. 18.....	4,770	4.1	.06	102	28	400	10	100	50	785	.0	4.6	--	1,770	2.41	22,800	370	288	69	9.0	2,790	8.2	7
Feb. 19	10,000	3.2	.00	83	21	322	8.2	91	48	610	.0	3.0	--	1,390	1.89	37,530	294	219	70	8.2	2,230	7.6	6
Feb. 20	36,600	--	--	40	10	122	--	60	31	225	--	2.7	.05	522	.71	51,580	141	92	65	4.5	917	7.1	15
Feb. 21-25.....	27,220	5.0	.33	24	4.4	56	2.8	48	25	98	.3	4.8	.05	275	.37	20,210	78	38	60	2.8	474	7.5	--
Feb. 26	18,400	--	--	27	7.1	73	--	37	19	142	--	3.3		375	.51	18,630	96	66	62	3.2	607	7.2	45
Feb. 27	13,500	--	--	31	8.3	81	--	49	29	150	--	2.1	.00	403	.55	14,690	112	72	61	3.3	669	7.7	30
Feb. 28	11,500	--	--	45	10	120	--	62	30	228	--	1.9	.05	577	.78	17,920	154	102	63	4.2	949	7.9	20
Mar. 1	11,200	3.2	.02	48	11	148	4.7	66	38	275	.0	4.0	--	686	.93	20,740	165	111	65	5.0	1,120	8.0	10
Mar. 2-3	12,750	2.0	.02	43	12	125	4.4	63	38	240	.0	4.9	.10	622	.85	21,410	157	106	63	4.3	994	7.6	11
Mar. 4	11,200	1.8	.00	50	13	159	5.0	63	36	315	.0	2.9	--	793	1.08	23,980	178	127	65	5.2	1,250	7.8	9
Mar. 5-6	8,750	4.0	.04	48	11	129	5.6	74	40	242	.2	4.2	.06	559	.76	13,210	165	104	62	4.4	1,010	7.0	--
Mar. 7	8,070	3.4	.05	51	12	162	5.0	72	39	300	.1	2.3	--	711	.97	15,490	176	118	66	5.3	1,200	7.9	10
Mar. 8	8,070	3.3	.01	70	18	249	7.0	71	44	480	.1	2.8	--	1,110	1.51	24,190	248	190	68	6.8	1,810	7.9	7
Mar. 9-10	9,585	5.5	.04	46	8.5	146	5.2	60	31	285	.2	3.5	.08	624	.85	16,150	150	101	67	5.2	1,130	7.1	--

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT VAN BUREN, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Mar. 11-15, 1955..	6,852	2.2	0.02	51	13	178	4.7	69	45	326	0.2	3.4	0.10	779	1.06	14,410	180	129	68	5.8	1,300	7.8	6
Mar. 16-17.....	7,325	5.0	.01	44	9.7	138	5.2	69	42	252	.2	2.5	.08	591	.80	11,890	150	94	66	4.9	1,060	7.2	--
Mar. 18.....	14,900	--	--	26	5.8	73	--	45	29	126	--	3.1	.00	359	.49	14,440	89	52	64	3.4	553	7.8	33
Mar. 19.....	20,900	--	--	13	5.2	38	--	28	19	66	--	2.6	--	236	.32	13,320	54	31	60	2.2	311	7.6	17
Mar. 20.....	25,800	--	--	10	3.5	17	--	24	18	26	--	3.4	--	144	.20	10,030	40	20	48	1.2	171	7.4	15
Mar. 21.....	53,800	--	--	20	5.8	46	--	42	19	82	--	3.6	--	269	.37	39,070	74	40	57	2.3	390	7.8	10
Mar. 22.....	71,400	--	--	17	2.9	27	--	38	14	46	--	2.4	--	209	.28	40,290	54	24	52	1.6	258	7.8	10
Mar. 23.....	72,600	--	--	30	6.6	77	--	49	18	152	--	2.8	--	424	.58	83,110	102	62	62	3.3	636	7.8	35
Mar. 24.....	58,100	--	--	46	11	136	--	64	26	262	--	4.0	.05	670	.91	105,100	160	108	65	4.7	1,020	7.6	20
Mar. 25.....	41,800	--	--	36	7.1	80	--	67	25	150	--	3.8	--	436	.59	49,210	119	64	59	3.2	675	7.9	20
Mar. 26-27.....	28,800	4.6	.04	28	6.0	62	2.9	51	24	114	.1	2.0	.15	341	.46	26,520	94	52	58	2.8	543	7.1	20
Mar. 28-29.....	20,450	4.2	.07	32	6.4	71	3.0	56	27	136	.1	2.3	.10	389	.53	21,480	106	60	58	3.0	814	7.1	30
Mar. 30-31.....	18,800	4.0	.08	24	6.8	54	2.6	48	24	98	.1	1.6	.05	292	.40	14,820	88	50	56	2.5	468	7.0	30
Apr. 1-2.....	19,650	--	--	20	5.2	42	--	42	24	72	--	2.3	.05	239	.33	12,680	72	37	56	2.2	385	7.0	50
Apr. 3-7.....	19,400	4.2	.13	18	4.2	32	2.8	36	19	59	.2	2.3	.05	218	.30	11,420	62	33	51	1.8	308	7.4	45
Apr. 8-9.....	17,400	--	--	21	4.8	44	--	42	24	79	--	1.0	.05	252	.34	11,840	72	38	57	2.3	394	7.6	40
Apr. 10.....	14,700	--	--	22	6.2	57	--	42	25	100	--	1.5	.05	300	.41	11,910	80	46	61	2.8	460	7.6	45
Apr. 11.....	10,200	--	--	43	9.5	107	--	74	38	191	--	1.3	.00	528	.72	14,540	146	86	61	3.8	837	7.8	17
Apr. 12-15.....	9,920	3.3	.02	54	11	146	3.6	70	45	281	.2	2.8	.00	660	.90	17,680	180	122	63	4.7	1,110	7.8	7
Apr. 16.....	13,800	3.4	.02	60	14	206	7.6	74	48	378	.2	3.4	--	887	1.21	33,050	207	146	67	6.3	1,440	7.5	15
Apr. 17-18.....	11,400	3.8	.03	76	20	270	9.4	76	41	535	.2	3.1	.05	1,160	1.58	35,700	272	209	67	7.1	1,940	6.9	10
Apr. 19.....	8,290	2.4	.01	89	20	330	9.5	74	42	640	.1	8.2	--	1,350	1.84	30,220	304	244	69	8.2	2,310	7.7	8
Apr. 20.....	9,690	4.4	.18	69	18	261	8.3	69	40	490	.0	4.2	--	1,060	1.44	27,730	246	190	69	7.3	1,810	7.5	8
Apr. 21.....	11,800	--	--	50	9.9	155	--	67	37	288	--	2.2	.05	723	.98	23,030	166	110	67	5.2	1,140	7.5	22
Apr. 22-23.....	15,350	4.0	.02	40	8.8	108	4.9	65	31	205	.3	1.9	.05	506	.69	20,970	136	83	62	4.0	845	7.6	8
Apr. 24-26.....	14,370	4.2	.11	24	6.6	50	3.2	49	23	91	.3	2.9	.05	277	.38	10,750	87	47	54	2.3	457	7.0	10
Apr. 27.....	8,510	--	--	31	8.3	67	--	60	30	122	--	.8	--	369	.50	8,480	112	62	57	2.8	590	7.5	22
Apr. 28-30.....	7,790	2.4	.01	44	9.9	108	5.1	83	42	190	.0	3.8	.10	541	.74	11,380	150	82	60	3.8	862	7.6	10
May 1.....	6,380	4.6	.02	55	13	164	7.2	82	51	305	.3	3.8	--	747	1.02	12,870	190	124	64	5.2	1,240	8.1	7
May 2.....	5,370	3.8	.07	56	14	218	7.2	76	49	366	.3	5.4	--	851	1.16	12,340	197	134	70	6.8	1,510	7.9	5
May 3.....	4,580	4.6	.00	64	14	315	10	86	64	535	.3	3.8	--	1,160	1.58	14,340	217	146	75	9.3	2,070	8.1	6
May 4-5.....	5,480	3.8	.00	83	18	433	12	114	78	730	.3	4.4	--	1,500	2.04	22,190	281	188	76	11	2,670	7.0	8
May 6.....	6,590	4.6	.01	71	18	328	10	120	72	540	.4	5.4	--	1,180	1.60	21,000	251	152	73	9.0	2,100	8.1	7

May 7, 1955	6,380	5.1	.04	66	14	253	8.9	114	63	420	.3	4.3	--	955	1.30	16,450	222	128	70	7.4	1,690	7.9	8
May 8	6,170	3.1	.00	61	15	190	4.3	109	54	335	.3	4.3	--	795	1.08	13,240	214	124	65	5.6	1,380	8.1	7
May 9-10	4,635	2.9	.03	70	18	250	10	95	54	460	.2	4.8	--	988	1.34	12,360	248	170	68	6.9	1,760	7.2	5
May 11	5,270	3.0	.05	85	20	325	13	91	53	610	.3	3.2	--	1,290	1.75	18,360	294	220	69	8.2	2,220	8.0	8
May 12	7,640	9.9	.00	89	23	285	14	b143	133	475	.6	7.6	--	1,200	1.63	24,750	316	200	65	7.0	2,010	8.3	8
May 13	8,510	4.6	.05	77	18	259	11	124	103	430	.5	5.1	--	1,090	1.48	25,040	266	164	67	6.9	1,800	8.1	9
May 14	20,800	7.8	.00	78	20	238	10	136	91	400	.4	6.0	--	1,030	1.40	57,840	276	165	64	6.2	1,710	8.1	7
May 15	40,900	3.4	.06	111	18	384	14	118	60	710	.4	8.0	--	1,530	2.08	169,000	351	254	69	8.9	2,600	8.2	13
May 16	36,600	5.0	.03	75	13	263	10	119	51	460	.3	6.5	--	1,040	1.41	102,800	240	143	69	7.4	1,780	8.1	15
May 17-20	18,980	3.0	.00	56	12	171	8.0	119	58	285	.3	5.4	--	696	.95	35,670	189	92	65	5.4	1,240	7.0	10
May 21	32,000	5.9	.02	72	15	214	9.2	131	66	370	.4	5.9	--	897	1.22	77,500	241	134	65	6.0	1,560	8.1	10
May 22-23	84,250	7.4	.07	62	11	160	7.1	129	34	285	.3	4.4	--	692	.94	157,400	200	94	63	4.9	1,220	7.3	13
May 24	96,800	9.0	.04	59	11	170	7.1	127	51	285	.5	4.2	--	720	.98	188,200	192	88	65	5.3	1,230	8.2	10
May 25-28	73,500	6.8	.00	64	16	288	9.8	128	86	460	.5	4.5	--	1,060	1.44	210,400	228	120	72	8.3	1,860	8.0	12
May 29-30	72,250	5.6	.04	70	16	356	10	144	80	570	.5	5.7	--	1,250	1.70	243,800	240	122	75	10	2,220	8.0	13
May 31	99,400	--	.00	52	8.2	189	7.8	128	58	290	--	5.3	--	723	.98	194,000	164	58	70	6.4	1,280	8.1	15
June 1-6	49,180	6.2	.02	49	8.6	92	5.3	114	41	155	.2	3.9	.00	459	.62	60,950	158	64	55	3.2	783	7.5	16
June 7-8	19,350	7.6	.02	61	12	146	7.5	122	66	245	.3	4.6	--	670	.91	35,000	202	102	60	4.5	1,140	7.1	9
June 9-10	17,200	5.6	.07	71	14	246	11	130	77	400	.3	4.8	--	976	1.33	45,330	234	128	68	7.0	1,650	7.3	10
June 11-12	15,250	8.1	.00	75	16	274	10	134	86	455	.2	5.4	--	1,090	1.48	44,880	253	143	69	7.5	1,860	7.5	8
June 13-14	15,200	5.8	.02	99	23	389	13	164	134	635	.3	8.0	--	1,480	2.01	60,740	342	207	70	9.2	2,540	7.4	10
June 15	18,500	12	.09	84	19	303	12	163	112	485	.3	5.9	--	1,200	1.63	59,940	288	154	69	7.7	2,040	7.3	15
June 16-18	16,300	5.8	.00	72	15	236	6.5	135	93	382	.3	6.3	--	934	1.27	41,110	241	130	67	6.6	1,640	6.8	7
June 19	20,300	6.9	.08	79	16	294	10	138	107	470	.1	4.3	--	1,130	1.54	61,940	263	150	70	7.9	1,920	7.6	16
June 20-21	18,100	5.6	.00	87	16	206	5.8	204	87	325	.5	1.1	--	873	1.19	42,660	283	116	61	5.3	1,500	7.4	17
June 22	34,400	10	.08	111	24	466	14	149	123	820	.2	5.6	--	1,820	2.48	169,000	376	254	72	10	3,060	7.4	11
June 23	49,400	9.9	.00	74	15	262	11	137	109	400	.3	6.1	--	996	1.35	132,800	246	134	69	7.3	1,740	7.5	17
June 24-26	39,870	9.8	.00	65	12	221	6.5	122	85	355	.3	1.9	--	881	1.20	94,840	212	112	69	6.6	1,530	7.2	21
June 27	28,800	10	.01	72	13	240	7.6	122	88	390	.5	2.5	--	975	1.33	75,820	233	133	68	6.8	1,650	7.1	21
June 28-29	23,000	9.8	.00	77	14	348	8.8	120	104	580	.4	1.5	--	1,290	1.75	80,110	250	164	74	9.6	2,210	7.5	24
June 30	27,000	9.4	.01	84	19	484	9.8	125	136	750	.3	2.8	--	1,680	2.28	122,500	288	185	78	12	2,880	7.4	26

b Includes 1 part per million of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT VAN BUREN, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
July 1, 1955	30,600	7.0	0.04	69	12	282	11	114	110	440	0.3	3.6	--	1,050	1.43	86,750	222	128	72	8.3	1,840	7.7	8
July 2	39,000	7.3	.15	68	12	225	9.2	119	113	345	.3	5.8	--	855	1.16	90,030	219	122	68	6.6	1,510	7.7	9
July 3-6	26,820	7.0	.01	65	12	183	7.8	125	122	282	.3	3.0	0.10	759	1.03	54,960	212	109	64	5.5	1,320	7.5	7
July 7-9	14,630	5.7	.01	71	13	216	11	124	130	328	.3	5.5	.05	864	1.18	34,130	230	129	66	6.2	1,490	7.8	7
July 10	16,800	8.8	.04	77	13	231	9.9	130	125	365	.3	4.6	.10	922	1.25	41,820	246	139	66	6.4	1,600	8.0	7
July 11-12	16,400	4.6	.00	72	14	184	8.2	128	126	295	.4	4.8	.15	802	1.09	35,510	237	132	62	5.2	1,380	7.7	8
July 13-14	15,200	7.7	.02	79	14	254	9.4	132	133	395	.3	4.0	.05	1,000	1.36	41,040	254	146	67	6.9	1,730	7.8	7
July 15	13,700	3.4	.03	72	12	205	8.0	130	116	310	.3	3.0	--	826	1.12	30,550	229	122	65	5.9	1,430	8.0	7
July 16-19	10,620	7.9	.00	60	14	148	6.4	123	72	240	.3	3.8	.00	691	.94	19,810	207	106	60	4.5	1,170	8.0	10
July 20	7,980	6.2	.03	74	14	204	7.8	140	114	315	.4	2.6	--	836	1.14	18,010	242	128	64	5.7	1,450	8.2	9
July 21	9,280	5.6	.04	83	16	256	9.8	142	145	400	.4	2.5	--	1,010	1.37	25,310	273	156	66	6.7	1,740	8.2	9
July 22	9,560	4.2	.05	76	14	197	8.8	132	106	318	.3	2.5	--	838	1.14	21,630	247	139	62	5.5	1,440	7.6	7
July 23	8,220	4.2	.02	74	14	201	7.7	124	107	322	.3	2.6	--	845	1.15	18,750	242	140	63	5.6	1,440	7.7	7
July 24	7,500	6.3	.04	66	13	180	7.9	114	100	295	.3	2.5	--	753	1.02	15,250	218	124	63	5.3	1,320	7.7	7
July 25-26	7,390	3.5	.01	75	14	228	6.9	108	103	380	.3	2.8	.10	900	1.22	17,960	244	156	66	6.3	1,580	7.0	7
July 27-29	7,427	2.8	.00	83	18	327	9.5	94	89	570	.3	2.5	.05	1,230	1.67	24,670	281	204	71	8.5	2,170	7.0	7
July 30-31	7,040	2.1	.02	64	15	256	7.5	82	98	430	.3	2.0	.05	967	1.32	18,380	221	154	71	7.5	1,720	7.0	9
Aug. 1-7	5,903	2.9	.08	58	15	228	7.8	83	82	385	.3	2.6	.00	882	1.20	14,060	206	138	70	6.9	1,570	7.2	10
Aug. 8-9	5,160	2.8	.08	75	17	294	10	86	86	510	.3	2.3	.10	1,130	1.54	15,740	257	186	70	8.0	1,980	7.0	7
Aug. 10	5,340	2.1	.04	71	16	226	9.0	104	87	400	.3	2.0	.10	943	1.28	13,600	243	158	66	6.3	1,650	8.0	7
Aug. 11-12	6,930	5.9	.04	75	17	274	9.1	112	102	460	.3	2.7	.10	1,060	1.44	19,830	257	165	69	7.5	1,870	7.4	7
Aug. 13-14	5,950	3.2	.04	69	15	236	7.6	112	90	400	.3	2.5	.10	925	1.26	14,860	234	142	68	6.7	1,640	6.9	7
Aug. 15-16	5,125	4.5	.04	98	27	377	12	107	97	720	.3	2.1	--	1,520	2.07	21,030	356	268	69	8.7	2,650	7.4	7
Aug. 17-18	5,070	6.4	.08	117	29	478	15	109	78	900	.3	1.6	.15	1,840	2.50	25,190	411	322	71	10	3,160	7.5	7
Aug. 19	5,540	4.3	.08	85	22	391	12	86	104	710	.3	2.1	--	1,480	2.01	22,140	302	232	73	9.8	2,590	7.2	7
Aug. 20-21	5,440	5.6	.05	73	19	310	9.8	90	76	550	.3	2.1	.10	1,180	1.60	17,330	260	186	71	8.4	2,090	7.0	7
Aug. 22	5,140	2.8	.06	66	18	249	8.7	104	92	442	.3	.1	--	973	1.32	13,500	238	154	68	7.0	1,690	7.8	10
Aug. 23-24	4,150	2.9	.06	60	15	210	7.7	98	72	355	.3	3.5	.15	825	1.12	9,240	211	130	67	6.3	1,470	7.5	7
Aug. 25-27	5,027	4.3	.02	65	19	298	9.5	84	80	520	.3	1.5	.05	1,090	1.48	14,790	240	171	72	8.4	1,950	8.0	7
Aug. 28-29	5,240	2.8	.00	59	18	238	9.3	87	85	410	.3	1.6	.15	917	1.25	12,970	221	150	69	7.0	1,640	7.2	7
Aug. 30-31	4,945	2.5	.00	63	15	206	8.5	101	94	360	.3	1.9	.15	827	1.12	11,040	218	136	66	6.0	1,480	7.7	7

Sept. 1, 1955.....	8,740	4.8	.04	70	16	239	9.4	100	95	415	.2	1.7	--	941	1.28	22,210	240	158	67	6.7	1,680	8.0	7
Sept. 2.....	10,100	7.8	.04	77	16	286	11	102	78	500	.2	2.4	.25	1,090	1.48	29,720	258	174	70	7.7	1,920	7.7	7
Sept. 3-4.....	8,270	7.8	.02	59	12	174	8.8	106	67	305	.2	2.0	.00	714	.97	15,940	196	110	65	5.4	1,280	7.4	9
Sept. 5.....	6,160	3.5	.00	88	19	315	11	106	77	590	.2	2.6	--	1,250	1.70	20,790	298	210	69	7.9	2,160	7.9	7
Sept. 6.....	4,600	7.8	.04	137	28	543	13	108	69	1,040	.2	1.9	--	2,070	2.82	25,710	457	368	71	11	3,520	7.9	27
Sept. 7.....	2,890	6.3	.00	98	24	343	13	114	60	670	.2	2.6	--	1,400	1.90	10,920	343	250	67	8.0	2,420	7.7	15
Sept. 8-10.....	4,250	3.5	.00	87	20	320	11	106	71	590	.2	1.3	.10	1,260	1.71	14,460	299	212	69	8.0	2,190	7.5	13
Sept. 11.....	5,140	3.5	.00	58	13	222	8.5	74	62	390	.2	1.9	--	848	1.15	11,770	198	138	70	6.9	1,530	7.6	13
Sept. 12-14.....	3,870	4.2	.00	64	13	187	7.6	100	78	325	.3	1.8	.10	753	1.02	7,870	213	131	65	5.5	1,340	7.8	13
Sept. 15.....	5,340	2.8	.00	66	15	196	8.0	112	67	340	.2	2.3	--	786	1.07	11,330	226	134	64	5.7	1,400	7.9	10
Sept. 16.....	5,740	3.1	.02	68	14	220	9.5	98	72	388	.3	1.7	--	880	1.20	13,640	227	146	67	6.4	1,550	7.9	7
Sept. 17.....	5,140	3.5	.00	55	11	151	7.0	88	62	275	.3	2.5	--	655	.89	9,090	182	110	63	4.9	1,170	7.8	7
Sept. 18.....	4,780	2.8	.02	64	13	203	8.6	94	79	350	.3	2.2	--	795	1.08	10,260	213	136	66	6.0	1,410	7.8	10
Sept. 19-20.....	3,850	3.6	.01	73	18	258	9.6	88	77	490	.3	2.5	.10	1,060	1.44	11,020	256	184	68	7.0	1,850	7.6	7
Sept. 21.....	2,970	3.9	.05	91	21	338	11	84	66	650	.3	1.9	--	1,390	1.89	11,150	314	244	69	8.3	2,370	7.7	7
Sept. 22.....	4,780	3.1	.01	107	26	462	12	86	78	880	.3	1.6	--	1,750	2.38	22,590	374	304	72	10	3,050	7.6	7
Sept. 23.....	5,340	3.4	.08	85	20	382	11	84	94	700	.3	2.3	--	1,440	1.96	20,760	294	225	73	9.7	2,570	7.4	9
Sept. 24-26.....	5,207	3.6	.01	73	14	264	8.0	94	80	460	.3	2.7	.15	1,010	1.37	14,200	240	162	70	7.4	1,820	7.4	12
Sept. 27.....	7,040	2.9	.01	84	16	295	9.4	109	71	530	.3	2.9	--	1,140	1.55	21,670	276	186	69	7.7	2,020	7.8	10
Sept. 28.....	7,500	4.2	.02	55	10	152	6.3	103	45	265	.3	3.0	--	615	.84	12,450	178	94	64	5.0	1,130	7.5	13
Sept. 29.....	13,000	4.8	.00	87	17	302	9.7	106	55	570	.3	4.6	--	1,190	1.62	41,770	287	200	69	7.8	2,130	7.5	15
Sept. 30.....	13,000	3.9	.02	69	13	169	6.9	125	51	322	.3	5.6	--	745	1.01	26,150	226	123	61	4.9	1,360	7.8	15
Weighted average	12,840	--	--	57	12	184	--	99	60	315	--	3.6	--	761	1.03	26,380	192	110	68	5.8	1,310	--	13

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT VAN BUREN, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 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)	Dissolved solids (rssidue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Nov. 24, 1954	22			2.1	1.6	1.9	--	14	1.4	2.0		0.4	40	12	0	36.4	7.0	5
Dec. 16	220			2.1	1.3	1.7	--	12	1.2	2.5		.5	43	11	1	37.8	7.0	20
Jan. 6, 1955	492			2.6	1.1	1.4	0.8	11	3.2	2.0		1.0	30	11	2	29.7	6.7	10
Feb. 16	414			2.8	.5	1.3	.8	8	3.2	2.5		.7	30	9	2	27.5	6.7	10
Mar. 10	341			2.0	1.2	1.5	.6	10	4.4	1.5		.2	36	10	2	30.4	6.8	18
Apr. 20	634			2.1	1.1	1.0	.9	13	.8	1.5		.1	32	10	0	32.0	7.2	10
May 12	273			2.9	1.1	1.0	1.0	15	1.2	1.8		.1	35	12	0	36.0	6.7	6
June 3	309			2.8	1.3	1.1	.9	15	1.8	2.0		.0	38	12	0	37.5	6.7	10
July 13	38			3.7	1.8	1.5	--	18	2.6	1.0		.1	30	17	2	37.9	7.4	6
Aug. 3	17			4.4	.8	1.8	--	19	.6	2.0		.5	30	14	0	40.4	7.0	5
Sept. 14	1.9			4.6	1.0	2.5	--	21	1.0	2.5		.5	32	16	0	45.2	7.1	5

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ARKANSAS RIVER BASIN--Continued

PINEY CREEK NEAR DOVER, ARK.

LOCATION.--At gaging station, 7¼ miles downstream from Indian Creek and 10 miles north of Dover, Pope County.
DRAINAGE AREA.--274 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Nov. 24, 1954	19			7.3	1.6	1.8	0.8	29	5.4	1.8		0.8	41	25	1	64.2	6.9	5
Dec. 15	217			6.4	1.3	1.2	--	20	5.4	1.2		1.2	53	21	5	55.9	6.5	15
Jan. 5, 1955	274			5.7	1.4	1.2	.4	21	3.0	1.8		1.2	38	20	3	44.8	7.4	10
Feb. 14	242			4.7	.9	.8	.5	16	3.8	1.5		.0	40	15	2	38.5	7.1	14
Mar. 9	225			5.4	.9	1.4	.5	19	3.6	1.5		.0	40	17	2	42.9	7.4	15
Apr. 20	820			4.1	1.3	.8	.9	20	.8	1.5		.2	38	16	0	42.8	7.7	8
May 12	582			6.8	1.7	1.0	--	22	2.4	4.0		.3	63	24	6	59.7	7.4	15
June 1	277			6.1	1.6	.7	--	26	.8	1.5		.0	44	22	0	52.1	7.3	10
July 13	12			9.7	1.9	1.4	1.5	38	3.0	1.8		.6	48	32	1	69.6	7.7	5
Aug. 2	12			8.4	1.1	1.6	--	33	1.0	1.5		.3	44	25	0	62.8	7.3	5
Sept. 13	2.6			10	1.5	1.4	--	38	1.8	2.0		.4	43	31	0	75.3	7.1	5

ILLINOIS BAYOU NEAR SCOTTSVILLE, ARK.

LOCATION.--At gaging station at bridge on county road, 1¼ 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 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Nov. 23, 1954	43			3.5	1.0	1.6	0.6	15	2.8	2.0		0.2	30	13	1	36.1	6.7	8
Dec. 15	221			2.5	1.0	2.1	1.0	12	3.6	2.8		.4	34	10	1	36.3	6.9	27
Jan. 5, 1955	221			2.8	.9	1.2	.8	12	2.8	2.0		.7	30	11	1	29.1	6.8	10
Feb. 14	214			2.4	.7	1.0	.4	8	4.6	1.5		.2	30	9	2	27.3	7.0	20
Mar. 9	228			2.1	.9	3.1		11	3.4	2.0		.3	33	9	0	27.3	7.0	20
Apr. 20	387			2.2	1.2	.8	.8	12	1.2	1.5		.1	28	10	1	29.6	7.4	7
May 12	384			2.9	1.3	.8	1.0	13	2.4	1.5		.1	36	13	2	35.6	6.6	16
June 1	253			2.4	1.5	.9	1.1	16	1.2	1.5		.0	35	12	0	32.2	7.4	11
July 13	17			4.0	1.6	1.6	--	20	2.0	2.0		.1	32	17	0	44.6	7.2	5
Aug. 2	11			4.0	1.1	2.1	1.1	20	.8	2.0		1.3	33	14	0	46.1	7.3	5
Sept. 13	0.2			5.4	1.2	1.9	--	22	.6	3.5		.1	32	18	0	49.7	7.0	5

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, and at mile 255.8.
DRAINAGE AREA.--153,707 square miles, of which 22,241 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1948 to September 1955.
Water temperatures: October 1948 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,720 ppm Aug. 21-22; minimum, 174 ppm Mar. 18-23.
Hardness: Maximum, 396 ppm Aug. 21-22; minimum, 50 ppm Mar. 18-23.
Specific conductance: Maximum daily, 3,170 micromhos Aug. 21; minimum daily, 107 micromhos Mar. 21.
Water temperatures: Maximum, 93°F July 29, Aug. 3; minimum, 39°F Feb. 13.
EXTREMES, 1948-55.--Dissolved solids: Maximum, 3,140 ppm Apr. 4-6, 1954; minimum, 160 ppm Feb. 12-13, 1950.
Hardness: Maximum, 583 ppm Apr. 4-6, 1954; minimum, 50 ppm Mar. 18-23, 1955.
Specific conductance: Maximum daily, 5,310 micromhos Apr. 4, 1954; minimum daily, 107 micromhos Mar. 21, 1955.
Water temperatures: Maximum, 94°F Aug. 17, 1952; minimum, freezing point Jan. 30, 1949, Feb. 1-3, 1951.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-10, 1954 ...	869	11	0.01	67	16	174	5.8	171	44	310	0.4	0.8	--	768	1.04	1,800	233	93	61	4.9	1,360	8.2	10
Oct. 11-17	934	--	--	67	16	190	--	184	37	318	--	1.6	--	757	1.03	1,910	233	82	64	5.4	1,370	8.2	10
Oct. 18-20	4,860	--	--	77	21	270	--	162	49	480	--	1.5	--	1,050	1.43	13,780	278	146	68	7.0	1,850	7.7	10
Oct. 21-23	6,037	--	--	36	8.4	74	--	91	24	130	--	2.3	--	373	.51	6,080	124	50	56	2.9	645	7.5	10
Oct. 24-27	7,220	--	--	36	8.7	91	--	66	26	175	--	2.6	--	439	.60	8,560	126	72	61	3.5	746	7.5	10
Oct. 28-31	4,888	--	--	34	7.9	70	--	80	32	118	--	2.4	--	349	.47	4,610	118	52	56	2.8	616	7.7	10
Nov. 1-7	7,054	--	--	40	8.1	73	--	85	36	126	--	3.5	--	348	.47	6,630	134	64	54	2.7	641	7.2	10
Nov. 8-12	3,172	8.7	.02	48	10	101	5.1	104	42	181	.5	1.8	--	495	.67	4,240	161	76	57	3.5	877	7.0	10
Nov. 13-16	2,818	--	--	64	15	168	--	124	52	295	--	2.3	--	724	.98	5,510	221	120	62	4.9	1,270	7.3	10
Nov. 17-20	2,128	--	--	61	14	139	--	131	53	237	--	2.2	--	606	.82	3,480	210	102	59	4.2	1,100	7.5	10
Nov. 21-30	2,501	--	--	68	13	132	--	146	55	240	--	.6	--	633	.86	4,270	223	104	56	3.8	1,100	7.5	7
Dec. 1-10, 12	2,090	3.1	.01	65	15	120	4.8	158	56	220	.5	1.1	--	602	.82	3,400	224	94	53	3.5	1,060	7.8	10
Dec. 11, 13	3,375	--	--	48	11	73	--	a127	38	131	--	.4	--	411	.56	3,750	165	61	49	2.5	713	8.3	6
Dec. 14-16	5,553	--	--	35	7.6	57	--	83	33	102	--	1.9	--	316	.43	4,740	119	51	51	2.3	548	7.1	8
Dec. 17-23	3,837	--	--	39	10	68	--	92	38	125	--	1.6	--	367	.50	3,800	138	63	52	2.5	635	7.8	9
Dec. 24-28	3,132	--	--	55	13	125	--	b111	42	235	--	1.2	--	600	.82	5,070	190	100	59	3.9	1,040	8.3	7
Dec. 29-31	33,800	--		18	4.1	27	--	47	13	48	--	3.2	--	179	.24	16,340	62	23	49	1.5	271	7.2	12

a Includes 3 parts per million of carbonate (CO_3).
b Includes 2 parts per million of carbonate (CO_3).

Jan. 1, 3-4, 1955..	22,600	--	--	26	5.9	52	--	57	21	96	--	2.9	--	280	.38	17,090	89	42	56	2.4	469	7.7	15
Jan. 2, 5-6	17,830	--	--	34	8.8	96	--	52	23	188	--	2.8	--	442	.60	21,280	121	78	63	3.8	757	7.2	10
Jan. 7-8	10,620	--	--	48	10	155	--	49	22	312	--	2.7	--	664	.90	19,040	161	121	68	5.3	1,180	7.1	10
Jan. 9-10	8,875	--	--	73	18	280	--	61	34	555	--	3.2	--	1,150	1.56	27,560	256	206	70	7.6	1,990	7.9	9
Jan. 11-13	10,570	--	--	67	19	248	--	82	42	470	--	3.7	--	1,020	1.39	29,110	245	178	69	6.9	1,810	7.3	6
Jan. 14-18	11,040	1.2	.01	44	11	110	3.9	73	35	204	.1	4.5	--	528	.72	15,740	155	95	60	3.8	879	7.5	5
Jan. 19-21	12,730	--	--	37	7.9	89	--	61	32	170	--	4.1	--	417	.57	14,330	125	75	61	3.5	728	7.8	10
Jan. 22-23	11,700	--	--	46	10	122	--	67	34	240	--	3.4	--	563	.77	17,790	156	101	63	4.3	980	7.2	7
Jan. 24-25	10,020	--	--	40	8.4	89	--	73	36	166	--	3.2	--	436	.59	11,800	134	74	59	3.3	754	7.4	8
Jan. 26-27	8,875	--	--	47	9.3	111	--	80	39	202	--	3.5	--	514	.70	12,320	155	90	60	3.9	900	7.8	7
Jan. 28-31	7,760	--	--	53	11	126	--	88	43	238	--	3.5	--	589	.80	12,340	177	105	61	4.1	1,020	7.6	6
Feb. 1-4.....	7,400	--	--	60	13	151	--	94	46	280	--	2.2	--	710	.97	14,190	203	126	62	4.6	1,170	8.0	9
Feb. 5-7.....	11,400	--	--	24	6.0	58	--	44	19	102	--	1.7	--	291	.40	8,960	84	47	60	2.7	475	7.7	20
Feb. 8-11	11,680	--	--	30	8.4	82	--	48	25	156	--	2.0	--	416	.57	13,120	110	70	62	3.4	669	7.5	15
Feb. 12, 16-19	10,030	--	--	38	11	144	--	44	16	285	--	2.9	--	619	.84	16,760	140	104	69	5.3	1,040	7.5	15
Feb. 13-15.....	6,963	--	--	30	7.5	86	--	52	20	158	--	1.4	--	381	.52	7,160	106	64	64	3.6	662	7.1	14
Feb. 20-28.....	40,070	6.5	.25	25	3.0	53	3.0	46	19	92	.2	2.9	.19	301	.41	32,560	75	38	59	2.7	436	6.9	--
Mar. 1-2	18,250	--	--	23	5.9	58	--	40	19	109	--	3.7	--	324	.44	15,970	82	49	61	2.8	488	7.4	25
Mar. 3-10	13,120	5.5	.03	37	6.7	106	4.0	59	28	188	.1	3.7	.02	441	.60	15,620	120	72	65	4.2	799	7.3	--
Mar. 11-12	11,050	--	--	46	11	157	--	56	31	300	--	2.7	--	709	.96	21,150	160	114	68	5.4	1,140	7.7	13
Mar. 13-14	10,450	--	--	35	8.7	124	--	49	26	228	--	2.4	--	561	.76	15,830	124	84	69	4.8	908	7.6	10
Mar. 15-17	10,520	--	--	27	8.2	91	--	44	22	165	--	3.2	--	423	.58	12,010	101	65	66	3.9	684	7.7	10
Mar. 18-23	62,480	--	--	15	3.2	27	--	37	12	47	--	2.2	--	174	.24	29,350	50	20	54	1.6	249	7.1	10
Mar. 24, 27-31....	38,450	--	--	29	6.2	63	--	56	21	118	--	3.6	--	349	.47	36,230	98	52	58	2.8	541	7.2	25
Mar. 25-26	57,150	--	--	41	8.1	111	--	63	21	210	--	3.6	--	540	.73	83,320	136	84	64	4.1	844	7.7	14
Apr. 1-10.....	23,720	5.6	.07	27	5.8	50	2.5	56	24	90	.1	1.9	--	296	.40	18,960	92	46	53	2.3	463	7.0	10
Apr. 11-12.....	18,700	--	--	27	5.7	55	--	52	26	96	--	.7	--	311	.42	15,700	91	48	57	2.5	460	7.8	20
Apr. 13-15.....	17,700	--	--	20	5.1	44	--	42	20	80	--	.9	--	240	.33	11,470	71	36	57	2.3	383	7.7	12
Apr. 16-17.....	18,250	--	--	34	7.8	91	--	56	29	172	--	1.3	--	454	.62	22,370	117	71	63	3.7	734	7.8	6
Apr. 18-20, 22	17,750	--	--	43	12	135	--	57	29	260	--	1.0	--	657	.89	31,490	157	110	65	4.7	1,030	7.8	6
Apr. 21, 23-26	21,120	--	--	29	6.8	74	--	53	24	136	--	1.3	--	332	.45	18,930	100	57	62	3.2	605	7.2	17
Apr. 27-30.....	12,780	--	--	23	4.8	42	--	51	22	75	--	1.1	--	250	.34	8,630	77	35	54	2.1	394	7.4	33
May 1-4	8,078	--	--	40	8.3	88	--	74	39	156	--	.7	--	445	.61	9,710	134	74	59	3.3	725	7.0	10
May 5-6	6,320	--	--	44	12	143	--	70	42	258	--	1.0	--	616	.84	10,510	160	102	66	4.9	1,060	7.3	9
May 7, 10, 14-15, 18	13,320	--	--	60	20	198	--	104	80	350	--	2.0	--	876	1.19	31,500	232	146	65	5.7	1,500	7.5	11

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT DARDANELLE, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
May 8-9, 1955	7,400	--	--	58	19	341	--	96	78	575	--	0.8	--	1,240	1.69	24,780	222	144	77	10	2,170	8.0	10
May 11-13	7,123	--	--	41	10	141	--	70	44	245	--	.8	--	595	.81	11,440	144	86	68	5.1	1,040	7.4	6
May 16-17	36,500	--	--	89	23	309	--	130	76	555	--	2.0	--	1,290	1.75	127,100	316	210	68	7.6	2,150	8.2	11
May 19-20	23,400	--	--	51	13	166	--	104	50	278	--	2.2	--	680	.92	42,960	180	96	67	5.4	1,200	7.8	12
May 21-22	37,450	--	--	39	8.6	101	--	95	39	158	--	4.8	--	429	.58	43,380	133	55	62	3.8	763	8.1	8
May 23-25	95,530	--	--	58	11	150	--	c130	34	260	--	1.0	--	681	.93	175,700	190	83	63	4.7	1,130	8.4	11
May 26-31, June 1	76,630	7.9	0.07	57	16	252	14	120	75	408	0.3	2.8	--	970	1.32	200,700	208	110	71	7.6	1,670	7.7	10
June 2-10	41,560	1.0	.00	44	10	92	4.9	116	40	152	.3	4.5	--	438	.60	49,150	151	56	56	3.3	794	8.1	19
June 11-14	16,320	--	--	66	15	233	--	119	85	390	--	2.0	--	913	1.24	40,230	226	128	69	6.8	1,620	7.6	10
June 15-16	18,950	--	--	80	21	336	--	134	121	550	--	1.9	--	1,260	1.71	64,470	286	176	72	8.7	2,210	8.2	10
June 17-21	19,580	--	--	60	15	233	--	116	93	370	--	3.0	--	872	1.19	46,100	211	116	71	7.0	1,550	7.5	10
June 22-23	22,550	--	--	67	17	203	--	128	89	335	--	3.3	--	826	1.12	50,290	237	132	65	5.8	1,460	8.1	9
June 24, 30, July 1-2	30,920	--	--	71	21	329	--	111	109	530	--	2.2	--	1,190	1.62	99,350	264	172	73	8.8	2,110	8.2	10
June 25-29	36,740	--	--	66	15	224	--	119	97	355	--	2.3	--	855	1.16	84,810	226	128	68	6.5	1,530	7.5	11
July 3-10	26,880	4.9	.02	67	12	178	6.8	129	104	280	.3	4.4	--	746	1.01	54,140	216	111	63	5.3	1,330	6.9	13
July 11-14	16,620	--	--	72	13	210	--	128	114	325	--	2.4	--	843	1.15	37,830	233	128	66	6.0	1,490	7.6	7
July 15-17	14,870	--	--	77	16	260	--	140	125	415	--	1.0	--	1,020	1.39	40,950	258	144	69	7.0	1,780	7.3	10
July 18-20	11,530	--	--	63	13	158	--	129	97	240	--	2.3	--	667	.91	20,760	210	105	62	4.7	1,180	7.2	10
July 21-22	8,750	--	--	62	12	148	--	127	90	225	--	3.0	--	639	.87	15,100	204	100	61	4.5	1,110	8.2	10
July 23-29	8,644	--	--	70	15	203	--	124	102	325	--	2.9	--	833	1.13	19,440	236	134	65	5.8	1,460	7.0	10
July 30-31	7,760	--	--	79	21	326	--	83	107	555	--	1.4	--	1,230	1.67	25,770	284	216	71	8.4	2,120	7.8	7
Aug. 1-2	7,400	--	--	69	14	318	--	60	103	540	--	1.5	--	1,130	1.54	22,580	230	180	75	9.1	2,060	7.4	8
Aug. 3-10	6,180	3.1	.00	56	14	242	7.0	68	106	405	.3	1.8	--	899	1.22	15,000	197	142	72	7.5	1,620	6.9	7
Aug. 11-13	5,873	--	--	60	16	258	--	76	81	440	--	1.0	--	947	1.29	15,020	216	153	72	7.7	1,720	7.6	7
Aug. 14-15	6,680	--	--	72	19	333	--	102	95	560	--	1.3	--	1,200	1.63	21,640	258	174	74	9.0	2,140	7.2	8
Aug. 16-18	5,480	--	--	67	15	241	--	104	74	410	--	2.1	--	932	1.27	13,790	228	144	70	6.9	1,670	7.4	10
Aug. 19-20	5,120	--	--	93	25	364	--	100	86	690	--	2.5	--	1,430	1.94	19,770	335	253	70	8.6	2,530	7.0	10
Aug. 21-22	5,400	--	--	109	30	454	--	104	86	840	--	1.8	--	1,720	2.34	25,080	396	310	71	9.9	3,000	7.6	9
Aug. 23-25	4,760	--	--	77	20	322	--	96	86	560	--	2.2	--	1,210	1.65	15,550	274	196	72	8.4	2,160	6.7	9
Aug. 26-28	4,463	--	--	60	15	233	--	91	78	390	--	1.6	--	883	1.20	10,640	211	136	71	7.0	1,590	7.2	6
Aug. 29-31	5,283	--	--	61	17	292	--	71	81	500	--	1.4	--	1,050	1.43	14,980	222	164	74	8.6	1,890	6.9	8

c Includes 4 parts per million of carbonate (CO_3).

Sept. 1-3, 1955....	5,970	--	--	58	14	229	--	103	80	375	--	0.9	--	844	1.15	13,600	202	118	71	7.0	1,510	7.4	7
Sept. 4-5, 9.....	7,143	--	--	73	17	261	--	109	80	460	--	1.6	--	1,040	1.41	20,060	252	162	69	7.2	1,820	7.9	12
Sept. 6-8	6,180	--	--	61	12	190	--	110	56	325	--	3.0	--	767	1.04	12,800	202	112	67	5.8	1,360	7.6	10
Sept. 10-11	3,865	--	--	109	25	422	--	100	66	820	--	1.9	--	1,650	2.24	17,220	375	293	71	9.5	2,880	7.6	5
Sept. 12-14	5,133	--	--	78	19	300	--	102	62	540	--	1.6	--	1,150	1.56	15,940	272	189	71	7.9	2,030	7.6	7
Sept. 15-16	3,855	--	--	52	16	201	--	74	61	355	--	1.7	--	799	1.09	8,320	196	136	69	6.2	1,420	7.5	7
Sept. 17-18	5,570	--	--	57	10	163	--	90	67	280	--	1.4	--	666	.91	10,020	183	109	66	5.2	1,190	7.2	7
Sept. 19-20	5,290	--	--	62	14	210	--	87	66	382	--	2.3	--	843	1.15	12,040	212	140	68	6.3	1,500	7.7	7
Sept. 21-23	4,140	--	--	55	12	167	--	86	64	298	--	1.7	--	683	.93	7,630	186	116	66	5.3	1,240	7.5	7
Sept. 24, 28-30....	6,945	3.4	.09	64	18	250	7.0	96	81	425	.3	2.3	--	935	1.27	17,530	234	155	69	7.1	1,690	7.3	10
Sept. 25-27.....	5,897	--	--	80	20	327	--	95	67	590	--	2.2	--	1,230	1.67	19,580	282	204	72	8.5	2,190	7.5	5
Weighted average	15,720	--	--	46	11	142	--	87	49	242	--	2.6	--	606	0.82	25,720	160	88	66	4.9	1,040	--	10

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT DARDANELLE, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

ARKANSAS RIVER AT LITTLE ROCK, ARK.

LOCATION.--At gaging station at Missouri Pacific Railway Bridge in Little Rock, Pulaski County, and 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 1955.
Water temperatures: October 1945 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,520 ppm Aug. 18, 23-26; minimum, 208 ppm Mar. 20-25.
Hardness: Maximum, 406 ppm May 18-19; minimum, 66 ppm Mar. 20-25.
Specific conductance: Maximum daily, 2,930 micromhos Aug. 25; minimum daily, 252 micromhos Mar. 22.
Water temperatures: Maximum, 92°F July 29, 31; minimum, 39°F Feb. 17.
EXTREMES, 1945-55.--Dissolved solids: Maximum, 2,400 ppm Nov. 28-29, 1953; minimum, 166 ppm Dec. 7-8, 1952.
Hardness: Maximum, 556 ppm Nov. 28-29, 1953; minimum, 48 ppm Jan. 11-14, 1948; Dec. 7-8, 1952.
Specific conductance: Maximum daily, 5,050 micromhos Apr. 8, 1954; minimum daily, 197 micromhos Dec. 6, 1952.
Water temperatures: Maximum 98°F Aug. 16, 1954; minimum, freezing point Dec. 19, 1945, Feb. 10-11, 1947, Jan. 28-29, 1948.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-10, 1954 ...	1,398	--	--	69	17	154	--	184	50	262	--	3.0		682	0.93	2,570	242	91	58	4.3	1,220	8.2	10
Oct. 11-21, 25	2,244	4.8	0.01	67	18	155	5.7	193	38	270	0.4	.2		699	.95	4,240	241	83	58	4.4	1,150	8.2	10
Oct. 22-24.....	3,287	--	--	79	21	277	--	150	57	485	--	3.2		1,050	1.43	9,320	284	160	68	7.1	1,900	8.2	10
Oct. 26-31.....	7,817	--	--	30	6.8	60	--	66	22	108	--	2.9		274	.37	5,780	103	49	56	2.6	535	7.8	15
Nov. 1-3.....	8,040	--	--	30	8.0	68	--	70	33	113	--	3.5		304	.41	6,600	108	50	58	2.8	569	7.8	10
Nov. 4-14.....	5,438	5.8	07	38	9.8	74	3.9	95	36	132	.5	2.5		385	.52	5,650	136	58	53	2.8	673	7.7	15
Nov. 15-18.....	3,345	--	--	55	11	108	--	120	40	188	--	3.8		493	.67	4,450	182	84	56	3.5	902	8.0	10
Nov. 19-22.....	3,135	--	--	61	14	146	--	128	43	268	--	2.4		618	.84	5,230	210	104	60	4.4	1,150	8.0	10
Nov. 23-30.....	2,886	--	--	62	14	126	--	a145	51	220	--	1.6		563	.77	4,390	212	93	56	3.8	1,050	8.3	10
Dec. 1-11.....	2,400	1.4	.08	68	14	129	4.6	160	51	225	.2	1.8		625	.85	4,050	227	96	55	3.7	1,090	8.1	7
Dec. 12-16	4,308	--	--	65	13	108	--	157	43	190	--	3.2		543	.74	6,320	216	87	52	3.2	952	7.7	10
Dec. 17-20.....	6,502	--	--	29	6.4	46	--	71	23	80	--	2.6		256	.35	4,490	99	41	50	2.0	449	7.7	10
Dec. 21-26	4,562	--	--	38	8.6	66	--	91	33	118	--	2.2		348	.47	4,290	130	56	52	2.5	612	7.8	10
Dec. 27-30	6,105	--	--	44	9.9	88	--	95	29	164	--	4.3		458	.62	7,550	150	72	56	3.1	780	8.2	6
Dec. 31, 1954, Jan. 1-3, 1955 ..	35,020	--	--	25	5.4	42	--	57	14	78	--	4.2		239	.33	22,600	84	38	52	2.0	403	7.9	15

a Includes 3 parts per million of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT LITTLE ROCK, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Jan. 4-7, 1955 ...	22,620	--	--	28	6.3	59	--	54	19	114	--	1.9		307	0.42	18,750	96	52	57	2.6	518	7.7	15
Jan. 8-9.....	14,350	--	--	35	9.7	111	--	53	36	205	--	5.2		498	.68	19,300	128	84	65	4.3	825	7.9	12
Jan. 10-11, 16 ...	11,600	--	--	46	11	155	--	49	23	310	--	2.2		678	.92	21,230	160	120	68	5.3	1,150	7.6	10
Jan. 12-15.....	12,300	1.8	0.03	70	16	264	5.8	71	32	495	0.2	4.8		1,100	1.50	36,530	240	182	70	7.4	1,820	7.5	5
Jan 17-20.....	13,820	--	--	44	9.4	108	--	70	33	200	--	3.4		505	.69	18,840	148	91	61	3.9	862	7.9	10
Jan. 21-24.....	15,800	--	--	35	8.2	86	--	54	29	168	--	1.4		432	.59	18,430	121	77	61	3.4	722	7.8	12
Jan. 25-26, 30-31	10,960	--	--	46	8.1	113	--	104	5.2	212	--	.4		561	.76	16,600	148	64	62	4.0	882	7.5	10
Jan. 27-29.....	10,490	--	--	38	9.4	86	--	72	33	160	--	5.6		431	.59	12,210	134	74	58	3.2	738	8.0	10
Feb. 1, 3.....	8,910	--	--	57	13	148	--	90	39	280	--	3.3		686	.93	16,500	196	122	62	4.6	1,160	8.0	10
Feb. 2, 5-6.....	10,520	--	--	47	11	116	--	78	34	220	--	3.8		551	.75	15,650	162	98	61	4.0	937	7.9	10
Feb. 4, 7-13.....	17,950	6.5	.05	26	6.1	64	3.2	46	23	115	.1	3.7		304	.41	14,730	90	52	60	2.9	530	7.2	--
Feb. 14-15.....	11,650	--	--	30	8.8	101	--	48	18	190	--	2.2		458	.62	14,410	111	72	66	4.2	767	7.8	10
Feb. 16-18.....	9,973	--	--	27	7.0	71	--	52	20	136	--	2.0		358	.49	9,640	96	54	62	3.1	597	7.4	15
Feb. 19-20.....	15,600	--	--	38	11	142	--	42	15	278	--	2.0		641	.87	27,000	140	106	69	5.2	1,030	7.0	15
Feb. 21-28.....	50,650	--	--	21	5.9	46	--	47	13	86	--	1.4		247	.34	33,780	77	38	56	2.3	414	7.4	45
Mar. 1-4.....	26,780	--	--	24	6.3	53	--	43	21	98	--	4.2		266	.36	19,230	86	51	57	2.5	454	7.4	25
Mar. 5-9.....	22,020	4.2	.00	30	7.3	81	3.2	48	24	153	.1	4.5		420	.57	24,970	105	66	62	3.4	659	7.2	18
Mar. 10-12.....	17,570	--	--	24	6.6	63	--	46	21	113	--	3.4		302	.41	14,330	87	50	61	2.9	517	7.6	20
Mar. 13-15.....	16,630	--	--	31	9.4	107	--	46	23	198	--	3.4		478	.65	21,460	116	78	67	4.3	796	7.6	10
Mar. 16-19.....	25,120	--	--	20	6.6	65	--	40	18	118	--	2.8		302	.41	20,480	77	44	65	3.2	515	7.5	20
Mar. 20-25.....	100,400	--	--	19	4.6	32	--	46	13	58	--	2.7		208	.28	56,380	66	29	51	1.7	308	7.3	20
Mar. 26-27.....	81,650	--	--	34	7.4	82	--	53	18	168	--	3.3		450	.61	99,200	116	72	61	3.3	698	7.8	22
Mar. 28-30.....	55,330	--	--	25	5.9	52	--	48	16	100	--	3.7		287	.39	42,880	87	48	56	2.4	480	7.7	35
Mar. 31, Apr. 1-6	38,060	--	--	22	5.8	43	--	49	19	75	--	3.2		243	.33	24,970	79	39	54	2.1	381	7.3	35
Apr. 7-10.....	33,120	--	--	21	4.9	35	--	50	24	60	--	1.7		213	.29	19,050	72	32	51	1.8	344	7.7	25
Apr. 11-17.....	27,240	4.2	.14	20	6.2	38	2.7	49	16	72	.1	2.2		241	.33	17,730	76	36	51	1.9	359	7.2	10
Apr. 18-19.....	26,000	--	--	27	6.6	71	--	50	26	128	--	1.1		347	.47	24,900	94	54	62	3.2	571	7.3	10
Apr. 20-22.....	23,470	--	--	35	8.1	101	--	54	26	190	--	.8		482	.66	30,540	121	77	64	4.0	784	7.4	10
Apr. 23, 26-27...	30,770	--	--	28	6.4	67	--	54	22	126	--	1.2		332	.45	27,580	96	52	60	3.0	572	7.5	19
Apr. 24-25.....	30,250	--	--	32	6.7	101	--	43	21	194	--	1.3		486	.66	39,690	108	72	67	4.2	769	7.5	10
Apr. 28-30.....	20,870	--	--	22	5.8	44	--	53	22	78	--	.6		242	.33	13,510	79	36	55	2.1	400	7.4	30

May 1-2, 1955	13,300	--	--	20	7.1	40	--	57	17	70	--	1.2		213	.29	7,650	79	32	52	2.0	370	7.5	11
May 3-9	8,997	2.1	.00	34	9.8	82	4.0	74	33	146	.2	1.9		419	.57	10,180	126	65	58	3.2	698	7.0	8
May 10-12	8,560	--	--	50	18	296	--	83	59	500	--	2.1		1,060	1.44	24,500	199	131	76	9.1	1,900	7.6	6
May 13, 17, 20-21	20,780	--	--	59	15	220	--	121	46	370	--	3.7		885	1.18	48,530	208	110	70	6.6	1,530	7.8	10
May 14-16	10,090	--	--	38	11	131	--	69	35	235	--	1.7		550	.75	14,980	140	84	67	4.8	982	7.2	6
May 18-19	36,200	--	--	118	27	333	--	268	24	630	--	1.9		1,440	1.96	140,700	406	186	64	7.2	2,450	6.6	--
May 22-26	70,340	--	--	59	13	141	--	b133	35	252	--	3.4		658	.89	125,000	200	92	60	4.3	1,130	8.4	7
May 27-31, June 1-2	89,130	--	--	55	12	218	--	113	63	345	--	3.0		805	1.09	193,700	186	94	72	6.9	1,450	8.2	9
June 3-12	42,230	1.0	.00	45	8.4	90	4.8	106	39	148	.3	2.6		432	.59	49,260	147	60	56	3.2	754	7.9	20
June 13-17	19,220	--	--	64	12	212	--	111	59	360	--	4.0		854	1.16	44,320	209	118	69	6.4	1,500	8.0	8
June 18-24	22,370	--	--	65	12	216	--	117	65	355	--	3.8		850	1.16	51,340	212	116	69	6.5	1,510	7.6	7
June 25-30	40,400	--	--	64	14	234	--	115	101	375	--	3.9		909	1.24	99,150	217	123	70	6.9	1,610	8.0	6
July 1-2, 5	30,470	--	--	73	13	276	--	98	98	450	--	4.9		1,060	1.44	87,210	236	155	72	7.8	1,820	7.3	10
July 3-4	31,850	--	--	80	19	372	--	108	129	610	--	4.9		1,340	1.82	115,200	278	189	74	9.7	2,370	7.5	8
July 6-11	24,800	--	--	61	12	169	--	112	91	275	--	3.9		763	1.04	51,090	202	110	65	5.2	1,290	7.6	7
July 12-20	16,660	7.8	.04	69	13	207	7.6	128	108	335	.3	4.7		860	1.17	38,680	226	120	66	6.0	1,500	7.9	9
July 21-25	11,280	--	--	61	11	138	--	127	76	220	--	3.5		646	.88	19,670	197	93	60	4.3	1,090	8.0	8
July 26-31	9,367	--	--	66	14	189	--	141	70	310	--	3.3		788	1.07	19,930	222	106	65	5.5	1,370	7.1	6
Aug. 1-2	8,020	--	--	64	16	246	--	79	79	422	--	2.4		962	1.31	20,830	226	160	70	7.1	1,680	7.1	5
Aug. 3-5	7,320	--	--	65	18	293	--	62	84	530	--	1.8		1,150	1.56	22,730	236	185	73	8.3	2,020	7.4	8
Aug. 6-10	6,676	2.5	.03	53	16	234	6.8	71	90	388	.3	3.6		870	1.18	15,680	198	140	71	7.2	1,560	7.3	10
Aug. 11-14	6,385	--	--	51	14	210	--	90	68	345	--	1.5		794	1.08	13,690	184	110	71	6.7	1,410	7.5	6
Aug. 15-17	7,087	--	--	62	16	267	--	76	88	450	--	1.5		990	1.35	18,940	220	158	72	7.8	1,750	7.5	3
Aug. 18, 23-26	5,808	--	--	94	28	398	--	87	87	750	--	1.5		1,520	2.07	23,840	350	278	71	9.3	2,700	7.4	6
Aug. 19-22	5,518	--	--	59	17	251	--	90	78	422	--	1.3		945	1.29	14,080	217	143	72	7.4	1,680	7.0	4
Aug. 27-28	4,680	--	--	69	17	305	--	84	71	530	--	1.1		1,150	1.56	14,530	242	173	73	8.6	2,040	6.5	8
Aug. 29-31	5,243	--	--	61	16	242	--	92	79	410	--	2.8		947	1.29	13,410	218	142	71	7.1	1,660	7.6	5
Sept. 1-8	6,886	2.8	.02	64	18	252	8.0	89	78	435	.2	1.7		965	1.31	17,940	234	160	69	7.2	1,720	7.8	15
Sept. 9-12	4,872	--	--	61	12	178	--	119	54	305	--	1.5		758	1.03	9,970	202	104	66	5.5	1,320	7.9	13
Sept. 13, 17-18	4,573	--	--	75	18	259	--	114	59	460	--	3.2		1,010	1.37	12,470	261	168	68	7.0	1,840	8.0	10
Sept. 14-16	5,243	--	--	88	20	315	--	111	46	590	--	1.2		1,240	1.69	17,550	302	210	69	7.9	2,220	7.9	10
Sept. 19-22, 24-26	5,457	--	--	57	14	174	--	95	59	308	--	2.4		736	1.00	10,840	200	122	65	5.4	1,330	7.8	7
Sept. 23, 27-28	5,927	--	--	71	18	250	--	97	60	450	--	1.7		1,020	1.39	16,320	251	172	68	6.9	1,770	7.9	7
Sept. 29-30	6,410	--	--	77	23	317	--	97	66	590	--	1.7		1,270	1.73	21,980	286	207	71	8.2	2,240	7.9	7
Weighted average	19,150	--	--	42	9.7	124	--	82	40	213	--	2.9		539	0.73	27,870	145	78	65	4.5	926	--	12

b Includes 4 parts per million of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT LITTLE ROCK, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

ARKANSAS RIVER NEAR ALTHEIMER, ARK.

LOCATION.--About 11 miles southeast of Altheimer, Jefferson County, 4 miles southwest of Cornerstone, and about 2 miles upstream from ferry crossing.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to May 1955.
Water temperatures: October 1953 to August 1954, October 1954 to May 1955.
EXTREMES, 1953-54.--Dissolved solids: Maximum, 2,810 ppm Apr. 9-11; minimum, 266 ppm Jan. 30-31, Feb. 1.
Hardness: Maximum, 514 ppm Apr. 9-11; minimum, 64 ppm Jan. 30-31, Feb. 1.
Specific conductance: Maximum daily, 4,550 micromhos Apr. 10; minimum daily, 354 micromhos Jan. 31.
Water temperatures: Maximum, 93°F July 2; minimum, 40°F Dec. 26-29.
REMARKS.--Values reported for dissolved solids are residues on evaporation. 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, October 1954 to May 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-10, 1954...		9.0	0.02	74	18	114	4.7	a254	34	185	0.4	2.4	0.00	621			258	50	48		1,060	8.4	10
Oct. 11-15		--	--	73	18	122	--	244	34	202	--	1.0	.05	603			258	56	51		1,060	8.1	8
Oct. 16-20		--	--	73	17	138	--	215	38	242	--	1.1	.05	672			252	76	54		1,180	7.9	6
Oct. 21-23		--	--	77	16	147	--	214	35	260	--	2.4	.05	706			258	82	55		1,230	7.9	10
Oct. 24-31		--	--	72	20	253	--	110	59	460	--	2.1	.10	1,020			262	172	68		1,770	7.8	10
Nov. 1-10		--	--	67	21	124	--	233	33	210	--	2.4	.05	638			271	80	52		1,100	8.2	12
Nov. 11-15		--	--	80	21	113	--	268	34	195	--	1.8	.05	609			286	66	46		1,070	8.0	12
Nov. 16-20		--	--	68	19	109	--	212	32	185	--	2.1	.00	572			248	74	49		1,000	7.8	12
Nov. 21-30		--	--	67	18	101	--	217	32	170	--	1.0	.05	540			241	63	48		938	8.0	12
Dec. 1-10		2.4	.04	66	15	103	4.2	167	50	175	.2	3.0	.10	546			226	89	49		958	7.6	5
Dec. 11-17		--	--	67	14	101	--	169	50	180	--	1.9	--	553			224	86	49		942	7.5	8
Dec. 18-20		--	--	33	7.7	53	--	79	32	92	--	2.0	--	293			114	49	50		510	8.0	9
Dec. 21-31		--	--	47	10	70	--	116	34	129	--	2.8	--	394			158	63	49		696	7.7	10
Jan. 1-4, 1955 ...		--	--	22	4.5	36	--	54	13	65	--	4.6	--	208			74	30	52		344	7.5	10
Jan. 5-9		--	--	27	6.3	56	--	57	19	104	--	5.0	--	297			94	47	57		498	7.6	10
Jan. 10-13		--	--	45	11	144	--	55	22	280	--	5.3	--	641			158	112	67		1,090	7.1	10
Jan. 14-15		--	--	72	16	269	--	62	25	520	--	5.5	--	1,120			246	194	70		1,890	7.0	10

a Includes 5 parts of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER NEAR ALTHEIMER, ARK.--Continued

Chemical analyses, in parts per million, October 1954 to May 1955--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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Jan. 16-21, 1955		2.5	0.00	42	9.5	108	3.8	71	32	200	0.2	4.5	0.15	521			144	86	61		855	7.4	5
Jan. 22-26		--	--	33	7.7	86	--	20	30	160	--	34	--	453			114	98	62		725	7.0	10
Jan. 27-28		--	--	44	9.5	114	--	70	31	218	--	5.1	--	539			149	92	62		906	7.4	14
Feb. 1-6		--	--	47	10	108	--	79	36	198	--	1.2	--	550			158	94	60		890	7.3	20
Feb. 7-14		--	--	27	6.9	67	--	44	19	130	--	1.4	--	358			96	60	60		563	7.3	20
Feb. 15-18		--	--	32	8.1	31	--	108	13	52	--	1.3	--	240			114	25	37		380	8.2	20
Feb. 19-22, 24		--	--	25	5.5	60	--	44	8.8	118	--	1.8	--	341			85	49	61		499	7.5	45
Feb. 23, 25-28		--	--	22	4.6	44	--	47	15	80	--	1.8	--	271			74	36	56		390	6.9	40
Mar. 1-4		--	--	24	5.7	49	--	46	18	94	--	3.4	--	252			84	46	56		438	7.3	30
Mar. 5-10		--	--	29	7.5	73	--	47	23	139	--	3.4	--	363			104	65	60		605	7.4	16
Mar. 11-14		--	--	27	6.3	64	--	51	22	121	--	3.2	--	311			94	52	60		543	8.0	15
Mar. 15-16		--	--	35	9.9	118	--	50	27	225	--	3.8	--	540			128	87	67		897	7.1	10
Mar. 17-20		--	--	23	5.8	64	--	43	19	120	--	3.4	--	313			82	46	63		525	7.7	25
Mar. 21-23		--	--	17	3.4	21	--	45	10	37	--	2.4	--	157			56	20	45		222	7.6	17
Mar. 24-27		--	--	29	5.8	58	--	51	13	112	--	2.8	--	320			96	54	57		494	7.4	24
Mar. 28-31		--	--	26	4.6	43	--	58	15	80	--	1.8	--	253			84	36	53		395	8.2	25
Apr. 1-10		6.8	.17	22	5.7	38	2.8	49	22	70	.2	2.0	.05	233			78	38	50		367	6.8	35
Apr. 11-19		--	--	23	4.6	40	--	54	22	70	--	1.5	--	236			76	32	53		377	6.8	20
Apr. 20-23, 29		--	--	37	7.5	94	--	61	25	177	--	2.5	--	447			124	74	62		752	7.0	15
Apr. 24-27		--	--	26	7.3	70	--	48	21	132	--	.8	--	345			95	56	62		574	7.3	16
Apr. 28, 30		--	--	24	5.9	42	--	63	22	76	--	.6	--	230			84	33	52		406	7.9	8
May 1-4		--	--	25	6.3	41	--	70	17	70	--	1.8	--	228			88	31	50		404	7.3	7
May 5-9		--	--	40	11	70	--	108	30	126	--	1.3	--	384			145	56	51		660	8.1	6
May 10-13		--	--	51	13	195	--	99	44	330	--	.3	--	765			180	100	70		1,360	7.1	11
May 14-16		--	--	42	11	151	--	90	44	255	--	1.0	--	626			150	76	69		1,090	7.7	10
May 17-21		--	--	75	18	277	--	111	49	500	--	1.3	--	1,170			261	170	70		1,980	7.8	10
May 22-25		--	--	38	8.8	108	--	b94	40	170	--	1.2	--	457			131	54	64		813	8.4	10
May 26-31		--	--	52	13	200	--	116	64	320	--	1.2	--	762			184	88	70		1,380	7.5	10
Average		--	--	44	11	100	--	101	29	179	--	3.0	--	482			105	72	58		818	--	15

b Includes 3 parts per million of carbonate (CO_3).

ARKANSAS RIVER BASIN--Continued

ARKANSAS RIVER AT ALTHEIMER, ARK.--Continued

Temperature (°F) of water, October 1954 to May 1955

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

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN OKLAHOMA

Chemical analyses, in parts per million, water year October 1954 to September 1955

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				
BEAVER CREEK NEAR KAW CITY, KAY COUNTY													
June 28, 1955	0.02	78	13	98	150	0	205	248	125	46	2.7	975	8.1
RED ROCK CREEK NEAR RED ROCK, NOBLE COUNTY													
Oct. 12, 1954	64.3	21	1.8	6.5	102	0	10	60	0	19	0.4	192	8.2
Mar. 22, 1955	3.53	18	6.1	18	86	0	16	70	0	36	.9	230	7.8
Apr. 5	.32	13	4.7	11	74	0	7.0	52	0	32	.7	160	7.6
June 27	8.26	38	9.7	24	164	0	25	135	0	28	.9	372	7.9
SALT CREEK NEAR SHIDLER, OSAGE COUNTY													
June 7, 1955	9.96	72	7.4	16	224	0	24	210	26	14	0.5	437	7.4
SKEEDEE CREEK AT LAKE PAWNEE, NEAR PAWNEE, PAWNEE COUNTY													
Oct 7, 1954		43	19	18	186	10	12	185	16	17	0.6	390	8.6
Nov. 15		46	13	17	198	6	12	170	0	18	.6	407	8.4
Jan. 3, 1955		44	12	19	182	6	10	160	1	21	.7	357	8.4
Jan. 31		42	13	18	194	0	10	160	1	20	.6	362	8.2
Apr. 4		27	8.4	16	142	0	8.0	102	0	26	.7	272	8.0
June 7		27	6.0	14	110	0	6.0	92	2	25	.6	225	7.2
July 6		32	6.8	15	123	0	8.0	108	7	23	.6	254	7.3
Aug. 1		32	8.8	15	142	0	8.0	116	0	22	.6	270	7.3
EAGLE CHIEF CREEK NEAR ALINE, ALFALFA COUNTY													
Apr. 5, 1955	2.68	98	67	78	200	0	65	520	356	25	1.5	1,340	8.1
EAGLE CHIEF CREEK NEAR CLEO SPRINGS, MAJOR COUNTY													
Apr. 5, 1955	5.83	74	52	63	198	0	54	400	238	26	1.4	1,120	8.1

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COTTONWOOD CREEK NEAR GUTHRIE, LOGAN COUNTY

Jan. 12, 1955	1.60	54	24	129	294	16	88	235	0	54	3.7	1,020	8.5
Feb. 15	2.27	77	21	106	196	8	92	280	106	45	2.8	997	8.5
Mar. 8	.30	88	29	103	244	8	82	340	126	40	2.4	1,110	8.4
Apr. 11	2.74	82	31	90	268	8	75	330	97	37	2.2	997	8.3
May 4	.18	102	34	147	504	6	95	395	0	45	3.2	1,370	8.3
July 11	9.89	58	62	127	128	0	112	400	295	41	2.8	1,310	8.1
Sept. 21	5.18	53	21	50	214	0	38	220	44	33	1.5	626	8.1

LAKE CARL BLACKWELL NEAR STILLWATER, PAYNE COUNTY

May 16, 1955		41	24	46	230	0	68	200	12	33	1.4	579	8.0

HOUSE CREEK NEAR TERLTON, PAWNEE COUNTY

Apr. 4, 1955	0.02	77	34	97	206	0	272	330	161	39	2.3	1,220	8.2

CANEY RIVER NEAR RAMONA, WASHINGTON COUNTY

Sept. 22, 1955	19.8	86	17	123	35	0	258	285	256	48	3.2	1,220	6.3

DOUBLE CREEK NEAR RAMONA, WASHINGTON COUNTY

Apr. 4, 1955	1.00	70	8.6	63	142	0	152	210	94	39	1.9	783	8.0
May 2	.75	46	2.4	30	120	0	68	125	26	34	1.2	440	7.2
May 21	144	32	2.4	24	88	0	40	90	18	37	1.1	319	7.0

SPRING RIVER NEAR QUAPAW, OTTAWA COUNTY

Oct. 6, 1954	240	42	3.6	5.2	78	0	11	120	56	9	0.2	266	7.5
Jan. 24, 1955	282	68	15	8.7	134	0	11	230	120	8	.3	409	7.4
Feb. 8	275	70	2.6	10	130	0	12	185	78	10	.4	446	7.9
Mar. 16	298	62	5.0	7.8	128	0	11	175	70	9	.3	384	7.7
Apr. 5	362	53	6.8	9.3	109	0	9.0	160	70	11	.3	378	6.9
May 3	200	59	5.6	9.4	122	0	9.0	170	70	11	.3	392	7.0
Aug. 3	220	54	6.2	8.3	136	0	9.0	160	48	10	.3	327	6.6

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN OKLAHOMA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 RIVER AT PENSACOLA RESERVOIR, AT LANGLEY, MAYES COUNTY													
Oct. 1-31, 1954		48	6.3	13	117	0	16	146	50	16	0.5	352	8.1
Nov. 1-30		40	5.8	9.2	87	0	15	124	52	14	.4	302	8.1
Dec. 1-31		44	2.9	11	94	0	15	122	45	16	.4	316	8.1
Jan. 1-31, 1955		41	7.7	12	96	0	15	134	56	16	.4	322	8.0
Feb. 1-28		41	7.2	11	97	0	12	132	52	15	.4	314	8.0
Mar. 1-31		42	7.1	11	100	0	13	134	52	15	.4	327	7.5
May 1-31		42	6.6	9.2	92	0	11	132	56	13	.3	332	6.5
June 1-30		45	6.2	8.8	106	0	12	138	51	12	.3	325	6.7
BIG CABIN CREEK NEAR BIG CABIN, CRAIG COUNTY													
Nov. 22, 1954	22.1	35	7.9	5.2	60	0	14	120	71	9	0.2	216	7.7
Jan. 3, 1955[a]	6.89	58	13	17	116	0	18	200	105	16	.5	415	7.4
Jan. 3[b]	128	42	15	14	94	0	18	165	88	16	.5	314	7.8
Feb. 1[c]	6.00	59	3.2	21	132	0	25	160	52	22	.7	457	7.7
Apr. 6	58.5	47	5.5	10	76	0	15	140	78	13	.4	372	6.8
May 5	4.02	64	9.8	23	132	0	29	200	92	20	.7	508	7.1
June 24	146	25	4.7	9.5	60	0	10	82	33	20	.5	226	6.6
Aug. 1	2.78	38	6.1	9.0	104	0	8.0	120	35	14	.4	279	6.6
Sept. 2	27	14	1.5	5.0	36	0	6.0	41	12	21	.3	123	6.8
PRYOR CREEK NEAR PRYOR, MAYES COUNTY													
Dec. 31, 1954	4.03	72	20	480	56	0	875	260	214	80	13	3,080	7.0
Feb. 25, 1955	3.39	24	4.9	41	36	0	60	80	50	53	2.0	399	7.0
Mar. 25	57.3	17	2.8	14	24	0	20	54	34	36	.8	209	6.8
Mar. 30	21.4	15	4.3	34	24	0	49	55	36	57	2.0	330	5.9
June 6	7.32	13	9.6	29	36	0	41	72	42	47	1.5	306	6.6
July 5	.94	14	8.0	26	46	0	31	68	30	45	1.4	265	6.0
Aug. 9	3.39	24	11	81	68	0	132	104	48	63	3.5	623	7.8
GREENLEAF CREEK NEAR BRAGGS, MUSKOGEE COUNTY													
Feb. 9, 1955	88.0	24	1.0	7.8	78	0	8.5	64	0	21	0.4	155	7.2
ILLINOIS RIVER NEAR WATTS, ADAIR COUNTY													
Sept. 12, 1955	50.4	39	2.9	6.6	120	0	7.5	107	8	12	0.3	286	7.5

FLINT CREEK NEAR KANSAS, DELAWARE COUNTY

Sept. 12, 1955	4.13	40	1.5	5.5	118	0	5.5	106	10	10	0.2	230	7.1

WALNUT CREEK AT PURCELL, McCLAIN COUNTY

Feb. 1, 1955	4.74	32	67	32	402	8	17	355	12	16	0.7	739	8.3
Feb. 28	3.74	26	55	33	348	14	17	292	0	20	.8	669	8.5
June 14	3.25	29	60	34	360	0	18	320	25	19	.8	561	7.3

LITTLE RIVER NEAR TECUMSEH, POTTAWATOMIE COUNTY

Oct. 4, 1954	0.76	47	52	414	254	28	630	330	76	73	9.9	2,820	8.7
Dec. 31	15.2	48	22	155	178	0	235	210	64	62	4.7	1,620	7.9
Mar. 2, 1955	3.41	34	44	269	214	6	420	264	78	69	7.2	1,840	8.4
Apr. 25	1.30	54	55	273	312	6	450	360	94	62	6.3	2,010	8.3
June 1	17.4	59	30	95	282	0	171	270	39	43	2.5	1,000	8.1
Aug. 16	.69	37	18	50	160	0	88	165	34	40	1.7	574	7.5

SALT CREEK NEAR DEWRIGHT, SEMINOLE COUNTY

Nov. 9, 1954	3.27	7,990	1,770		73	0	81,700	27,200	27,100			133,000	7.0
Dec. 16	3.93	5,200	1,470		64	0	51,800	19,000	18,900			100,000	7.4
Jan. 17, 1955	5.44	6,440	1,490		56	0	65,700	22,200	22,200			121,000	7.2
Mar. 24	14.0	1,760	469		59	0	18,600	6,320	6,270			44,100	7.9
May 31	20.4	1,970	551		96	0	11,700	7,180	7,100			51,200	7.9
July 11	2.78	8,380	2,210		83	0	89,400	30,000	29,900			135,000	7.4
Aug. 16	2.18	1,150	202		32	0	12,000	3,700	3,670			31,100	7.0

COLDWATER CREEK NEAR HARDESTY, TEXAS COUNTY

Jan. 26, 1955	0.27	92	44	42	288	0	26	410	174	18	0.9	816	8.2
Mar. 22	2.77	37	63	52	265	0	32	350	133	24	1.2	864	7.3
Apr. 28	.33	50	58	50	280	0	37	365	136	23	1.1	919	7.5
June 15	7.61	66	40	48	278	0	32	330	102	24	1.2	857	7.4
Aug. 8	167	62	11	7.4	212	0	5.0	198	24	7	.2	402	7.5

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN OKLAHOMA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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				
PALO DURO CREEK NEAR RANGE, TEXAS COUNTY													
Oct. 25, 1954	0.73	90	60	140	248	0	195	470	267	39	2.8	1,340	8.1
Feb. 9, 1955	7.33	69	34	128	242	0	182	310	112	47	3.2	1,260	7.9
Apr. 4	2.34	90	50	212	332	0	285	430	158	52	4.4	1,810	7.4
July 7	.76	188	76	--	212	0	750	780	606	--	--	3,480	7.5
KIOWA CREEK NEAR SLAPOUT, BEAVER COUNTY													
Nov. 17, 1954	4.63	80	49	62	256	6	106	400	180	25	1.4	886	8.3
Jan. 24, 1955	10.1	75	31	65	280	0	90	315	86	31	1.6	834	8.1
Mar. 23	7.82	59	18	75	244	0	98	220	20	43	2.2	772	7.8
Aug. 3	5.32	62	21	67	228	0	96	240	53	38	1.9	765	7.3
CLEAR CREEK NEAR MAY, HARPER COUNTY													
Nov. 17, 1954	6.54	70	31	31	214	0	54	300	124	18	0.8	553	8.2
Jan. 24, 1955	9.60	66	11	35	224	0	44	210	26	27	1.0	548	8.2
Mar. 29	8.70	56	7.4	39	218	0	51	170	0	33	1.3	561	7.7
July 28	6.84	68	9.8	36	248	0	56	210	7	27	1.1	590	7.3
WOLF CREEK NEAR FORT SUPPLY, WOODWARD COUNTY													
Nov. 17, 1954	0.14	312	90	163	334	0	175	1,150	876	24	2.1	2,410	8.0
Feb. 8, 1955	.50	284	71	127	320	0	170	1,000	738	22	1.7	2,250	7.8
Apr. 27	.26	200	93	161	259	0	190	880	668	28	2.4	2,130	7.7
May 2	.75	196	107	158	292	0	175	930	690	27	2.3	2,220	7.2
May 24	1,580	46	11	61	154	0	98	160	34	45	2.1	693	8.0
July 28	11.3	93	17	66	200	0	83	300	136	32	1.7	839	6.5
BOILING SPRINGS (SPRING NO. 1) NEAR WOODWARD, WOODWARD COUNTY													
Aug. 21, 1955	0.05	48	8.8	39	158	0	49	156	26	35	1.4	485	7.8

NORTH CANADIAN RIVER NEAR WOODWARD, WOODWARD COUNTY

May 9, 1955	42.5	50	13	67	152	0	102	180	56	45	2.2	761	8.1

INDIAN CREEK NEAR WOODWARD, WOODWARD COUNTY

Dec. 13, 1954	3.24	184	20	123	268	0	185	540	320	33	2.3	1,560	8.0
Feb. 7, 1955	3.40	158	23	107	264	0	175	490	274	32	2.1	1,440	7.6
Mar. 29	2.82	157	24	82	276	0	180	490	264	27	1.6	1,450	7.9

NORTH CANADIAN RIVER NEAR GUYMON, TEXAS COUNTY

Oct. 5, 1954	0.99	58	40	27	260	0	15	310	97	16	0.7	567	8.1
Oct. 25	1.49	47	27	22	236	0	15	230	36	17	.6	525	8.1
Nov. 12	1.79	50	30	23	226	2	15	250	62	17	.6	593	8.3
Jan. 12, 1955	4.87	53	26	25	268	0	13	240	20	19	.7	553	7.9
Apr. 28	2.20	29	36	30	264	0	14	220	4	23	.9	538	7.5
May 1	286	56	12	23	224	0	12	190	6	21	.7	417	6.8
June 15	11.1	31	29	32	272	0	17	195	0	26	1.0	569	7.2
Aug. 8	147	48	10	5.5	188	0	3.5	162	8	7	.2	350	7.8

NORTH CANADIAN RIVER AT CANTON RESERVOIR, NEAR CANTON, BLAINE COUNTY

May 11-13, 1955		64	11	70	115	0	91	205	111	42	2.1	836	7.4
May 14	68.6	59	17	41	120	0	68	215	116	29	1.2	723	8.1
May 15-18		64	28	106	132	0	132	275	132	50	3.0	1,030	7.7
May 24-31		44	17	51	132	0	69	180	72	38	1.7	617	7.7
June 1-30		50	10	51	122	0	80	168	68	39	1.7	673	6.9
July 1-31		46	18	57	160	0	75	190	59	39	1.8	643	6.9

WEWOKA CREEK NEAR WETUMKA, HUGHES COUNTY

Dec. 16, 1954	5.68	3,530	752		81	0	36,000	11,900	11,800			76,800	7.6
Jan. 15	16.8	2,070	505		22	0	19,600	7,240	7,220			47,500	6.9
Mar. 2, 1955	94.5	200	17		20	0	1,750	570	554			5,540	7.2
Apr. 11	13.7	2,120	251		6	0	19,400	6,320	6,320			46,800	6.2
May 31	58.7	597	122		58	0	5,770	1,990	1,940			17,000	7.7

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN OKLAHOMA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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				
WEWOKA CREEK NEAR WETUMKA, HUGHES COUNTY--Continued													
July 11, 1955	3.74	1,190	372		38	0	11,600	4,500	4,470			9,700	7.1
Aug. 16	1.41	1,370	635		75	0	16,600	6,030	5,970			41,800	8.0
Sept. 21	.68	1,670	478		41	0	17,300	6,130	6,100			43,300	7.8
BEAR CREEK NEAR FALLIS, LINCOLN COUNTY													
Apr. 11, 1955	0.66	16	71	58	464	26	19	332	0	28	1.4	756	8.5
May 31	.73	62	43	33	436	0	16	330	0	18	.8	704	7.9
CAPTAIN CREEK NEAR WELLSTON, LINCOLN COUNTY													
Apr. 11, 1955	1.88	30	29	22	234	6	30	194	0	9	0.7	461	8.3
May 3	1.41	38	38	24	292	0	28	250	0	17	.7	550	8.2
QUAPAW CREEK NEAR MEEKER, LINCOLN COUNTY													
Apr. 28, 1955	8.42	34	18	37	216	0	38	160	0	33	1.3	469	7.9
DRY CREEK NEAR KENDRICK, LINCOLN COUNTY													
Sept. 30, 1955	0.71	8.4	4.6	3.3	42	0	8.2	40	6	15	0.2	98.6	7.1
DEEP FORK NEAR WELTY, OKFUSKEE COUNTY													
Nov. 18, 1954	--	61	32	172	216	14	300	285	84	57	4.4	1,420	8.6
Jan. 17, 1955	12.9	100	37	230	188	8	380	400	232	56	5.0	1,910	8.5
Mar. 2	17.2	56	24	154	226	8	214	240	42	58	4.3	1,270	8.5
Apr. 11	20.6	61	26	142	290	0	205	260	22	54	3.8	1,240	8.2
May 31	385	39	13	44	166	0	76	152	16	39	1.5	546	7.8
July 11	18.1	59	34	114	286	0	176	285	50	47	2.9	1,050	7.8
Aug. 17	11.9	51	35	166	248	0	265	272	69	57	4.4	1,360	8.2

LITTLE DEEP FORK CREEK NEAR EDNA, CREEK COUNTY

Jan. 17, 1955	0.99	582	131	--	86	0	4,880	1,990	1,920	--	--	14,400	7.9
Mar. 2	.95	506	85	--	64	0	4,290	1,610	1,560	--	--	12,800	7.6
Apr. 11	59.9	41	4.3	159	32	0	300	120	94	74	6.3	1,140	7.2
May 31	12.7	107	25	423	78	0	850	370	306	71	9.6	2,780	7.3

SALLISAW CREEK NEAR SALLISAW, SEQUOYAH COUNTY

Nov. 3, 1954	1.62	21	1.3	2.3	52	0	7.0	58	16	8	0.1	126	7.5
Jan. 6, 1955	124	24	4.9	1.8	58	0	5.5	80	32	5	.1	147	7.3
Mar. 14	53.6	26	.2	2.4	68	0	8.0	66	10	7	.1	160	7.6
June 1	120	24	5.4	1.7	84	0	3.2	82	13	4	.1	170	6.7
July 13	3.22	3.1	2.6	3.1	99	0	5.0	88	7	7	.1	176	7.1
Aug. 8	8.81	24	1.0	3.8	67	0	4.0	64	9	12	.2	132	6.2

FOURCHE MALINE NEAR RED OAK, LATIMER COUNTY

Sept. 30, 1955	7.83	5.6	3.4	8.4	14	0	8.1	28	16	40	0.7	99.4	6.0

POTEAU RIVER AT WISTER RESERVOIR, NEAR WISTER, LEFLORE COUNTY

Nov. 1-30, 1954		6.0	2.4	7.0	30	0	4.8	25	0	35	0.6	88.9	7.4
Dec. 1-31		6.6	.9	5.0	24	0	3.4	20	0	34	.5	85.1	7.0
Jan. 1-31, 1955		3.3	1.2	3.7	11	0	3.0	13	4	35	.4	62.1	6.8
Feb. 1-28		3.6	1.2	4.2	11	0	3.5	14	5	36	.5	65.2	6.8
Mar. 1-31		3.2	1.5	3.7	12	0	5.0	14	4	33	.4	70.0	6.9
Apr. 1-30		4.2	2.1	5.5	17	0	3.6	19	5	35	.6	63.5	7.0
May 1-31		4.8	2.2	3.9	15	0	5.0	21	8	26	.4	70.6	5.7

ARKANSAS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN ARKANSAS RIVER BASIN IN TEXAS

Chemical analyses, in parts per million, water year October 1954 to September 1955

Date of collection	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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
AMARILLO CREEK NEAR AMARILLO																							
Jan. 11, 1955	13.3	76		53	45	94		257		93	75	--	134		720	0.98		317	106	39	2.3	1,110	8.2
Feb. 16	9.18	53		48	39	133		266		97	105	3.0	118		a727	.99		280	76	51	3.5	1,170	--
Mar. 24	13.6	44		52	36	165		302		80	122	3.6	154		a806	1.10		278	30	56	4.3	1,370	7.0
Apr. 18	12.0	109		59	40	145		311		133	111	3.6	85		a756	1.03		312	57	50	3.6	1,230	--
May 17	12.6	94		57	36	129		291		119	94	3.2	81		764	1.04		290	51	49	3.3	1,100	--
June 24	14.5	64		57	28	122		288		103	89	2.8	28		635	.86		256	20	49	3.0	974	--
July 14	7.36	77		59	36	137		304		135	107	3.6	51		767	1.04		294	44	50	3.5	1,130	--
Aug. 10	17.7	92		63	32	114		312		107	96	2.8	32		704	.96		289	33	46	2.9	1,020	--
Sept. 8	10.4	60		55	36	133		324		114	101	3.6	46		722	.98		285	19	50	3.4	1,090	--
BONITA CREEK NEAR AMARILLO																							
Jan. 11, 1955	2.52	28			13					10	8.2		1.5									416	
CHICKEN CREEK NEAR AMARILLO																							
Jan. 11, 1955	4.08	24		32	7.9	13		152		6.8	4.8		2.5		a166	0.23		112	0	20	0.5	315	8.2
COETAS CREEK NEAR AMARILLO																							
Jan. 11, 1955	1.29	32		24	9.6	18		130		15	10		3.8		a176	0.24		100	0	28	0.8	353	8.1

a Sum of determined constituents.

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.--481 square miles.
RECORDS AVAILABLE.--Chemical analyses: December 1952 to September 1955.
Water temperatures: December 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,890 ppm Nov. 17-18; minimum, 95 ppm Sept. 25-26.
Hardness: Maximum, 475 ppm Nov. 17-18; minimum, 40 ppm Sept. 25-26.
Specific conductance: Maximum daily, 3,550 micromhos Nov. 17; minimum daily, 125 micromhos Sept. 26.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 2,340 ppm Sept. 19, 1954; minimum, 95 ppm Sept. 25-26, 1955.
Hardness: Maximum, 590 ppm Sept. 19, 1954; minimum, 40 ppm Sept. 25-26, 1955.
Specific conductance: Maximum daily, 3,730 micromhos Sept. 19, 1954; minimum daily, 103 micromhos Oct. 26, 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 sums of 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 5-14, 1954...	21.0	12		31	8.7	33	5.1	185	5	24	0.5	0.8		a211	0.29	12.0	114	0	37	1.3	379	8.2
Oct. 17.....	0	--		--	--	--	--	203	--	45	--	--		--	--	--	130	0	--	--	480	8.2
Oct. 24.....	0	--		--	--	--	--	215	--	46	--	--		--	--	--	135	0	--	--	495	8.2
Nov. 1.....	0	--		--	--	--	--	226	--	49	--	--		--	--	--	141	0	--	--	519	8.2
Nov. 5.....	0	--		--	--	--	--	124	--	700	--	--		--	--	--	345	244	--	--	2,340	7.9
Nov. 7.....	0	--		--	--	--	--	229	--	51	--	--		326	.44	--	144	0	--	--	528	8.2
Nov. 10.....	18.0	13		16	5.0	34	4.1	77	5	46	.6	7.0		a168	.23	8.16	61	0	53	1.9	304	7.8
Nov. 11-14.....	1.55	9.6		17	5.0	86	3.2	78	6	127	.8	5.0		297	.40	1.24	64	0	73	4.7	561	7.7
Nov. 15-16.....	7.55	7.4		62	17	232	5.4	91	23	450	.4	4.0		a846	1.15	17.2	225	150	68	6.7	1,600	7.8
Nov. 17-18.....	1.65	8.6		129	37	538	7.6	86	13	1,110	.4	4.0		1,890	2.57	8.42	475	404	71	11	3,550	7.8
Nov. 22.....	0	--		--	--	--	--	100	--	720	--	--		--	--	--	340	258	--	--	2,500	7.8
Nov. 28.....	0	--		--	--	--	--	113	--	700	--	--		1,480	2.01	--	335	242	--	--	2,430	7.8
Dec. 11-13, 15-18.	19.8	6.4		22	6.0	85	3.2	93	2	132	.5	3.5		314	.43	16.8	80	4	69	4.1	612	7.8
Dec. 14, 28-31....	2.50	5.2		33	8.9	134	3.5	120	12	215	.5	1.0		a472	.64	3.19	120	22	70	5.3	912	7.8
Dec. 19.....	0	--		--	--	--	--	119	--	103	--	--		--	--	--	84	0	--	--	535	7.8
Dec. 26.....	0	--		--	--	--	--	121	--	104	--	--		324	.44	--	84	0	--	--	531	7.8
Jan. 1-10, 14-16, 1955.....	2.52	8.4		33	11	106		152	14	154	.5	1.5		a403	.55	2.74	128	4	64	4.1	761	7.8
Jan. 11-13.....	5.27	6.4		70	22	325		96	13	620	.6	4.0		1,110	1.51	15.8	264	185	73	8.7	2,140	7.5
Jan. 17, 20.....	15.0	8.4		43	9.1	143		93	7.7	262	.5	3.0		576	.78	23.3	146	70	68	5.2	1,030	7.6
Jan. 18-19, 21....	46.5	10		18	4.9	65		88	7.2	87	.6	4.5		240	.33	30.1	66	0	68	3.5	447	7.5
Jan. 22-24.....	.97	11		34	5.2	101		89	7.4	172	.4	2.5		398	.54	1.04	106	33	67	4.3	724	7.5
Jan. 30.....	0	--		--	--	--		95	--	232	--	--		--	--	--	130	52	--	--	888	8.0

a Sum of determined constituents.

RED RIVER BASIN--Continued

LITTLE WICHITA RIVER NEAR ARCHER CITY, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 4, 1955	73.0	10		37	14	152		97	6.4	278	--	4.5		614	0.84	121	150	70	69	5.4	1,050	7.8
Feb. 5-12	22.8	7.8		22	5.3	72		86	6.9	108	0.4	3.5		270	.37	16.6	77	7	67	3.6	512	7.4
Feb. 13	0	--		--	--	--		89	--	117	--	--		--	--	--	83	10	--	--	545	7.9
Feb. 19	103	6.4		31	7.7	114		100	7.1	187	.6	3.0		424	.58	118	110	28	69	4.7	785	7.6
Feb. 20	78.0	9.8		37	5.9	118		70	7.0	215	.8	4.0		481	.65	101	116	58	69	4.8	842	7.8
Feb. 21-28	4.86	9.2		25	3.2	60		82	6.3	91	.5	3.8		257	.35	3.37	76	9	63	3.0	459	7.5
Mar. 20, 22-23	27.4	9.6		46	11	157		81	8	300	.5	4.5		642	.87	47.5	161	94	68	5.4	1,160	7.4
Mar. 21, 24-29	31.9	10		30	7.1	74		106	9.1	117	.3	4.0		330	.45	28.4	105	18	60	3.1	579	7.7
Apr. 3	0	--		--	--	--		115	--	119	--	--		--	--	--	102	8	--	--	609	8.0
Apr. 6-7, 27	68.5	10		26	6.9	57		94	9	90	.5	3.5		260	.35	48.1	94	17	57	2.5	488	7.3
Apr. 8-9	7.70	9.4		53	12	174		86	9	335	.4	7.2		734	1.00	15.3	182	111	68	5.6	1,260	7.5
Apr. 10	4.00	15		107	29	335		84	22	720	.2	7.3		1,280	1.74	13.8	386	317	65	7.4	2,510	7.9
Apr. 11-14	3.30	11		38	8.3	103		102	8	182	.3	4.0		434	.59	3.87	128	44	64	4.0	785	7.6
Apr. 15-17, 28	104	10		50	13	160		114	12	295	.3	5.0		638	.87	179	178	85	66	5.2	1,160	7.8
Apr. 20, 25	0	--		--	--	--		129	--	298	--	--		--	--	--	189	83	--	--	1,190	7.8
Apr. 29-30, May 1-5	10.6	13		30	7.4	60		116	8.6	90	.4	3.5		278	.38	7.96	105	10	55	2.5	512	7.5
May 8, 15	0	--		--	--	--		149	--	83	--	--		--	--	--	123	1	--	--	527	8.0
May 16-20, 26-27	226	12		36	7.4	71		103	7.4	125	.5	6.9		348	.47	212	121	36	56	2.8	607	7.9
May 21-23, 25, 28-31	121	11		25	5.7	44		75	4.6	78	.5	3.8		244	.33	79.7	86	25	52	2.0	403	7.2
May 24	34.0	14		49	12	168		87	10	320	.4	4.2		664	.90	61.0	173	102	68	5.6	1,180	7.5
June 1, 4-10,	83.7	12		29	6.5	59		97	5.3	98	.5	4.2		286	.39	64.6	99	20	57	2.6	503	7.9
June 11-14	1.63	10		32	7.0	82		85	6.6	147	.5	3.0		364	.50	1.60	110	40	62	3.4	649	7.5
June 18-20	588	9.6		21	4.8	39		74	5.1	62	.5	4.0		a182	.25	289	73	12	54	2.0	350	7.3
June 21-23	289	20		22	4.4	28		88	4.9	37	.4	3.5		195	.27	152	72	0	46	1.4	284	7.7
June 24-27	.85	22		28	6.7	37		120	5.0	40	.4	4.0		230	.31	.53	97	0	45	1.6	366	8.0
July 2-3	1.30	21		62	17	164		171	7.2	305	.5	2.2		a 663	.90	2.33	224	84	61	4.8	1,260	8.2
July 10, 17	0	--		--	--	--		216	--	143	--	--		--	--	--	172	0	--	--	805	8.2
July 19-20	35.0	16		72	14	279		112	12	518	.7	8.0		992	1.35	93.7	237	145	72	7.9	1,870	7.8
July 21-23	2.03	18		31	6.6	87		109	5.8	138	.5	3.5		a344	.47	1.89	105	16	64	3.7	643	8.0
July 24, 31	0	--		--	--	--		137	--	186	--	--		--	--	--	148	36	--	--	828	8.1

a Sum of determined constituents.

Aug. 10, 1955.....	0	--		--	--	--	186	--	216	--	--		--	--	--	189	37	--	--	985	--
Aug. 20-21.....	4.05	16		31	8.5	45	179	9.7	33	1.0	5.0		a 237	.32	2.59	112	0	47	1.9	410	8.1
Sept. 6, 12, 19....	0	--		--	--	--	220	--	48	--	--		--	--	--	138	0	--	--	513	8.2
Sept. 23-24.....	24.5	10		34	7.3	83	125	6.7	129	.8	4.5		a 336	.46	22.2	116	14	61	3.4	643	7.6
Sept. 25-26.....	3,890	6.4		12	2.4	18	48	7.8	20	.5	4.0		a 95	.13	998	40	1	50	1.3	156	7.3
Sept. 27-30.....	1,880	11		28	7.3	24	144	2.6	20	.5	3.5		188	.26	954	100	0	35	1.1	310	8.1
Weighted average	b 64.3	9.7		23	5.5	36	94	5.6	51	0.5	4.0		197	0.27	34.2	80	3	49	1.8	337	--

a Sum of determined constituents.
b Represents 100 percent of runoff for water year October 1954 to September 1955.

RED RIVER BASIN--Continued

LITTLE WICHITA RIVER NEAR ARCHER CITY, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually before 7 a. m. Many days of no flow/

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

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 September 1955.
Water temperatures: December 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,670 ppm Sept. 24; minimum, 57 ppm May 19.
Hardness: Maximum, 418 ppm Sept. 24; minimum, 25 ppm Feb. 20.
Specific conductance: Maximum daily, 3,360 micromhos July 22; minimum daily, 96.9 micromhos May 19.
EXTREMES, 1952-55.--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.--Values reported for dissolved solids concentrations less than 1,000 ppm are residues on evaporation and for concentrations more than 1,000 ppm are sums of 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 7, 1954	0	--		--	--	--		174	--	33	--	--		252	0.34	--	114	0	--	--	386	8.2
Oct. 9-10	11.6	--		--	--	--		185	--	108	--	--		380	.52	11.9	130	0	--	--	641	8.2
Oct. 21	0	--		--	--	--		195	--	109	--	--		--	--	--	137	0	--	--	665	8.2
Oct. 27	0	--		--	--	--		194	--	110	--	--		--	--	--	140	0	--	--	672	8.2
Nov. 5	0	--		--	--	--		197	--	113	--	--		--	--	--	141	0	--	--	683	8.2
Nov. 11	0	--		--	--	--		200	--	115	--	--		404	55	--	145	0	--	--	699	8.2
Nov. 18	0	--		--	--	--		212	--	82	--	--		--	--	--	140	0	--	--	608	8.2
Nov. 25	0	--		--	--	--		216	--	85	--	--		--	--	--	145	0	--	--	617	8.2

RED RIVER BASIN--Continued

LITTLE WICHITA RIVER NEAR HENRIETTA, TEX.--Continued

Chemical analyses, *in parts per million*, water year October 1954 to September 1955--*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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Dec. 2, 1954	0	--		--	--	--		219	--	87	--	--		--	--	--	149	0	--	--	631	8.2
Dec. 8	0	--		--	--	--		222	--	90	--	--		382	.52	--	153	0	--	--	653	8.2
Dec. 13-15	43.9	7.4		47	14	219		85	12	402	0.4	4.5		a750	1.02	88.9	176	102	72	7.1	1,430	7.9
Dec. 16-17, 19-26, 28-31	1.27	8.0		54	11	239		110	12	420	.3	2.2		870	1.18	2.98	179	89	74	7.8	1,540	7.8
Jan. 1, 1955	0	--		--	--	--		124	--	400	--	--		--	--	--	172	141	--	--	1,440	8.1
Jan. 5	0	--		--	--	--		125	--	330	--	--		--	--	--	155	43	--	--	1,230	8.1
Jan. 8-20	7.55	7.8		39	9.7	148		114	9.3	250	.5	2.0		549	.75	11.2	137	44	70	5.5	1,000	7.5
Jan. 21	55	7.0		79	24	358		113	16	682	--	3.5		1,230	1.67	183	296	204	72	9.1	2,280	7.9
Jan. 22-31	4.93	8.2		45	13	189		93	11	345	.4	3.0		730	.99	9.72	167	91	71	6.4	1,290	7.7
Feb. 4, 7-18	14.7	8.2		24	5.8	82		85	7.6	128	.5	3.0		308	.42	12.2	83	14	68	3.9	567	7.8
Feb. 5-6, 19	89.0	6.4		11	3.8	43		55	5.6	58	--	3.0		176	.24	42.3	42	0	69	2.9	293	7.4
Feb. 20	32	8.8		--	--	10	--	42	--	5.0	--	5.0		--	--	--	25	0	47	1.8	97.9	7.4
Feb. 21	170	12		63	7.0	276		103	17	480	.8	7.3		976	1.33	448	187	102	76	8.8	1,670	7.9
Feb. 22-28	20.2	7.6		27	4.1	86		67	7.1	145	.6	2.8		338	.46	18.4	85	30	69	4.0	597	7.3
Mar. 1-5, 23-25	16.8	8.6		26	5.8	74		79	6.8	125	.2	2.5		316	.43	14.3	90	26	64	3.4	561	7.4
Mar. 21	93	11		11	3.6	17		55	1	18	1.0	4.5		a94	.13	23.6	41	0	47	1.1	168	7.7
Mar. 22	243	9.2		24	5.1	38		87	4	59	.4	4.5		220	.30	144	81	10	50	1.8	359	7.4
Mar. 26-31	.88	9.6		39	8.8	122		84	8	224	.5	3.5		539	.73	1.28	133	64	67	4.6	896	7.4
Apr. 2, 5	0	--		--	--	--		98	--	216	--	--		--	--	--	130	50	--	--	883	7.8
Apr. 7-8	128	12		11	4.6	15		61	5	14	.5	4.5		a97	.13	33.5	47	0	41	1.0	160	7.7
Apr. 9-17	22.4	12		20	5.5	51		76	6.3	78	.4	4.0		232	.32	14.0	73	11	60	2.6	404	7.5
Apr. 19	0	--		--	--	--		96	--	63	--	--		--	--	--	78	0	--	--	371	7.9
Apr. 27	0	--		--	--	--		116	--	65	--	--		--	--	--	92	0	--	--	411	8.1
Apr. 29	623	13		40	9.5	107		109	7	192	.2	4.5		a426	.58	717	139	50	63	4.0	830	7.5
Apr. 30, May 1-8, 15-17	49.6	13		32	8.0	71		108	7.4	120	.3	3.5		330	.45	44.2	114	26	58	2.9	590	7.5
May 18	821	14		52	15	236		64	12	448	.6	5.2		818	1.11	1,810	190	138	73	7.4	1,550	7.9
May 19	1,430	7.2		7.8	2.3	8.4		34	2	10	.6	2.0		a57	.08	220	29	1	39	.7	96.9	7.4
May 20-26	799	11		19	4.5	33		69	4.6	51	.5	2.0		a160	.22	345	65	8	52	1.8	309	7.2
May 27, 29-31	53.2	11		36	8.7	100		100	7.7	177	.5	2.8		443	.60	63.6	127	45	63	3.8	761	7.4
May 28	160	15		25	6.5	48		103	7	70	.6	2.8		a226	.31	97.6	89	5	54	2.2	416	8.0

June 1-3, 6, 1955.	105	13		33	8.1	90	103	9	152	.5	3.0		390	0.53	111	117	32	63	3.6	683	7.7
June 4-5, 7-9, 11.	151	12		23	5.7	44	91	5.9	64	.5	3.5		222	.30	90.5	80	5	54	2.1	389	7.8
June 10, 12-17 ...	85.3	12		39	9.4	103	91	7.3	195	.5	3.0		a414	.56	95.3	137	62	62	3.8	804	7.7
June 18-20	967	8.6		18	4.4	30	63	4.0	48	.5	2.5		a147	.20	384	62	10	51	1.6	276	7.6
June 21-26	873	14		19	4.6	26	76	4.0	39	.4	1.8		a146	.20	344	67	5	46	1.4	274	7.6
June 27-30, July 1	2.46	--		--	--	--	119	--	38	--	--		--	--	--	92	0	--	--	332	8.0
July 2, 7, 14.....	0	--		--	--	--	138	--	42	--	--		--	--	--	104	0	--	--	355	8.2
July 19-21	113	12		15	4.0	19	77	2.7	16	.4	3.5		136	.18	41.5	53	0	43	1.1	185	8.0
July 22-31	8.89	17		101	28	429	81	17	860	.4	4.0		1,500	2.04	36.0	368	302	72	9.7	2,840	7.8
Aug. 1, 3, 5, 10..	0	--		--	--	--	115	--	352	--	--		--	--	--	185	91	--	--	1,350	7.9
Aug. 18, 26.....	0	--		--	--	--	128	--	412	--	--		--	--	--	224	119	--	--	1,550	8.0
Aug. 31, Sept. 1..	1.50	14		34	10	112	100	6.7	195	.6	3.5		432	.59	1.75	126	44	66	4.3	815	7.9
Sept. 14, 21	0	--		--	--	--	115	--	252	--	--		--	--	--	158	64	--	--	1,010	7.9
Sept 22-23	43.5	11		28	8.0	100	72	6.9	178	--	2.5		369	.50	43.3	102	43	68	4.3	720	7.8
Sept. 24	92	11		113	33	481	74	18	980	.4	2.2		1,670	2.27	415	418	358	71	10	3,250	7.8
Sept. 25-27	1,878	6.0		9.8	2.1	13	47	2.8	12	.2	3.0		a72	.10	365	33	0	46	1.0	123	7.4
Sept. 28-30	4,620	8.4		16	2.2	18	70	3.3	18	.2	2.0		a102	.14	1,272	50	0	43	1.1	176	7.5
Weighted average	b114	9.7		19	4.1	36	69	4.3	56	0.3	2.4		168	0.23	51.7	64	8	55	1.9	306	--

a Sum of determined constituents.
b Represents 100 percent of runoff for water year October 1954 to September 1955. No flow on many days.

RED RIVER BASIN--Continued

LITTLE WICHITA RIVER NEAR HENRIETTA, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually between 5 and 7 p. m. Many days of no flow./

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

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 from Cow Creek, and at mile 25.8.
DRAINAGE AREA.--563 square miles.
RECORDS AVAILABLE.--Chemical analyses: March 1953 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, January to September 1955

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				
Jan. 6, 1955	0.02	67	52	272	756	0	145	380	0	61	6.1	1,780	7.6
Feb. 8	4.35	116	22	41	304	0	25	380	131	19	.9	992	7.8
Feb. 24	3.86	132	37	45	326	0	26	480	213	17	.9	1,080	7.8
Mar. 16	2.70	141	31	50	372	0	29	480	175	18	1.0	1,140	8.1
Apr. 6	2.74	102	31	83	196	0	178	380	220	32	1.9	1,130	7.5
May 17	7.46	46	16	17	130	0	12	180	74	17	.6	407	7.0
May 20	32,200	23	18	7.7	80	0	12	130	64	11	.3	216	6.5
May 21	8,470	29	4.7	3.6	74	0	6.0	92	32	8	.2	221	6.8
June 8	35.6	144	46	98	420	0	135	550	206	28	1.8	1,480	7.2
July 22	15.0	47	14	23	160	0	30	175	44	22	.8	432	6.5
Aug. 7	8.23	86	28	87	372	0	63	330	25	36	2.1	1,010	7.2
Sept. 26	594	26	2.7	13	60	0	9.0	76	27	27	.7	187	7.3

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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, 7 miles north of Gainesville, Cooke County, and at mile 791.5.
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 1955.
Water temperatures: October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 3,830 ppm Aug. 1-6; minimum, 400 ppm Sept. 26-30.
Hardness: Maximum, 1,190 ppm Aug. 1-6; minimum, 170 ppm Sept. 26-30.
Specific conductance: Maximum daily, 7,730 micromhos Aug. 3; minimum daily, 636 micromhos Sept. 28.
Water temperatures: Maximum, 86°F Aug. 9, 19; minimum, 35°F Dec. 30.
EXTREMES, 1944-46, 1952-55.--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, 1952-55: 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 1955 available in district office at Oklahoma City, Okla. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 8-10, 1954	196	--	--	200	66	599	--	124	0	471	1,020	--	1.6	--	2,490	3.39	1,320	770	668	63	9.4	4,110	8.0
Oct. 7	195	--	--	136	39	340	--	116	4	264	642	--	2.4	--	1,480	2.01	779	500	398	60	6.6	2,650	8.3
Oct. 11, 13-20	193	--	--	192	66	537	--	132	0	463	950	--	1.4	--	2,340	3.18	1,220	750	642	61	8.5	4,080	7.6
Oct. 12	248	--	--	69	63	277	--	100	0	228	530	--	2.4	--	1,270	1.73	850	430	348	58	5.8	2,190	8.1
Oct. 21-31	151	--	--	240	34	519	--	144	4	474	900	--	1.6	--	2,290	3.11	934	740	616	60	8.3	3,870	8.3
Nov. 1-10	145	--	--	204	76	576	--	178	0	450	1,000	--	.7	--	2,540	3.45	994	820	674	60	8.7	4,200	8.2
Nov. 11-18	158	--	--	160	60	430	--	144	2	353	750	--	.7	--	1,940	2.64	828	645	524	59	7.4	3,190	8.3
Nov 19-20	128	--	--	208	66	533	--	147	11	472	925	--	1.0	--	2,370	3.22	819	790	651	59	8.2	3,780	8.5
Nov. 21-30	113	--	--	216	59	637	--	169	0	497	1,020	--	--	--	2,620	3.56	799	780	642	64	9.9	4,350	8.0
Dec. 1-10	110	--	--	240	71	621	--	201	0	500	1,080	--	1.2	--	2,720	3.70	808	890	726	60	9.1	4,520	8.2
Dec. 11-12, 16, 20	222	--	--	216	78	587	--	202	0	449	1,020	--	1.6	--	2,560	3.48	1,530	860	694	60	8.7	4,340	8.2
Dec. 13-15, 19	292	--	--	172	61	443	--	163	0	338	800	--	1.2	--	2,020	2.75	1,590	680	546	59	7.4	3,420	8.0
Dec. 17-18	280	--	--	128	32	290	--	136	0	215	525	--	1.7	--	1,360	1.85	1,030	450	338	58	5.9	2,360	8.1
Dec. 21-31	172	3.0	0.00	156	78	479	8.0	190	4	361	875	--	1.2	0.28	2,160	2.94	1,000	710	548	59	7.8	3,810	8.3
Jan. 1-10, 1955	173	--	--	180	63	488	--	206	0	325	900	--	3.1	--	2,150	2.92	1,000	710	541	60	8.0	3,670	8.1
Jan. 11-14	187	--	--	196	80	530	--	180	6	397	1,000	--	1.2	--	2,510	3.41	1,270	820	662	58	8.0	4,070	8.3
Jan. 15-20	206	--	--	236	87	655	--	199	0	437	1,200	--	--	--	3,040	4.13	1,690	945	782	60	9.3	4,750	8.0
Jan. 21-31	227	2.5	.00	240	74	650	6.4	188	5	441	1,180	0.2	--	.06	2,950	4.01	1,810	905	742	61	9.4	4,790	8.3

Feb. 1-6, 1955	156	--	--	196	62	554	--	189	0	384	1,020	--	--	--	2,490	3.39	1,050	745	590	62	8.8	4,050	8.0
Feb. 7.....	165	--	--	216	72	624	--	197	0	421	1,150	--	--	--	2,750	3.74	1,230	835	674	62	9.4	4,560	8.2
Feb. 8-10.....	395	--	--	176	55	534	--	175	0	333	950	--	2.4	--	2,260	3.07	2,410	665	522	64	9.0	3,800	8.1
Feb. 11-14.....	274	--	--	188	54	490	--	172	1	361	900	--	3.8	--	2,180	2.96	1,610	690	548	61	8.1	3,750	8.3
Feb. 15-17.....	202	--	--	256	73	666	--	172	0	491	1,200	--	--	--	2,910	3.96	1,590	940	799	61	9.4	4,800	8.2
Feb. 18-20.....	178	--	--	164	50	435	--	174	5	307	800	--	1.3	--	1,890	2.57	908	615	464	61	7.6	3,220	8.3
Feb. 21, 23, 28.....	287	--	--	156	54	445	--	164	0	285	800	--	1.4	--	1,930	2.62	1,500	610	476	61	7.8	3,240	8.2
Feb. 22.....	434	--	--	208	70	584	--	181	5	402	1,020	--	--	--	2,530	3.44	2,960	805	648	61	8.9	4,120	8.3
Feb. 24-27	263	--	--	108	38	315	--	134	0	208	532	--	3.1	--	1,330	1.81	944	425	315	62	6.6	2,300	8.0
Mar. 1-4	163	--	--	150	54	452	--	156	0	293	775	--	1.2	--	1,890	2.57	832	595	467	62	8.1	3,250	8.1
Mar. 5-10	125	--	--	186	74	626	--	144	0	407	1,080	--	--	--	2,570	3.50	867	770	652	64	9.8	4,330	7.9
Mar. 11-20	105	4.0	00	218	82	690	7.7	168	0	511	1,200	.4	.4	.41	3,100	4.22	879	880	742	63	10	4,580	8.2
Mar. 21-22, 27-31..	816	--	--	92	32	217	--	128	0	153	402	--	4.2	--	1,050	1.43	2,310	360	255	57	5.0	1,830	8.0
Mar. 23-24.....	1,175	--	--	58	18	129	--	92	0	72	242	--	2.2	--	603	.82	1,910	220	144	56	3.8	1,080	7.8
Mar. 25-26.....	1,510	--	--	138	48	364	--	142	0	277	650	--	6.5	--	1,610	2.19	6,560	540	424	59	6.8	2,780	8.1
Apr. 1-2, 6-7, 9....	329	--	--	110	34	286	--	131	0	215	478	--	2.8	--	1,220	1.66	1,080	415	308	60	6.1	2,140	7.9
Apr. 3-5, 8	350	--	--	144	43	378	--	158	0	294	625	--	2.6	--	1,640	2.23	1,550	535	406	61	7.1	2,800	7.8
Apr. 10.....	519	--	--	84	22	198	--	127	0	136	325	--	2.2	--	888	1.21	1,240	300	196	59	5.0	1,510	8.0
Apr. 11	410	--	--	74	23	176	--	134	0	127	280	--	4.4	--	831	1.13	920	280	170	58	4.6	1,330	8.0
Apr. 12-14	285	--	--	120	48	327	--	145	0	249	575	--	2.9	--	1,520	2.07	1,170	495	376	59	6.4	2,590	7.9
Apr. 15-18.....	216	--	--	164	70	462	--	168	0	365	875	--	2.2	--	2,210	3.01	1,290	695	558	59	7.6	3,620	8.0
Apr. 19-20.....	184	--	--	200	85	639	--	173	0	466	1,100	--	--	--	2,850	3.88	1,420	850	708	62	9.5	4,530	8.0
Apr. 21-30.....	138	--	--	188	73	578	--	173	0	396	1,080	--	2.6	--	2,680	3.64	999	770	628	62	9.1	4,490	8.1
May 1-3	147	--	--	238	95	742	--	149	0	565	1,350	--	--	--	3,300	4.49	1,310	985	863	62	10	5,310	7.6
May 4-5	205	--	--	92	34	293	--	126	0	166	520	--	3.0	--	1,290	1.75	714	370	267	63	6.6	2,220	7.7
May 6-10	175	--	--	192	76	586	--	142	0	466	1,010	--	--	--	2,590	3.52	1,220	790	674	62	9.1	4,240	7.7
May 11-12	268	--	--	146	59	431	--	136	0	325	795	--	2.6	--	2,010	2.73	1,450	605	494	61	7.6	3,270	7.9
May 13-18	4,529	--	--	220	56	553	--	119	0	601	850	--	4.6	--	2,510	3.41	30,690	780	682	61	8.6	4,020	7.9
May 19-20	32,100	--	--	84	2.6	116	--	136	0	128	170	--	4.2	--	622	.85	53,910	220	108	53	3.4	1,050	7.8
May 21-26	51,800	--	--	104	18	185	--	124	0	235	280	--	1.9	--	891	1.21	124,600	335	234	55	4.4	1,560	7.9
May 27-31.....	8,536	--	--	144	22	310	--	157	0	296	500	--	2.8	--	1,370	1.86	31,570	450	322	60	6.4	2,390	7.7
June 1	4,050	--	--	141	21	312	--	148	0	300	490	--	3.0	--	1,460	1.99	15,970	440	318	61	6.5	2,300	7.9
June 2-8	6,486	--	--	272	54	578	--	128	0	733	925	--	3.0	--	2,820	3.84	49,380	900	795	58	8.4	4,260	7.5
June 9-10	8,380	--	--	232	51	432	--	122	0	605	725	--	3.6	--	2,280	3.10	51,590	790	690	54	6.7	3,520	7.8

RED RIVER NEAR GAINESVILLE, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
June 11-13, 1955....	12,750	--	--	142	35	245	--	132	0	313	425	--	6.0	--	1,280	1.74	44,060	500	392	52	4.8	2,130	7.6
June 14-20	6,064	--	--	108	29	185	--	124	0	210	350	--	5.2	--	1,020	1.39	16,700	390	288	51	4.1	1,760	7.5
June 21-27	20,750	--	--	148	37	244	--	124	0	355	430	--	5.2	--	1,340	1.82	75,070	520	418	50	4.7	2,230	7.5
June 28-30.....	2,690	--	--	186	53	371	--	134	0	438	625	--	3.5	--	1,850	2.52	13,440	680	570	54	6.2	3,040	7.6
July 1-11	3,018	--	--	304	78	659	--	150	0	790	1,100	--	--	--	3,100	4.22	25,260	1,080	957	57	8.7	4,900	7.8
July 12-20	663	19	0.00	280	103	777	8.0	154	0	756	1,310	0.4	.2	0.41	3,470	4.72	6,210	1,120	994	60	10	5,590	7.4
July 21.....	1,060	--	--	232	78	643	--	164	0	561	1,100	--	--	--	2,830	3.85	8,100	900	766	61	9.3	4,650	7.7
July 22-25.....	1,955	--	--	140	46	366	--	140	0	302	630	--	2.6	--	1,610	2.19	8,500	540	426	60	6.9	2,750	7.8
July 26	1,290	--	--	184	61	487	--	150	0	412	850	--	2.3	--	2,140	2.91	7,450	710	587	60	7.9	3,580	8.0
July 27-31	1,078	--	--	328	81	735	--	142	0	814	1,300	--	--	--	3,560	4.84	10,360	1,150	1,030	58	9.4	5,380	7.8
Aug. 1-6.....	1,303	--	--	356	73	867	--	126	0	900	1,400	--	--	--	3,830	5.21	13,470	1,190	1,090	61	11	6,000	7.4
Aug. 7-10.....	1,052	--	--	220	63	543	--	126	0	565	900	--	.8	--	2,450	3.33	6,960	810	707	59	8.3	4,020	8.1
Aug. 11-12.....	1,145	--	--	256	71	667	--	132	4	641	1,120	--	--	--	2,990	4.07	9,240	930	816	61	9.5	4,880	8.3
Aug. 13-14.....	713	--	--	176	56	477	--	124	0	437	825	--	1.1	--	2,120	2.88	4,080	670	568	61	8.0	3,540	8.2
Aug. 15.....	564	--	--	156	56	454	--	126	0	363	790	--	2.5	--	1,960	2.67	2,980	620	517	61	7.9	3,210	8.2
Aug. 16-20.....	487	--	--	232	78	702	--	134	0	596	1,150	--	--	--	2,970	4.04	3,910	900	790	63	10	4,850	8.1
Aug. 21-31.....	360	--	--	276	88	804	--	158	0	714	1,320	--	--	--	3,430	4.66	3,330	1,050	920	62	11	5,550	8.1
Sept. 1-10	388	--	--	244	71	689	--	146	0	589	1,180	--	--	--	2,960	4.03	3,100	900	780	62	10	4,820	7.9
Sept. 11-14	324	--	--	192	54	539	--	144	0	435	900	--	3.1	--	2,300	3.13	2,010	700	582	63	8.9	3,740	7.8
Sept. 15-20	292	--	--	222	67	608	--	166	0	514	1,050	--	--	--	2,680	3.84	2,110	830	694	61	9.2	4,350	7.4
Sept. 21.....	266	--	--	150	48	388	--	122	0	356	660	--	1.6	--	1,730	2.35	1,240	570	470	60	7.1	2,870	8.0
Sept. 22-23	397	--	--	234	85	722	--	164	0	596	1,200	--	--	--	3,000	4.08	3,220	935	800	63	10	4,910	8.1
Sept. 24-25	2,195	--	--	118	40	312	--	126	0	282	510	--	1.8	--	1,390	1.89	8,240	460	357	60	6.3	2,370	8.0
Sept. 26-30.....	14,660	--	--	48	12	83	--	120	0	70	118	--	1.7	--	400	.54	15,830	170	72	51	2.8	732	7.7
Weighted average..	2,630	--	--	141	32	282	--	a130	--	326	462	--	--	--	1,370	1.86	9,730	484	377	56	5.6	2,270	--

a Includes equivalent of individual carbonate values shown above.

RED RIVER BASIN--Continued

RED RIVER NEAR GAINESVILLE, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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, 2.7 miles east of Carnegie, Caddo County, and at mile 353.9.
DRAINAGE AREA.--3,129 square miles including that of Running Creek.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,240 ppm Apr. 15-20; minimum, 218 ppm Sept. 22-25.
Hardness: Maximum, 1,230 ppm Apr. 15-20; minimum, 135 ppm Sept. 22-25.
Specific conductance: Maximum daily, 2,920 micromhos Oct. 12; minimum daily, 300 micromhos Sept. 22.
Water temperatures: Maximum, 90°F July 14, 30-31; minimum, freezing point Feb. 11.
EXTREMES, 1953-55.--Dissolved solids: Maximum, 2,390 ppm Aug. 12, 1954; minimum, 218 ppm Sept. 22-25, 1955.
Hardness: Maximum, 1,260 ppm Aug. 24-27, 1954; minimum, 135 ppm Sept. 22-25, 1955.
Specific conductance: Maximum daily, 3,530 micromhos Aug. 26, 1954; minimum daily, 300 micromhos Sept. 22, 1955.
Water temperatures: Maximum, 90°F July 14, 30-31, 1955; minimum, freezing point on several days during January, February and March 1954, Feb. 11, 1955.
REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct 1-10, 1954	9.90	17	0.02	248	66	210	5.5	251	730	290	0.0	1.8	0.30	1,790	2.43	48	890	684	34	3.1	2,510	8.2
Oct. 11-20	8.41	--	--	236	73	255	--	167	793	355	--	1.3	--	1,830	2.49	42	890	753	38	3.7	2,680	8.0
Oct. 21-31	8.06	14	.02	228	66	210	6.2	228	672	270	.0	1.7	.24	1,650	2.24	36	840	653	35	3.1	2,340	8.1
Nov. 1-10	11.9	--	--	242	65	209	--	246	703	285	--	2.4	--	1,740	2.37	56	870	668	34	3.1	2,450	8.0
Nov. 11-20	13.0	14	.02	264	66	221	6.0	286	724	315	.1	1.6	.21	1,830	2.49	64	930	696	34	3.2	2,600	7.9
Nov. 21-30	13.7	--	--	274	75	220	--	311	760	280	--	2.2	--	1,880	2.56	70	990	735	33	3.0	2,590	8.1
Dec. 1-10	14.3	--	--	292	76	195	--	334	794	238	--	2.8	--	1,860	2.53	72	1,040	766	29	2.6	2,530	8.1
Dec. 11-20	16.0	--	--	300	78	195	--	350	806	238	--	1.7	--	1,890	2.57	82	1,070	783	28	2.6	2,550	7.9
Dec. 21-31	19.0	17	.00	288	76	179	2.0	272	808	230	--	1.2	.23	2,110	2.87	108	1,030	807	27	2.4	2,400	8.2
Jan. 1-10, 1955	22.3	--	--	288	78	182	--	312	814	212	--	1.6	--	1,850	2.52	111	1,040	784	28	2.5	2,420	8.0
Jan. 11-20	21.7	10	.00	304	61	149	5.1	310	789	180	--	.6	.17	1,740	2.37	102	1,010	756	24	2.0	2,320	8.2
Jan. 21-31	20.7	--	--	256	75	170	--	254	779	192	--	2.4	--	1,700	2.31	95	945	737	28	2.4	2,260	8.0
Feb 1-8	31.0	--	--	252	77	164	--	267	761	180	--	1.0	--	1,660	2.26	139	945	726	27	2.3	2,210	8.0
Feb. 9-10	26.0	--	--	184	48	118	--	204	516	148	--	1.7	--	1,180	1.60	83	655	488	28	2.0	1,670	8.2
Feb. 11	22.0	--	--	204	46	94	--	a 210	564	100	--	2.0	--	1,170	1.59	69	700	528	23	1.5	1,590	8.3
Feb. 12-20	22.7	--	--	260	71	145	--	264	775	160	--	2.6	--	1,620	2.20	99	940	724	25	2.1	2,190	8.1
Feb. 21-28	21.5	--	--	266	70	148	--	277	753	175	--	2.0	--	1,610	2.19	93	950	723	25	2.1	2,200	8.2
Mar. 1-10	16.3	13	.00	288	59	173	4.1	316	760	190	.4	2.5	.36	1,720	2.34	76	960	701	28	2.4	2,250	8.2
Mar. 11-20	18.2	--	--	280	73	176	--	320	792	195	--	3.0	--	1,830	2.49	90	1,000	738	28	2.4	2,340	8.2
Mar. 21	41.0	--	--	248	83	200	--	170	872	235	--	3.2	--	1,810	2.46	200	960	820	31	2.8	2,500	8.1
Mar. 22-31	22.3	--	--	236	61	154	--	268	665	185	--	3.1	--	1,520	2.07	92	840	620	29	2.3	2,070	8.2

a Includes equivalent of 6 parts per million of carbonate (CO_3).

Apr. 1-10, 1955...	15.7	8.0	.00	250	72	168	4.6	292	740	190	.2	1.3	.29	1,690	2.30	72	920	680	28	2.4	2,180	8.2
Apr. 11-14.....	18.8	--	--	272	81	187	--	292	826	220	--	2.5	--	1,870	2.54	95	1,010	770	29	2.6	2,450	8.0
Apr. 15-20.....	27.0	--	--	310	111	190	--	289	1,060	232	--	3.3	--	2,240	3.05	163	1,230	993	25	2.4	2,780	7.9
Apr. 21-22, 24-26.	34.8	--	--	222	60	84	--	276	657	72	--	3.8	--	1,330	1.81	125	800	574	19	1.3	1,710	8.1
Apr. 23.....	60.0	--	--	122	33	36	--	161	340	30	--	6.2	--	698	.95	113	440	308	15	.7	962	8.2
Apr. 27, 30.....	59.5	--	--	218	37	43	--	152	607	39	--	4.6	--	1,120	1.52	180	695	570	12	.7	1,400	8.0
Apr. 28.....	84.0	--	--	104	22	11	--	80	276	10	--	7.2	--	509	.69	115	350	284	6	.3	668	8.0
Apr. 29	44.0	--	--	298	70	102	--	132	918	155	--	5.9	--	1,780	2.42	211	1,030	922	18	1.4	2,180	8.1
May 1-3.....	19.7	--	--	268	56	111	--	180	735	135	--	5.0	--	1,510	2.05	80	900	752	23	1.6	1,900	8.0
May 4-8.....	12.0	--	--	188	39	66	--	194	472	70	--	3.7	--	1,000	1.36	32	630	471	19	1.1	1,330	8.0
May 9-10.....	1,845	--	--	80	12	19	--	122	166	21	--	4.8	--	402	.55	2,000	250	150	14	.5	570	7.8
May 11, 13-17....	982	--	--	90	22	19	--	124	216	23	--	2.2	--	458	.62	1,210	315	214	12	.5	673	7.8
May 12, 18-20....	2,830	--	--	58	12	11	--	114	105	16	--	2.3	--	276	.38	2,110	195	102	11	.3	416	7.7
May 21	2,920	--	--	75	10	8.4	--	128	115	11	--	6.4	--	339	.46	2,670	230	125	7	.2	466	7.6
May 22-25, 31....	443	--	--	98	23	14	--	128	229	20	--	2.8	--	471	.64	563	340	235	8	.3	653	7.6
May 26-30.....	797	--	--	78	16	18	--	130	150	21	--	3.3	--	387	.53	833	260	154	13	.5	556	7.5
June 1-3.....	119	--	--	160	18	35	--	186	295	36	--	3.6	--	662	.90	213	475	322	14	.7	926	7.8
June 4-6.....	103	--	--	170	18	50	--	230	390	48	--	3.2	--	890	1.21	248	500	312	18	1.0	1,190	7.9
June 7.....	647	--	--	96	23	17	--	166	205	10	--	4.9	--	460	.63	804	335	199	10	.4	664	7.7
June 8-10.....	3,190	--	--	66	13	5.9	--	108	120	10	--	3.8	--	294	.40	2,530	220	132	6	.2	425	7.4
June 11, 16-17....	1,604	--	--	71	17	6.5	--	120	128	9.0	--	5.6	--	318	.43	1,380	245	146	5	.2	462	7.4
June 12-15.....	537	--	--	122	31	28	--	154	314	19	--	4.5	--	594	.81	861	430	304	12	.6	809	7.7
June 18.....	499	--	--	96	24	13	--	136	207	14	--	7.6	--	476	.65	641	340	228	8	.3	643	7.7
June 19-20.....	653	--	--	130	40	30	--	168	325	24	--	3.9	--	686	.93	1,210	490	352	12	.6	916	7.8
June 21-25.....	421	--	--	126	40	26	--	168	327	24	--	5.0	--	658	.89	748	480	342	11	.5	932	7.6
June 26-30.....	175	--	--	172	51	44	--	234	439	50	--	4.3	--	919	1.25	434	640	448	13	.8	1,270	7.8
July 1-3.....	220	--	--	196	66	50	--	250	535	52	--	1.9	--	1,100	1.50	653	760	555	12	.8	1,430	7.7
July 4-8.....	556	--	--	86	26	14	--	150	193	16	--	3.0	--	428	.58	643	320	197	9	.3	640	7.1
July 9-10.....	166	--	--	118	31	24	--	178	281	23	--	2.8	--	598	.81	268	420	274	11	.5	856	7.9
July 11-15.....	97.4	--	--	160	46	40	--	232	377	55	--	4.3	--	829	1.13	218	590	400	13	.7	1,190	8.1
July 16-19.....	578	--	--	65	21	14	--	140	120	26	--	3.8	--	330	.45	515	250	136	11	.4	534	7.9
July 20.....	168	--	--	146	57	26	--	194	407	35	--	4.6	--	801	1.09	363	600	441	9	.5	1,080	8.2

RED RIVER BASIN--Continued

WASHITA RIVER AT CARNEGIE, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
July 21-22, 1955...	213	--	--	80	24	14	--	152	171	23	--	5.5	--	410	0.56	236	300	176	9	0.4	635	8.1
July 23-25.....	110	--	--	106	29	22	--	172	247	32	--	4.4	--	548	.75	163	385	244	11	.5	825	8.0
July 26-29.....	69.5	--	--	192	54	65	--	212	487	96	--	4.0	--	1,040	1.41	195	700	526	17	1.1	1,460	8.2
July 30-31.....	63.5	--	--	206	55	125	--	228	558	168	--	2.9	--	1,280	1.74	219	740	553	27	2.0	1,810	8.2
Aug. 1-3, 5-6.....	50.4	--	--	200	68	112	--	230	589	138	--	1.2	--	1,270	1.73	173	780	592	24	1.7	1,750	8.1
Aug. 4, 7.....	60.5	--	--	144	51	64	--	178	423	88	--	1.4	--	901	1.23	147	570	424	20	1.2	1,290	8.2
Aug. 8.....	218	--	--	130	34	15	--	160	309	24	--	.4	--	627	.85	369	465	334	7	.3	828	8.2
Aug. 9.....	253	--	--	59	17	16	--	114	117	22	--	4.3	--	296	.40	202	215	122	14	.5	475	7.9
Aug. 10.....	366	--	--	88	26	18	--	140	207	20	--	4.9	--	446	.61	441	325	210	11	.4	667	8.1
Aug. 11-14.....	952	--	--	85	21	7.5	--	140	185	4.8	--	4.3	--	385	.52	990	300	186	5	.2	588	8.0
Aug. 15-18.....	97.8	--	--	124	29	16	--	140	309	16	--	3.1	--	580	.79	153	430	316	8	.3	822	8.0
Aug. 19-20.....	54.5	--	--	155	42	34	--	186	399	42	--	2.3	--	801	1.09	118	560	408	12	.6	1,100	8.2
Aug. 21-26.....	41.8	--	--	204	39	61	--	240	472	88	--	3.0	--	1,060	1.44	120	670	474	17	1.0	1,430	8.2
Aug. 27-31.....	33.6	--	--	232	54	107	--	260	589	155	--	2.5	--	1,350	1.84	122	800	587	23	1.6	1,800	8.1
Sept. 1.....	31.0	--	--	104	29	62	--	180	237	90	--	3.7	--	680	.92	57	380	232	26	1.4	1,010	8.2
Sept. 2-4.....	49.0	--	--	266	79	157	--	226	806	245	--	1.2	--	1,820	2.48	241	990	805	26	2.2	2,360	8.1
Sept. 5-10.....	31.0	--	--	160	50	62	--	232	424	81	--	1.6	--	989	1.35	83	605	415	18	1.1	1,320	8.1
Sept. 11-12.....	35.0	--	--	160	54	114	--	166	491	171	--	.8	--	1,180	1.60	112	620	484	29	2.0	1,650	8.0
Sept. 13-16.....	33.2	--	--	254	79	213	--	234	764	280	--	3.9	--	1,820	2.48	163	960	768	33	3.0	2,450	8.2
Sept. 17-21.....	22.8	--	--	222	62	95	--	244	609	105	--	1.3	--	1,300	1.77	80	810	610	20	1.5	1,700	8.0
Sept. 22-25.....	1,021	--	--	38	9.7	16	--	116	52	17	--	1.9	--	218	.30	601	135	40	21	.6	340	7.7
Sept. 26, 28-30....	179	--	--	124	40	61	--	150	362	76	--	2.0	--	800	1.09	387	475	352	22	1.2	1,130	7.8
Sept. 27.....	370	--	--	59	18	35	--	110	137	45	--	3.3	--	400	.54	400	220	130	26	1.0	609	7.9
Weighted average	210	--	--	94	23	25	--	141	213	31	--	3.5	--	489	0.67	277	329	214	14	0.6	694	--

RED RIVER BASIN--Continued

WASHITA RIVER AT CARNEGIE, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

RED RIVER BASIN--Continued

POND CREEK NEAR FORT COBB, OKLA.

LOCATION.--At gaging station, 100 feet downstream from bridge on county road, 2.7 miles north of Fort Cobb, Caddo County, and 5.0 miles upstream from mouth.
DRAINAGE AREA.--319 square miles.
RECORDS AVAILABLE.--Chemical analyses: May 1946 to July 1955.
Water temperatures: October 1946 to July 1948.
Sediment records: May 1947 to September 1948.
EXTREMES, 1946-48.--Dissolved solids: Maximum, 626 ppm July 11-20, 1948; minimum, 149 ppm May 15, 1947.
Hardness: Maximum, 432 ppm July 21-31, 1947; minimum, 69 ppm June 1, 1947.
REMARKS.--During the period 1946-48, sampling station located 2 miles downstream from gage. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, January to July 1955

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				
Jan. 18, 1955	18.2	98	23	25	228	0	16	340	153	14	0.6	667	8.2
Feb. 15	19.4	98	21	27	246	6	15	330	118	15	.6	708	8.3
Mar. 17	17.4	95	13	27	252	8	15	290	70	17	.7	710	8.3
Apr. 20	17.6	79	23	22	236	0	18	290	96	14	.6	646	8.2
Apr. 27	193	101	6.8	4.5	156	0	5.0	280	152	3	.1	569	7.4
June 9	2,390	42	8.5	3.4	116	0	4.0	140	45	5	.1	302	7.6
June 16	38.8	132	24	24	310	0	18	430	176	10	.5	887	8.1
July 20	18.0	60	24	24	132	0	17	248	140	22	.9	605	7.9

WEST BITTER CREEK NEAR CHICKASHA, OKLA.

LOCATION.--At bridge on U. S. Highway 62, 4 miles east of Chickasha, Grady County.
DRAINAGE AREA.--60.9 square miles.
RECORDS AVAILABLE.--Chemical analyses: March 1953 to August 1955.

Chemical analyses, in parts per million, October 1954 to August 1955

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. 19, 1954	0.14	54	35	20	224	14	11	280	73	13	0.5	569	8.6
Nov. 16	.32	75	64	39	402	16	20	450	94	16	.8	970	8.4
Dec. 16	.64	116	71	47	384	8	30	580	252	15	.8	1,230	8.3
Jan. 18, 1955	17.5	44	26	16	134	0	11	215	105	14	.5	419	8.0
Feb. 15	.72	71	59	60	266	6	28	420	192	24	1.3	1,100	8.4
Mar. 17	.57	128	68	74	438	0	32	600	241	21	1.3	1,380	7.9
Apr. 20	.45	77	74	70	342	0	32	495	215	23	1.4	1,180	8.1
June 16	1.79	114	57	46	388	0	30	520	202	16	.9	1,230	8.1
Aug. 1	.04	14	103	87	332	24	29	458	146	29	1.8	1,100	8.5
Aug. 22	(a)	27	52	39	224	0	17	280	96	23	1.0	680	8.2

a Less than 0.05 cfs.

RED RIVER BASIN

WASHITA RIVER NEAR PAULS VALLEY, OKLA.

LOCATION.--At gaging station at bridge on U. S. Highway 77, 2 miles northwest of Pauls Valley, Garvin County, 6 miles downstream from Owl Creek, 7 miles upstream from Washington Creek, and at mile 146.5.
DRAINAGE AREA.--5,330 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1951 to September 1955.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 1955

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				
Nov. 26, 1954	30.0	184	54	107	314	0	142	680	422	25	1.8	1,690	8.2
Dec. 8	29.4	192	51	110	350	0	130	690	403	26	1.8	1,660	8.2
Dec. 21	47.6	200	63	120	332	0	160	760	488	26	1.9	1,820	7.9
Jan. 3, 1955	164	144	54	75	306	0	80	580	330	22	1.4	1,230	8.0
Jan. 18	122	188	56	87	318	0	100	700	440	21	1.4	1,460	7.9
Feb. 1	67.3	184	68	98	332	0	120	740	468	22	1.6	1,550	8.0
Feb. 14	110	180	37	98	274	0	150	600	376	26	1.7	1,600	8.2
Feb. 28	90.4	172	46	95	272	4	129	620	390	25	1.7	1,510	8.3
Mar. 15	58.5	140	56	118	186	0	140	580	428	31	2.1	1,530	7.3
Mar. 22	260	75	23	59	241	0	76	280	82	31	1.5	834	7.0
Apr. 12	77.6	132	63	100	236	0	150	590	396	27	1.8	1,530	7.0
Apr. 26	1,960	47	12	20	152	0	22	165	40	21	.7	429	7.1
Apr. 27	882	65	19	36	205	0	42	240	72	25	1.0	645	7.1
May 2	227	160	54	95	216	0	115	620	443	25	1.7	1,510	7.3
May 11	2,560	90	9.8	27	304	0	27	265	16	18	.7	713	7.1
May 13	2,100	140	29	18	168	0	15	470	332	7	.4	942	7.2
May 24	3,400	30	47	13	200	0	14	270	106	10	.3	556	7.0
May 31	1,270	116	32	22	240	0	25	420	224	10	.5	963	7.0
June 10	523	90	60	49	272	0	61	470	247	18	1.0	1,050	7.3
June 30	389	130	38	40	220	0	36	480	300	15	.8	964	7.0
July 28	167	83	23	36	190	0	30	300	144	21	.9	674	6.9
Aug. 11	1,680	82	26	41	162	0	44	310	178	22	1.0	710	7.1
Aug. 15	1,080	130	33	14	192	0	12	460	302	6	.3	800	6.9
Aug. 23	176	107	15	17	176	0	12	330	186	10	.4	637	6.7
Sept. 8	145	76	23	23	148	0	21	285	164	15	.6	633	7.5
Sept. 21	77.5	60	27	31	140	0	36	260	146	21	.8	606	6.6
Sept. 26	3,820	46	11	10	160	0	8.0	160	29	12	.3	319	8.1
Sept. 28	1,170	62	12	12	184	0	12	204	53	11	.4	389	7.7
Sept. 30	661	70	13	14	154	0	13	230	104	12	.4	494	8.0

RUSH CREEK NEAR MAYSVILLE, OKLA.

LOCATION.--At gaging station at bridge on State Highway 74, 2¾ miles downstream from Panther Creek, 5.3 miles eouth of Mayeville, Garvin County, and at mile 14.2.
DRAINAGE AREA.--206 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955.
Water temperatures: October 1954 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 3,490 ppm Oct. 2; minimum, 165 ppm Aug. 10.
Hardness: Maximum, 1,220 ppm Oct. 2; minimum, 130 ppm Aug. 10.
Specific conductance: Maximum daily, 5,550 micromhos Oct. 2; minimum daily, 282 micromhos Aug. 10.
Water temperatures: Maximum, 98°F July 11, Aug. 8; minimum, freezing point on Dec. 28.
REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1954 to September 1955 given in WSP 1391. No flow Oct. 4, 5, 10-21, Sept. 19-21.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1, 1954	178	--	--	52	22	57	--	206	0	52	82	--	3.2	--	405	0.55	195	220	51	36	1.7	638	8.2
Oct. 2	8.20	--	--	204	173	708	--	148	0	117	1,720	--	--	--	3,490	4.75	77	1,220	1,100	56	8.8	5,550	8.2
Oct. 3	.30	--	--	140	111	456	--	174	0	227	1,000	--	3.3	--	2,150	2.92	1.7	810	662	55	7.0	3,560	7.6
Oct. 6-7	2.60	--	--	124	93	324	--	192	0	208	720	--	1.6	--	1,640	2.23	12	690	532	51	5.4	2,860	8.1
Oct. 8-9	.20	--	--	78	60	148	--	160	0	191	312	--	1.4	--	924	1.26	.50	440	309	42	3.1	1,560	8.2
Oct. 22-23	.45	--	--	76	95	217	--	284	0	230	390	--	1.7	--	1,210	1.65	1.5	580	348	45	3.9	2,050	8.1
Oct. 24-31	1.21	--	--	108	140	371	--	246	0	207	850	--	1.2	--	1,950	2.65	6.4	845	644	49	5.5	3,320	8.2
Nov. 1-10	2.04	--	--	96	123	303	--	224	0	202	715	--	1.1	--	1,760	2.39	9.7	745	562	47	4.8	2,900	8.2
Nov. 11-20	2.66	8.0	0.00	96	105	244	5.8	234	0	184	602	0.0	1.0	0.30	1,410	1.92	10	670	478	44	4.1	2,560	8.2
Nov. 21-27	1.64	--	--	96	112	252	--	277	1	193	582	--	1.0	--	1,580	2.15	7.0	700	472	44	4.1	2,590	8.3
Nov. 28-30	2.33	--	--	112	131	323	--	255	0	198	750	--	1.2	--	1,950	2.65	12	820	611	46	4.9	3,190	8.1
Dec. 1-10	3.64	--	--	116	107	251	--	317	0	191	560	--	1.9	--	1,490	2.03	15	730	470	43	4.0	2,580	8.2
Dec. 11-12	10.9	--	--	84	61	140	--	237	5	135	295	--	1.4	--	1,570	1.21	26	460	258	40	2.8	1,570	8.4
Dec. 13	16.0	--	--	116	116	529	--	118	0	157	1,120	--	1.8	--	2,390	3.25	103	765	668	60	8.3	4,180	8.2
Dec. 14	10.0	--	--	98	80	330	--	130	2	213	675	--	1.4	--	1,600	2.18	43	575	465	56	6.0	2,840	8.3
Dec. 15-20	6.08	--	--	110	79	214	--	282	0	178	435	--	1.0	--	1,250	1.70	21	600	369	44	3.8	2,130	8.0
Dec. 21-26, 31	6.74	--	--	118	89	228	--	303	0	163	500	--	1.3	--	1,370	1.86	25	660	412	43	3.9	2,320	8.2
Dec. 27-30	48.2	--	--	74	28	88	--	164	0	88	178	--	1.7	--	570	.78	74	300	166	39	2.2	1,020	8.1
Jan. 1-5, 1955	22.2	--	--	128	77	309	--	258	0	124	700	--	2.4	--	1,740	2.37	104	635	424	51	5.3	2,760	8.0
Jan. 6-10	8.02	--	--	116	72	210	--	297	0	156	435	--	1.7	--	1,310	1.78	28	585	342	44	3.8	2,120	8.1
Jan. 11-12, 15-16, 19-20	10.3	--	--	108	72	229	--	252	0	147	470	--	2.5	--	1,340	1.82	37	565	358	47	4.2	2,180	8.1
Jan. 13	6.70	--	--	100	85	440	--	113	0	165	950	--	3.0	--	2,100	2.86	38	600	508	61	7.8	3,520	8.1
Jan. 14, 17	6.80	--	--	124	83	306	--	249	0	160	675	--	1.8	--	1,650	2.24	30	650	446	51	5.2	2,780	8.0

RED RIVER BASIN--Continued

RUSH CREEK NEAR MAYSVILLE, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Non-carbonate				
Jan. 18, 1955	44.0	--	--	84	55	148	--	205	3	127	335	--	2.6	--	964	1.31	115	435	262	43	3.1	1,620	8.3
Jan. 21-31	8.27	14	0.00	108	73	223	2.5	257	0	174	472	0.1	2.5	0.03	1,300	1.77	29	570	360	46	4.1	2,200	8.0
Feb. 1-3, 7-10	9.17	--	--	96	74	222	--	223	0	156	465	--	1.8	--	1,200	1.63	30	545	362	47	4.1	2,110	8.0
Feb. 6	11.0	--	--	68	49	168	--	139	0	134	358	--	4.6	--	949	1.29	28	370	256	50	3.8	1,530	8.1
Feb. 4-5	67.5	--	--	66	29	92	--	160	2	89	185	--	5.0	--	585	.80	107	285	150	41	2.4	1,020	8.3
Feb. 11-18	8.65	--	--	104	82	203	--	261	0	184	430	--	1.0	--	1,220	1.66	28	595	381	43	3.6	2,040	7.9
Feb. 19	34.0	--	--	88	56	141	--	217	8	129	290	--	1.3	--	904	1.23	83	450	258	41	2.9	1,490	8.4
Feb. 20	24.0	--	--	94	72	356	--	158	0	109	725	--	1.8	--	1,520	2.07	98	530	400	59	6.7	2,760	8.1
Feb. 21-24, 26-28	7.96	--	--	96	79	198	--	240	0	176	430	--	.8	--	1,190	1.62	26	565	368	43	3.6	2,030	7.9
Feb. 25	8.20	--	--	92	83	345	--	131	0	176	700	--	.6	--	1,520	2.07	34	570	462	57	6.3	2,760	8.1
Mar. 1-10	6.32	5.0	.00	106	77	212	3.2	284	0	185	425	.2	1.0	.16	1,270	1.73	22	580	348	44	3.8	2,080	8.2
Mar. 11-18	6.44	--	--	86	79	182	--	211	0	198	402	--	.4	--	1,110	1.51	19	540	367	42	3.4	1,940	8.2
Mar. 19	17.0	--	--	122	96	465	--	160	0	165	975	--	.6	--	1,960	2.67	90	700	569	59	7.6	3,630	8.0
Mar. 20	684	--	--	58	20	42	--	176	0	67	70	--	.6	--	379	.52	700	225	81	29	1.2	626	7.9
Mar. 21-30	43.2	--	--	66	23	43	--	177	0	108	70	--	2.0	--	466	.63	54	260	115	26	1.2	707	7.9
Mar. 22, 24-29, 31	12.3	--	--	94	68	175	--	214	0	211	345	--	2.9	--	1,160	1.58	39	515	340	42	3.4	1,810	7.7
Mar. 23	12.0	--	--	88	38	78	--	198	0	158	140	--	4.2	--	705	.96	23	375	213	31	1.8	1,000	8.2
Apr. 1-10	7.73	6.5	.01	94	69	176	3.6	235	0	202	360	.2	.7	.08	1,100	1.50	23	520	328	42	3.4	1,780	8.1
Apr. 11-20	7.80	--	--	96	78	183	--	251	0	217	392	--	1.3	--	1,280	1.74	27	560	354	42	3.4	2,010	7.9
Apr. 21-25	4.68	--	--	96	80	232	--	262	0	229	442	--	4.8	--	1,380	1.88	17	570	356	47	4.2	2,200	8.2
Apr. 26-27	648	--	--	40	14	19	--	161	0	26	31	--	3.3	--	241	.33	422	158	26	21	.7	397	8.0
Apr. 28	41.0	--	--	72	29	47	--	157	0	165	90	--	7.3	--	553	.75	61	300	172	25	1.2	841	8.2
Apr. 29-30	15.0	--	--	88	46	91	--	209	4	170	192	--	2.6	--	765	1.04	31	410	232	33	2.0	1,260	8.3
May 1-10	23.6	--	--	92	66	191	--	257	0	231	378	--	1.9	--	1,170	1.59	75	500	290	45	3.7	2,000	7.9
May 11-12	528	--	--	64	15	26	--	140	0	100	47	--	1.3	--	396	.54	565	220	106	20	.8	580	7.5
May 13	25.0	--	--	92	24	68	--	172	0	147	135	--	2.5	--	625	.85	42	330	189	31	1.6	975	7.7
May 14-17	23.5	--	--	172	10	88	--	212	0	203	185	--	1.7	--	808	1.10	51	470	296	29	1.8	1,260	7.8
May 18, 20	662	--	--	56	17	31	--	153	0	72	50	--	1.2	--	365	.50	652	210	84	24	.9	591	7.6
May 19	7,940	--	--	46	8.5	19	--	138	0	44	26	--	3.5	--	256	.35	5,490	150	37	22	.7	391	7.5
May 21-22	145	--	--	93	41	85	--	230	0	148	165	--	2.4	--	701	.95	274	400	212	32	1.8	1,100	7.9
May 23-25	43.0	--	--	109	58	127	--	244	0	221	235	--	2.0	--	951	1.29	110	510	310	35	2.4	1,460	7.6
May 26-27	95.0	--	--	83	31	52	--	184	0	162	86	--	1.2	--	572	.78	147	335	184	25	1.2	854	7.7
May 28-29	23.5	--	--	86	48	98	--	200	0	176	200	--	1.9	--	824	1.12	52	410	246	34	2.1	1,250	7.7
May 30-31	17.0	--	--	114	69	143	--	254	0	257	295	--	.2	--	1,110	1.51	51	570	362	35	2.6	1,680	7.8

June 1-10, 1955	18.6	--	--	114	82	143	--	224	0	273	320	--	2.6	--	1,160	1.58	58	620	436	33	2.5	1,790	7.7
June 11-15	8.48	--	--	101	85	143	--	230	0	246	318	--	1.9	--	1,100	1.50	25	600	412	34	2.5	1,750	7.8
June 16-17	643	--	--	61	26	30	--	164	0	94	67	--	2.8	--	388	.53	674	260	126	20	.8	635	7.7
June 18-19	1,115	--	--	46	18	13	--	140	0	56	24	--	3.6	--	240	.33	723	190	76	13	.4	393	7.6
June 20	79.0	--	--	51	25	25	--	156	0	71	54	--	3.1	--	333	.45	71	230	102	19	.7	546	7.7
June 21-23	21.3	--	--	84	46	69	--	240	0	140	160	--	3.0	--	677	.92	39	400	204	27	1.5	1,100	7.7
June 24-30	10.1	--	--	108	85	139	--	276	0	258	308	--	2.5	--	1,160	1.58	32	620	394	33	2.4	1,840	7.6
July 1-5	6.00	--	--	98	111	190	--	268	0	300	385	--	1.8	--	1,280	1.74	21	700	480	37	3.1	2,060	7.9
July 6-10	3.28	--	--	100	110	252	--	290	0	340	470	--	2.8	--	1,490	2.03	13	700	462	44	4.1	2,410	8.0
July 11-18, 20	2.62	--	--	84	124	271	--	292	0	360	480	--	.0	--	1,560	2.12	11	720	480	45	4.4	2,560	7.7
July 19	9.60	--	--	184	173	603	--	114	0	297	1,400	--	--	--	2,900	3.94	75	1,170	1,080	53	7.7	4,990	7.9
July 21-31	1.90	12	.00	98	121	301	9.1	288	0	361	540	.2	.0	.52	1,630	2.22	8.4	740	504	47	4.8	2,760	8.0
Aug. 1-3, 6	2.70	--	--	96	150	373	--	326	0	450	635	--	.0	--	1,920	2.61	14	855	588	49	5.5	3,150	8.1
Aug. 4-5, 7-9	33.9	--	--	82	45	80	--	172	0	204	160	--	1.9	--	669	.91	61	390	249	31	1.8	1,130	8.1
Aug. 10	408	--	--	34	11	12	--	140	0	19	14	--	3.1	--	165	.22	182	130	16	17	.5	282	8.0
Aug. 11-12	53.0	--	--	70	35	68	--	178	0	151	116	--	.5	--	546	.74	78	320	174	32	1.7	930	8.1
Aug. 13-16	2.70	--	--	81	70	134	--	256	4	217	250	--	.1	--	917	1.25	6.7	490	274	37	2.6	1,550	8.3
Aug. 17-20	1.02	--	--	88	99	207	--	310	0	280	370	--	.1	--	1,240	1.69	3.4	625	371	42	3.6	2,100	8.2
Aug. 21-24	.90	--	--	90	113	249	--	292	4	327	470	--	1.7	--	1,490	2.03	3.6	690	444	44	4.1	2,460	8.3
Aug. 25-29	.72	--	--	128	131	310	--	320	0	319	700	--	1.8	--	1,880	2.56	3.7	860	598	44	4.6	3,020	8.1
Aug. 30-31	49.5	--	--	67	35	88	--	156	0	112	175	--	2.4	--	580	.79	78	310	182	38	2.2	1,030	8.1
Sept. 1-2	3.65	--	--	88	58	162	--	208	0	185	308	--	1.0	--	935	1.27	9.2	460	290	43	3.3	1,610	8.0
Sept. 3-6	1.78	--	--	84	88	210	--	254	0	226	410	--	.8	--	1,180	1.60	5.7	570	362	44	3.8	2,020	8.0
Sept. 7-9	.80	--	--	114	123	349	--	250	0	290	735	--	.7	--	1,850	2.52	4.0	790	585	49	5.4	3,120	7.1
Sept. 10	7.50	--	--	37	16	47	--	118	0	67	77	--	--	--	315	.43	6.4	160	64	39	1.6	614	7.6
Sept. 11-13	1.57	--	--	92	110	280	--	240	0	247	572	--	.0	--	1,490	2.03	6.3	680	484	47	4.7	2,510	8.1
Sept. 14-18	.32	--	--	124	147	396	--	328	0	339	830	--	.5	--	2,150	2.92	1.9	915	646	48	5.7	3,500	8.0
Sept. 22-23	355	--	--	38	18	22	--	148	0	43	40	--	1.0	--	239	.33	229	170	48	22	.7	436	7.7
Sept. 24-25	206	--	--	51	25	62	--	140	0	62	123	--	.8	--	410	.56	228	230	116	37	1.8	743	7.7
Sept. 26-27	520	--	--	42	16	25	--	144	0	36	50	--	.8	--	259	.35	364	170	52	24	.8	462	7.7
Sept. 28-30	17.7	--	--	56	29	58	--	188	0	72	104	--	.1	--	432	.59	21	260	106	33	1.6	762	7.9
Weighted average	61.5	--	--	56	22	45	--	a158	--	74	85	--	2.6	--	406	0.55	67	230	100	30	1.3	657	--

a Included equivalent of individual carbonate values shown above.

RED RIVER BASIN--Continued

RUSH CREEK NEAR MAYSVILLE, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	52	59	40	51	68	63	84	82	87	96	88
2	84	48	48	40	49	63	69	83	83	87	96	91
3	87	42	59	45	49	75	70	84	86	94	90	81
4	83	52	59	--	62	66	70	85	83	91	95	82
5	83	53	50	--	49	52	64	82	86	93	90	90
6	69	--	45	55	54	53	--	80	85	93	95	85
7	75	60	40	47	51	62	72	82	90	92	95	92
8	81	60	42	42	55	63	70	82	70	93	98	90
9	80	--	46	38	57	67	68	78	68	92	95	87
10	--	64	42	--	39	--	68	76	73	97	85	72
11	--	52	41	52	40	72	70	73	78	98	90	83
12	--	62	35	--	45	65	70	80	82	95	93	84
13	--	60	35	47	55	76	63	82	80	95	93	87
14	--	62	40	46	56	--	74	84	89	96	91	85
15	--	63	46	47	56	69	71	83	89	93	93	83
16	--	60	43	48	60	58	75	83	83	89	95	86
17	--	--	40	54	52	55	77	86	86	85	93	82
18	--	54	40	45	57	54	73	73	83	93	88	81
19	--	52	46	39	54	55	72	65	72	94	88	--
20	--	53	45	40	--	63	82	70	89	95	78	--
21	--	50	42	43	--	55	82	73	90	96	90	--
22	60	--	42	43	54	54	82	89	94	97	90	75
23	65	52	48	40	54	55	72	85	96	95	95	80
24	70	45	43	45	53	65	83	80	87	95	90	72
25	70	42	48	49	53	--	83	82	90	90	91	71
26	60	40	53	49	66	64	--	82	90	97	90	72
27	60	41	--	45	65	52	73	82	89	--	90	71
28	65	41	32	48	73	62	80	78	88	92	88	85
29	57	42	36	40	--	52	82	86	93	90	85	83
30	65	45	35	51	--	62	83	86	89	94	84	75
31	54	--	35	57	--	62	--	83	--	93	87	--
Average	--	52	44	46	54	61	74	81	85	93	91	82

WASHITA RIVER NEAR DURWOOD, OKLA.

LOCATION.--At gaging station at bridge on State Highway 18, 1.3 miles downstream from Caddo Creek, 4 miles north of Durwood, Carter County and at mile 63.4.
DRAINAGE AREA.--7,202 square miles.
RECORDS AVAILABLE.--Chemical analyses: May 1944 to September 1955.
Water temperatures: April 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 972 ppm May 5-10; minimum, 110 ppm Oct. 1.
Hardness: Maximum, 600 ppm July 10-12; minimum, 80 ppm Oct. 1.
Specific conductance: Maximum daily, 1,600 micromhos Nov. 29; minimum daily, 193 micromhos Oct. 1.
Water temperatures: Maximum, 84°F July 14, 29-31, Aug. 1; minimum, freezing point on Dec. 30.
EXTREMES, 1944-55.--Dissolved solids: Maximum, 1,050 ppm June 1-2, 1953, Sept. 11-14, 1954; minimum, 70 ppm Nov. 2, 1951.
Hardness: Maximum, 628 ppm Jan. 21-31,1951; minimum, 41 ppm Nov.2, 1951.
Specific conductance: Maximum daily, 1,600 micromhos Apr. 15, 1954, Nov. 29, 1954; minimum daily, 94.9 micromhos Nov. 2, 1951.
Water temperatures(April 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1, 1954	4,370	--	--	28	2.4	7.9	--	93	0	16	5.4	--	3.9	--	110	0.15	1,300	80	4	18	0.4	193	8.1
Oct. 2-10	355	--	--	54	17	46	--	157	0	89	63	--	3.0	--	404	.55	387	205	76	33	1.4	652	7.9
Oct. 11, 17-20	139	--	--	56	18	32	--	148	0	95	41	--	4.6	--	331	.45	124	214	92	25	.9	584	8.1
Oct. 12-14, 16	136	--	--	66	28	52	--	171	0	127	78	--	5.7	--	462	.63	170	280	140	29	1.4	799	8.2
Oct. 15	460	--	--	88	39	80	--	162	0	196	142	--	2.0	--	638	.87	792	380	248	31	1.8	1,100	8.2
Oct. 21-31	122	--	--	63	18	37	--	189	0	80	52	--	2.8	--	371	.50	122	230	75	26	1.1	607	8.2
Nov. 1-10	50.4	--	--	68	28	52	--	230	2	72	84	--	1.7	--	432	.59	59	285	93	28	1.3	786	8.3
Nov. 11-15	47.2	--	--	72	32	64	--	258	2	94	104	--	1.3	--	508	.69	65	310	95	31	1.6	901	8.3
Nov. 16-20	48.4	--	--	90	41	84	--	268	2	151	130	--	1.4	--	661	.90	86	395	172	32	1.8	1,120	8.3
Nov. 21-24	40.2	--	--	106	45	93	--	262	2	223	135	--	1.3	--	772	1.05	84	450	232	31	1.9	1,250	8.3
Nov. 25-30	45.3	--	--	124	44	119	--	320	0	261	170	--	1.7	--	965	1.31	118	490	228	35	2.3	1,550	8.1
Dec. 1-10	42.0	--	--	124	51	120	--	295	0	281	178	--	1.4	--	935	1.27	106	520	278	33	2.3	1,520	8.1
Dec. 11-20	137	6.5	0.00	112	32	127	4.9	264	8	224	145	--	1.1	0.00	797	1.08	295	410	180	40	2.7	1,350	8.4
Dec. 21-29	182	--	--	108	41	108	--	222	4	248	158	--	1.8	--	812	1.10	399	440	252	35	2.2	1,330	8.3
Dec. 30-31	298	--	--	52	15	36	--	158	0	58	55	--	3.7	--	308	.42	248	190	60	29	1.1	555	8.2

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RED RIVER BASIN--Continued

WASHITA RIVER NEAR DURWOOD, OKLA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Jan. 1-3, 1955	354	--	--	60	19	39	--	187	0	78	55	--	1.9	--	380	0.52	363	228	75	27	1.1	639	8.1
Jan. 4-10	227	--	--	102	28	61	--	255	0	144	95	--	3.3	--	662	.90	406	368	159	26	1.4	987	8.2
Jan. 11-20	253	--	--	110	31	63	--	274	0	166	95	--	2.3	--	682	.93	466	400	176	26	1.4	1,050	8.0
Jan. 21-24	255	--	--	84	24	62	--	207	0	145	92	--	2.4	--	554	.75	381	310	140	30	1.5	874	8.2
Jan. 25-31	164	--	--	118	37	75	--	251	0	226	105	--	3.6	--	718	.98	318	445	240	27	1.5	1,090	8.1
Feb. 1-4	140	--	--	102	35	72	--	233	0	210	105	--	1.6	--	684	.93	259	400	209	28	1.6	1,070	8.1
Feb. 5-10	422	--	--	68	21	52	--	188	0	103	75	--	3.6	--	452	.61	515	255	101	31	1.4	731	8.1
Feb. 11-19	222	--	--	100	40	84	--	205	0	244	110	--	2.3	--	693	.94	415	415	247	31	1.8	1,150	8.1
Feb. 20	1,310	--	--	78	17	46	--	196	0	133	55	--	3.8	--	443	.60	1,570	265	104	27	1.2	666	8.1
Feb. 21-23	507	--	--	76	15	49	--	191	0	90	70	--	2.3	--	411	.56	563	250	94	30	1.3	718	8.2
Feb. 24-28	218	--	--	88	27	39	--	208	0	144	75	--	1.3/	--	500	.68	294	330	160	20	.9	862	8.0
Mar. 1-10	152	5.5	0.00	106	33	83	3.2	252	0	221	111	0.2	1.3	0.16	716	.97	294	400	194	31	1.8	1,120	8.2
Mar. 11-19	133	--	--	100	44	87	--	201	8	239	120	--	1.8	--	764	1.04	274	430	252	31	1.8	1,130	8.4
Mar. 20-24	1,939	--	--	56	7.9	23	--	162	0	47	26	--	3.6	--	281	.38	1,470	172	40	23	.8	431	8.1
Mar. 25-26	502	--	--	68	17	39	--	193	0	81	60	--	3.2	--	407	.55	552	240	82	26	1.1	627	8.2
Mar. 27-31	282	--	--	104	29	55	--	230	0	186	75	--	2.5	--	625	.85	476	380	192	24	1.2	921	8.1
Apr. 1-10	200	5.5	.00	83	31	59	3.4	212	4	173	88	.0	.6	.08	590	.80	319	335	155	27	1.4	821	8.3
Apr. 11-12	227	--	--	100	37	68	--	234	0	221	110	--	1.7	--	697	.95	427	400	208	27	1.5	1,080	8.1
Apr. 13-16	430	--	--	46	16	32	--	166	0	60	38	--	4.4	--	302	.41	351	180	44	28	1.0	493	7.9
Apr. 17	157	--	--	74	22	64	--	204	2	125	80	--	2.8	--	502	.68	213	275	104	34	1.7	764	8.3
Apr. 18-20	132	--	--	98	38	91	--	235	0	209	135	--	1.7	--	757	1.03	270	400	208	33	2.0	1,170	8.0
Apr. 21-23, 25-26	134	--	--	102	32	87	--	237	0	230	125	--	1.9	--	755	1.03	273	385	191	33	1.9	1,170	7.9
Apr. 24	123	--	--	72	23	87	--	197	6	137	100	--	2.0	--	573	.78	190	275	104	41	2.3	840	8.3
Apr. 27-30	931	--	--	52	17	34	--	159	0	79	47	--	6.2	--	364	.50	915	200	70	27	1.0	557	8.0
May 1-4	215	--	--	56	18	40	--	181	0	94	55	--	4.5	--	387	.53	225	215	66	29	1.2	637	8.1
May 5-10	124	--	--	100	63	95	--	205	0	389	125	--	2.6	--	972	1.32	325	510	342	29	1.8	1,390	8.1
May 11	166	--	--	97	41	77	--	176	0	295	96	--	.4	--	747	1.02	335	410	266	29	1.7	1,070	8.0
May 12, 14-15, 17, 19	2,942	--	--	94	31	38	--	162	0	208	53	--	3.5	--	550	.75	4,370	360	288	19	.9	812	7.6
May 13, 16, 18	2,167	--	--	56	13	19	--	152	0	87	21	--	2.6	--	310	.42	1,810	195	70	18	.6	450	7.7
May 20-26	11,850	--	--	54	18	5.8	--	136	0	83	16	--	2.9	--	261	.35	8,350	210	98	6	.2	426	7.5

May 27-29, 1955	2,140	--	--	61	26	20	--	156	0	118	30	--	3.3	--	376	.51	2,170	369	132	14	.5	513	7.5
May 30-31	1,985	--	--	118	26	31	--	232	0	220	41	--	16	--	590	.80	3,160	400	210	14	.7	838	7.7
June 1-10	730	--	--	99	30	33	--	196	0	191	52	--	2.3	--	590	.80	1,160	370	210	16	.7	820	7.4
June 11	850	--	--	146	33	42	--	200	0	314	60	--	7.9	--	749	1.02	1,720	500	336	15	.8	1,040	7.9
June 12-16	3,476	--	--	66	18	15	--	140	0	114	20	--	5.5	--	324	.44	3,040	240	126	12	.4	515	7.5
June 17-18	5,595	--	--	42	15	15	--	144	0	52	19	--	4.5	--	224	.30	3,380	165	47	16	.5	373	7.5
June 19-20	7,095	--	--	58	20	15	--	148	0	93	25	--	4.2	--	317	.43	6,070	225	104	13	.4	500	7.6
June 21-24	2,040	--	--	61	20	17	--	136	0	109	25	--	5.0	--	317	.43	1,750	236	124	14	.5	510	7.3
June 25-30	849	--	--	110	31	27	--	170	0	243	36	--	5.5	--	552	.75	1,270	400	260	13	.6	840	7.5
July 1	460	--	--	102	35	31	--	188	0	219	39	--	5.7	--	533	.72	662	400	246	14	.7	794	7.8
July 2-9	365	--	--	125	36	47	--	226	0	282	52	--	3.7	--	686	.93	676	460	275	18	1.0	966	7.8
July 10-12	648	--	--	156	51	44	--	226	0	397	52	--	5.0	--	852	1.16	1,490	600	415	14	.8	1,190	8.2
July 13-16	348	--	--	102	33	19	--	168	0	236	34	--	6.4	--	531	.72	499	390	252	10	.4	797	8.1
July 17-18	646	--	--	51	15	9.7	--	152	0	49	26	--	5.5	--	248	.34	433	190	66	10	.3	397	8.1
July 19-20	285	--	--	90	31	26	--	200	0	165	48	--	3.1	--	476	.65	386	350	186	14	.6	759	8.2
July 21-25	488	--	--	122	33	42	--	208	0	254	60	--	1.6	--	637	.87	839	440	270	17	.9	950	7.9
July 26-31	233	--	--	84	29	29	--	190	0	165	47	--	3.0	--	476	.65	299	330	174	16	.7	735	7.6
Aug. 1-5, 8-10	164	--	--	90	33	37	--	210	0	193	55	--	.4	--	536	.73	237	360	188	18	.8	850	8.1
Aug. 6-7	436	--	--	86	39	64	--	172	0	188	122	--	.6	--	610	.83	718	375	234	27	1.4	1,040	8.2
Aug. 11	772	--	--	102	34	43	--	184	0	249	52	--	5.7	--	598	.81	1,250	395	244	19	.9	917	8.2
Aug. 12-20	957	--	--	86	23	22	--	140	0	198	22	--	7.2	--	449	.61	1,160	310	196	13	.5	692	7.7
Aug. 21-26, 28	269	--	--	78	16	14	--	148	0	144	18	--	5.6	--	368	.50	267	260	138	10	.4	555	8.0
Aug. 27	256	--	--	43	16	4.8	--	124	0	66	11	--	--	--	216	.29	149	175	74	6	.2	351	7.9
Aug. 29-31	430	--	--	102	28	23	--	186	0	221	30	--	3.9	--	529	.72	614	370	218	12	.5	764	8.0
Sept. 1-3	630	--	--	53	17	17	--	148	0	79	21	--	4.3	--	298	.41	507	200	78	16	.5	458	7.9
Sept. 4-6, 9-10	172	--	--	74	23	27	--	166	0	151	32	--	1.9	--	434	.59	202	280	144	17	.7	653	8.0
Sept. 7-8	106	--	--	106	35	37	--	212	0	236	49	--	3.6	--	627	.85	179	410	236	16	.8	906	7.9
Sept. 11-17	158	--	--	80	29	37	--	184	0	180	54	--	1.0	--	518	.70	221	320	169	20	.9	797	7.9
Sept. 18-22	100	--	--	116	51	75	--	178	0	354	101	--	1.7	--	860	1.17	232	500	354	25	1.5	1,230	7.9
Sept. 23	1,300	--	--	72	32	50	--	134	0	232	62	--	2.8	--	536	.73	1,880	310	200	26	1.2	845	8.0
Sept. 24-30	7,181	--	--	35	16	14	--	144	0	40	19	--	1.8	--	232	.32	4,500	155	37	16	.5	363	7.8
Weighted average	878	--	--	64	21	23	--	a 157	--	112	33	--	3.5	--	362	0.49	858	246	118	17	0.6	562	--

a Includes equivalent of individual carbonate values shown above.

RED RIVER BASIN--Continued

WASHITA RIVER NEAR DURWOOD, OKLA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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 2.9 miles (revised) 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 1955.
Water temperatures: October 1945 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,000 ppm Sept. 1-30; minimum, 880 ppm Oct. 1-31.
Hardness: Maximum, 351 ppm Sept. 1-30; minimum, 305 ppm Oct. 1-31.
Specific conductance: Maximum daily, 1,730 micromhos Aug. 18-19, Sept. 7-9; minimum daily, 1,430 micromhos Oct. 1, 4-7.
EXTREMES, 1944-55.--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, Jan. 11-20, 1946.
Specific conductance: Maximum daily, 3,520 micromhos Aug. 14, 1944; minimum daily, 656 micromhos Oct. 16, 1945.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. 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 1954 to September 1955 given in WSP 1391. No appreciable inflow between dam and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954 ..	1,109	12		86	22	177	--	122	190	278	0.4	1.5	0.08	880	1.20	2,630	305	205	56	4.4	1,480	7.7
Nov. 1-30	1,970	14		89	24	186	5.6	126	200	300	.1	1.2	.08	904	1.23	4,810	320	218	55	4.5	1,500	7.9
Dec. 1-31	2,078	12		93	24	190	5.4	129	202	310	.4	1.0	.16	934	1.27	5,240	330	225	55	4.5	1,560	8.1
Jan. 1-31, 1955 ..	325	11		94	24	188	5.6	128	208	308	.4	.8	.16	936	1.27	821	333	228	55	4.5	1,560	8.0
Feb. 1-28.....	1,016	9.4		93	20	188	5.6	127	200	295	.4	.8	.16	942	1.28	2,580	314	210	56	4.6	1,520	7.4
Mar. 1-31	821	8.4		93	21	187	5.5	128	201	295	.4	1.2	.17	938	1.28	2,080	318	214	56	4.5	1,560	7.5
Apr. 1-30.....	1,174	6.2		94	22	182	5.3	130	198	288	.5	.8	.15	921	1.25	2,920	325	218	54	4.4	1,530	8.0
May 1-31	3,203	8.0		98	22	181	--	124	205	300	.3	1.0	.13	932	1.27	8,060	335	234	54	4.3	1,520	7.7
June 1-30.....	11,640	8.4		94	22	184	5.4	127	201	295	.2	1.5	.16	907	1.23	28,510	325	221	55	4.4	1,510	8.0
July 1-31	3,568	11		100	21	196	5.6	125	215	315	.5	2.2	.14	990	1.35	9,540	337	234	55	4.7	1,630	7.8
Aug. 1-31.....	3,600	12		103	21	206	5.7	126	233	328	.2	2.0	.13	998	1.36	9,700	344	240	56	4.8	1,700	7.5
Sept. 1-30	2,688	11		106	21	212	6.0	122	240	342	.4	1.2	.14	a 1,000	1.36	7,260	351	251	56	4.9	1,720	7.8
Weighted average	2,762	9.9		96	22	190	5.5	126	209	306	0.3	1.5	0.14	937	1.27	6,990	330	227	55	4.5	1,570	--

a Sum of determined constituents.

RED RIVER BASIN--Continued

RED RIVER AT DENISON DAM NEAR DENISON, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

MOUNTAIN FORK RIVER NEAR EAGLETOWN, OKLA.

LOCATION.--At gaging station at bridge on U. S. Highway 70, 2 miles west of Eagletown, McCurtain County, and 8.9 miles upstream from mouth.
DRAINAGE AREA.--787 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1948, April to July 1955.
Water temperatures: October 1947 to September 1948, March to September 1955.
REMARKS.--Records of specific conductance of daily samples available in district office at Oklahoma City, Okla. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, April to July 1955

Date of collection	Discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Copper (Cu)	Lead (Pb)	Zinc (Zn)	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 $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Apr. 1, 1955	2,350	5.0	0.06	--	--	--	3.4	1.1	1.9	0.7	16	5.4	2.0	0.1	0.7	0.00	37	13	0	22	0.2	39.6	6.7
Apr. 2 a	2,980	5.5	.05	--	--	--	2.4	.7	1.9	.7	12	4.6	2.0	.0	1.0	.00	31	9	0	29	.3	33.0	6.7
Apr. 2 b	2,640	6.5	.04	--	--	--	2.2	.6	2.0	.7	12	4.6	2.0	.0	.7	.00	31	8	0	33	.3	34.8	6.5
Apr. 21	7,450	4.0	.05	--	--	--	2.0	.2	1.5	1.1	10	3.5	2.0	.0	.5	--	29	6	0	32	.3	29.1	5.8
May 2	720	5.5	.04	--	--	--	3.2	.1	2.6	.7	16	3.6	2.8	.0	.2	--	32	6	0	37	.4	39.1	6.5
May 6	392	7.6	.01	0.02	0.00	0.4	2.8	.7	2.3	1.6	9	5.1	4.0	.2	.1	.00	30	12	5	29	.3	35.7	5.1
May 23	930	6.4	.04	.05	.01	.9	4.0	.2	2.1	1.5	8	5.8	4.0	.2	.5	.00	35	11	4	26	.3	38.8	5.1
May 24	4,430	7.1	.04	.07	.00	.0	4.8	.5	2.2	1.7	15	6.8	4.0	.2	.1	.00	41	14	5	23	.3	45.2	5.5
July 9	10.4	8.3	.00	.02	.02	.1	6.4	.7	3.7	1.8	22	6.0	7.0	.2	.1	.00	48	19	1	27	.4	64.5	5.5
July 17	400	5.3	.07	.10	.01	.0	3.6	.0	1.3	1.9	6	6.5	4.0	.2	.4	.00	30	9	4	13	.2	32.4	5.1
July 20	48	6.5	.01	.06	.00	.3	3.6	.5	1.9	1.5	10	4.9	4.0	.2	.2	.00	33	11	3	24	.3	37.0	5.3

a 7:10 a. m.
b 4:30 p. m.

RED RIVER BASIN--Continued

MOUNTAIN FORK RIVER NEAR EAGLETOWN, OKLA.--Continued

Temperature (°F) of water, March to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						--	54	80	78	89	91	85
2						--	62	80	79	89	87	85
3						--	64	77	79	89	82	83
4						--	65	78	82	90	81	82
5						--	62	80	78	90	85	85
6						--	60	80	78	90	89	86
7						--	65	82	80	90	90	87
8						--	64	81	80	91	84	85
9						--	66	78	74	92	87	84
10						--	63	76	73	93	86	85
11						--	68	75	74	91	88	85
12						--	62	74	75	90	89	83
13						--	64	77	81	90	84	84
14						--	68	77	85	90	87	85
15						--	72	79	81	88	87	85
16						--	73	76	82	79	87	85
17						--	72	80	82	80	85	86
18						--	76	79	85	85	87	87
19						--	73	75	87	88	87	88
20						--	73	--	87	90	87	88
21						--	67	71	88	90	89	87
22						--	73	76	85	86	91	82
23						--	70	74	87	85	86	75
24						56	70	76	88	89	87	75
25						47	72	77	87	89	89	78
26						46	68	74	88	90	90	80
27						50	70	74	85	92	90	83
28						52	75	76	86	92	85	83
29						58	75	75	88	94	89	85
30						56	78	76	87	93	84	77
31						58	--	75	--	93	83	--
Average						--	68	77	82	89	87	84

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 1955.
Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 158 ppm Sept. 1-4; minimum, 42 ppm Oct. 2-5.
Hardness: Maximum, 42 ppm Sept. 1-4; minimum, 10 ppm Jan. 1-8.
Specific conductance: Maximum daily, 299 micromhos Sept. 3; minimum daily, 30.8 micromhos Feb. 22.
Water temperatures: Maximum, 88°F July 11-12, 29-31, Aug. 1; minimum, 39°F Jan. 29.
EXTREMES, 1953-55.--Dissolved solids: Maximum, 308 ppm Sept. 21-30, 1954; minimum, 41 ppm Apr. 17-21, 23-27, 29-30, 1954.
Hardness: Maximum, 59 ppm Sept. 21-30, 1954; minimum, 10 ppm Jan. 1-8, 1955.
Specific conductance: Maximum daily, 588 micromhos Sept. 28, 1954; minimum, 27.3 micromhos 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 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1, 6-10, 1954	3,660	--	--	5.5	1.8	5.7	--	21	5.4	7.5	--	1.6	50	21	4	77.1	6.2	30
Oct. 2-5	16,800	--	--	3.7	1.0	3.3	--	9	6.6	3.5	--	2.3	42	13	6	48.3	7.3	40
Oct. 11-13	5,787	--	--	5.4	1.3	5.8	--	17	4.6	8.2	--	1.8	58	19	5	73.9	6.9	30
Oct. 14-19	5,762	6.7	0.09	4.4	1.4	3.8	1.3	18	1.6	4.5	0.3	2.6	55	17	2	56.7	6.7	25
Oct. 20-22	1,827	--	--	6.2	1.0	6.0	--	18	6.6	7.5	--	1.8	63	20	5	75.8	6.8	30
Oct. 23-31	13,400	3.6	.00	3.3	1.2	2.6	1.2	12	3.2	2.5	.3	2.7	43	13	3	39.9	7.0	30
Nov. 1-10	3,700	6.2	.00	4.8	.9	3.7	1.2	18	4.2	4.5	.3	1.3	51	16	1	52.6	6.6	30
Nov. 11-20	1,100	6.5	.17	5.5	1.4	6.1	1.0	21	1.4	8.8	.1	.7	51	19	2	73.1	7.3	8
Nov. 21-30	513	5.3	.10	5.9	1.7	9.2	1.2	23	4.6	14	.1	.8	63	22	3	97.4	7.3	10
Dec. 1-12	508	5.3	.08	7.5	1.8	12	1.2	28	4.8	18	.1	.8	72	26	3	119	7.4	15
Dec. 13-20	4,141	3.0	.12	4.1	1.1	4.5	1.0	16	2.8	5.5	.2	1.2	45	15	2	57.8	7.2	25
Dec. 21-31	2,866	5.7	.13	4.0	1.7	5.4	.8	18	4.8	6.8	.2	1.5	49	17	2	64.5	7.5	30
Jan. 1-8, 1955	4,014	8.0	.12	3.6	.2	3.2	1.1	14	4.4	5.0	.0	1.8	50	10	0	45.3	6.5	--
Jan. 9-20	3,653	9.0	.11	4.2	.9	3.3	1.1	18	5.8	5.0	.0	.8	61	14	0	54.4	6.5	--
Jan. 21-31	1,970	10	.11	5.0	.6	4.9	1.1	16	3.4	7.2	.1	.2	50	15	2	57.7	6.7	--
Feb. 1-5	2,816	--	--	5.0	1.3	6.0	--	18	3.6	8.5	--	1.0	56	18	3	73.9	6.9	16
Feb. 6-10	8,540	--	--	3.2	1.0	3.0	--	15	2.8	3.5	--	.6	44	12	0	44.0	6.3	38
Feb. 11-20, 23	2,974	10	.11	4.6	.6	5.9	1.2	16	3.1	6.2	.2	.6	50	14	1	56.5	6.6	--
Feb. 21-22, 24-27	7,625	6.4	.04	2.7	1.0	2.8	1.2	12	2.4	3.0	.1	.4	49	11	1	43.4	6.1	22
Feb. 28, Mar. 1-9	2,398	9.2	.15	4.0	1.1	4.2	1.1	16	4.8	5.0	.1	1.1	56	14	1	56.6	7.5	25

RED RIVER BASIN--Continued

LITTLE RIVER NEAR HORATIO, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Mar. 10-19, 1955	2,596	6.8	0.17	4.4	2.0	4.9	1.2	20	2.4	7.0	0.0	1.7	63	19	3	66.7	6.6	23
Mar. 20-31	15,340	5.9	.08	3.2	1.3	3.1	1.1	13	3.4	3.0	.3	.9	47	13	3	44.6	6.7	32
Apr. 1-10	5,070	5.1	.09	4.4	1.1	3.3	1.3	17	2.6	4.0	.0	.8	59	16	2	53.9	6.5	23
Apr. 11-21	3,581	7.0	.01	4.7	1.7	4.0	1.4	21	2.4	4.8	.0	.6	60	19	2	62.8	7.3	22
Apr. 22-30	5,754	6.2	.16	3.7	1.2	3.5	1.3	16	2.0	3.8	.0	1.4	50	14	1	49.7	7.3	22
May 1-10	1,588	4.1	.37	4.6	1.8	5.5	1.2	18	6.4	7.5	.1	1.3	56	19	4	75.2	6.4	22
May 11-21	1,759	5.5	.37	6.2	1.3	6.4	1.4	22	4.8	8.0	.1	1.4	64	21	3	85.3	7.0	35
May 22-31	7,331	5.6	.17	5.1	1.0	3.0	1.3	16	5.0	3.2	.2	.8	54	17	4	59.1	6.6	33
June 1-8, 10	1,491	1.0	.17	4.9	2.5	5.4	.7	27	1.2	7.5	.1	1.0	52	22	0	73.9	6.6	17
June 9, 11-18	528	.4	.17	6.9	1.7	9.6	.8	29	1.4	14	.1	.6	66	24	0	99.0	6.9	11
June 19-24	276	5.0	.17	7.2	2.1	13	.7	28	2.2	20	.1	.4	74	27	4	121	6.7	11
June 25-30	153	6.0	.04	7.5	2.6	17	.7	31	3.4	25	.1	.8	87	29	4	147	7.2	10
July 1-10	77.6	3.8	.00	9.5	2.2	22	1.7	33	5.2	34	.1	.5	107	33	6	191	6.7	7
July 11-16	105	6.4	.00	10	3.0	28	1.8	35	4.2	46	.1	.8	135	37	9	223	7.4	10
July 17-19, 26-31	589	3.6	.05	6.9	2.2	15	1.6	26	2.2	23	.1	.6	86	26	5	133	6.4	22
July 20-25	264	6.4	.07	6.1	1.8	11	1.9	21	3.6	17	.1	1.0	70	23	5	106	7.2	25
Aug. 1-10	211	7.0	.01	7.8	2.1	17	1.5	30	2.2	27	.1	.7	94	28	4	150	7.5	17
Aug. 11-20	210	7.0	.02	8.5	2.6	19	1.7	35	2.8	29	.1	.7	100	23	3	165	7.6	12
Aug. 21-31	99.5	6.3	.00	9.7	2.7	29	2.3	36	1.6	48	.1	.1	129	35	6	221	7.0	17
Sept. 1-4	620	--	--	11	3.5	37	--	41	4.4	57	--	.6	158	42	8	274	7.1	7
Sept. 5, 7-16	179	4.2	.07	6.0	2.1	13	1.4	25	1.2	20	.1	.4	78	24	3	116	7.0	22
Sept. 6, 17-23	278	4.8	.05	6.6	1.9	17	1.8	26	1.4	27	.1	.4	90	24	3	146	7.4	22
Sept. 24-30	6,954	--	--	3.6	1.0	2.0	--	14	2.2	2.5	--	1.4	54	13	2	40.7	7.0	30
Average	3,282	5.8	0.10	5.6	1.6	9.1	1.3	21	3.5	13	0.1	1.0	67	21	3	92.4	--	22

RED RIVER BASIN--Continued

LITTLE RIVER AT HORATIO, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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 1947, October 1952 to September 1955.
Water temperatures: October 1946 to September 1947, October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 929 ppm Sept. 1-2; minimum, 54 ppm Nov. 1-3.
Hardness: Maximum, 339 ppm Aug. 21-31; minimum, 34 ppm Oct. 16-18.
Specific conductance: Maximum daily, 1,640 micromhos Aug. 24; minimum daily, 89.5 micromhos Oct. 31.
Water temperatures: Maximum, 88°F July 30; minimum, 40°F Feb. 11.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 942 ppm Oct. 1-7, 1953; minimum, 54 ppm Nov. 1-3, 1954.
Hardness: Maximum, 372 ppm Nov. 1-10, 1952; minimum, 20 ppm Dec. 6-12, 1952, Mar. 4-9, 1953.
Specific conductance: Maximum daily, 1,780 micromhos Oct. 1, 1953, Sept. 24, 1954; minimum daily, 48.8 micromhos Mar. 8, 1953.
Water temperatures: Maximum, 88°F July 30, 1955; minimum, 35°F Dec. 23-24, 26, 1953.
REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1-4, 1954	18,880	--	--	25	5.1	32	--	68	31	50	--	1.2	184	83	28	330	8.0	30
Oct. 5-10	17,780	6.2	0.14	18	3.5	16	2.9	52	17	24	0.5	1.4	141	59	17	220	6.7	38
Oct. 11-14	10,220	7.8	.05	31	6.1	33	3.0	78	38	49	.4	1.0	226	102	39	381	7.2	18
Oct. 15, 19-20	13,030	7.1	.20	20	4.4	17	2.5	56	21	27	.5	.8	158	68	22	234	6.7	45
Oct. 16-18	16,500	6.6	.25	10	2.2	6.5	2.0	34	8.2	9.2	--	.8	a63	34	6	109	6.7	60
Oct. 21-23, 25	10,270	8.4	.11	27	5.4	28	2.4	71	32	42	.4	.6	199	90	31	323	7.6	17
Oct. 24, 26-28	36,520	7.7	.28	23	4.3	17	2.1	66	16	28	.3	.6	156	75	21	239	7.3	37
Oct. 29-31	35,000	--	--	12	1.7	7.4	--	39	11	5.5	--	1.0	a58	37	5	105	6.8	30
Nov. 1-3	23,330	--	--	11	2.5	5.2	--	36	8.8	7.5	--	1.4	a54	38	8	111	7.4	40
Nov. 4-8	14,580	8.9	.21	20	3.1	14	1.9	55	18	21	.4	.4	139	63	18	200	7.4	45
Nov. 9-12	8,358	9.8	.11	27	5.3	30	2.3	69	35	46	.4	.3	211	89	33	339	7.1	23
Nov. 13-16	4,945	9.1	.02	38	8.6	52	2.8	87	55	82	.3	.4	316	130	59	526	7.4	8
Nov. 17-19	4,660	--	--	47	15	79	--	113	87	120	--	.9	432	179	86	734	7.9	18
Nov. 20-23	4,435	8.5	.02	60	15	92	4.0	119	103	152	.4	.3	532	211	114	900	7.4	7
Nov. 24-30	3,908	5.3	.00	72	17	122	4.7	128	132	195	.1	.6	660	250	144	1,090	7.5	12
Dec. 1-7	3,324	5.0	.01	74	19	121	4.8	152	132	188	.1	.4	659	262	138	1,080	8.0	12
Dec. 8-10	4,000	2.4	.00	81	20	146	6.1	132	149	230	.1	1.8	781	284	176	1,280	8.0	8
Dec. 11-13	5,530	--	--	70	16	117	--	119	131	175	--	11	629	240	143	1,020	7.4	10
Dec. 14-19	14,500	3.8	.10	22	6.8	35	2.4	52	37	54	.2	2.0	222	83	40	360	7.2	6
Dec. 20-28	6,096	8.3	.14	44	11	68	3.2	92	68	110	.2	1.2	412	155	80	660	7.5	5
Dec. 29-31	8,407	--	--	30	6.6	36	--	73	40	58	--	1.0	265	102	42	391	7.3	21

a Sum of determined constituents.

Jan. 1, 6-8, 1955.....	13,710	7.1	.19	17	4.2	17	2.2	49	22	26	.4	1.3	a121	60	20	217	7.1	40
Jan. 2-5.....	20,750	7.1	.22	14	3.2	12	1.9	42	15	18	.3	1.1	a94	48	14	161	7.0	45
Jan. 9-10, 12-15.....	8,233	10	.13	20	4.0	24	1.7	53	24	34	.2	1.0	160	66	23	256	7.1	20
Jan. 11, 16-17.....	8,967	7.8	.07	23	5.3	28	2.2	58	30	46	.2	1.0	204	79	32	311	7.2	20
Jan. 18-24.....	11,670	9.0	.17	16	5.0	15	1.9	51	19	24	.2	1.3	127	60	19	200	7.2	30
Jan. 25-31.....	5,693	7.1	.14	23	4.5	13	1.9	75	17	19	.1	1.0	140	76	14	223	7.2	28
Feb. 1-4.....	3,700	5.9	.03	31	8.1	17	1.6	89	16	38	.1	3.4	207	111	38	328	6.8	11
Feb. 5-9.....	22,180	4.9	.17	20	4.0	14	1.4	64	12	21	.2	1.0	a111	66	14	205	7.2	35
Feb. 10-12.....	18,570	--	--	12	2.6	9.1	--	36	9.6	12	--	1.2	a64	41	11	132	7.0	45
Feb. 13-15.....	8,800	--	--	18	3.5	16	--	48	17	26	--	1.6	a106	59	20	214	7.8	45
Feb. 16-20, 22.....	9,697	5.8	.07	34	7.8	46	2.2	76	50	74	.0	1.0	295	117	55	477	7.4	10
Feb. 21, 23.....	25,740	--	--	23	4.8	19	--	61	21	31	--	.8	a130	77	27	255	7.9	17
Feb. 24-28.....	25,880	5.1	.28	16	3.1	9.2	1.5	52	12	12	.1	1.0	a86	53	10	155	7.8	30
Mar. 1-2, 4.....	9,580	--	--	17	3.9	16	--	53	20	19	--	.7	a103	58	15	193	8.1	50
Mar. 3, 5-8, 10.....	7,160	6.4	.13	24	6.5	26	1.8	66	28	42	.0	.9	a168	87	32	305	7.0	15
Mar. 9, 11-14.....	5,432	15	.07	31	7.1	36	1.9	82	38	58	.1	.7	250	107	39	402	7.0	10
Mar. 15-18.....	6,650	4.9	.15	26	5.7	28	2.1	73	26	44	.0	.1	192	88	28	315	6.4	15
Mar. 19-20.....	9,640	--	--	42	10	72	--	82	58	122	--	.3	a344	146	79	653	7.6	16
Mar. 21-24.....	61,000	--	--	25	4.5	16	--	80	17	22	--	.8	a124	81	15	246	7.2	42
Mar. 25-31.....	58,440	--	--	14	2.4	4.9	--	47	8.4	6.5	--	.6	a60	45	6	119	8.1	18
Apr. 1-2, 4-5, 8-10...	22,030	6.2	.26	18	3.2	12	2.1	53	15	16	.2	2.2	a101	58	15	185	7.5	40
Apr. 3, 6-7.....	20,700	--	--	24	5.7	23	--	62	22	42	--	1.5	a148	83	33	287	7.9	30
Apr. 11, 13, 16-18....	18,260	6.5	.17	25	5.3	22	3.6	66	26	36	.2	1.0	186	84	30	291	6.8	40
Apr. 12, 19-21, 25....	13,480	6.2	.11	36	7.7	40	2.9	83	46	64	.2	1.1	290	121	53	449	7.1	20
Apr. 14-15, 24, 28, 30.	16,800	6.2	.24	20	4.0	16	2.6	59	18	26	.2	.6	144	66	18	220	6.9	20
Apr. 22-23, 26-27, 29.	13,590	6.0	.08	28	6.1	32	2.6	64	34	53	.1	.6	231	95	42	358	7.0	20
May 1, 4-10.....	7,065	6.0	.00	33	6.5	16	1.4	107	21	24	.3	.8	170	109	21	294	7.3	14
May 2-3.....	14,200	--	--	38	7.7	34	--	106	37	54	--	.6	248	126	40	429	7.9	--
May 11-13.....	5,033	--	--	46	8.7	42	--	b131	47	60	--	.2	306	151	43	501	8.4	6
May 14-16.....	6,367	--	--	45	10	67	--	98	72	106	--	.4	389	154	73	655	8.2	6
May 17-20.....	5,350	--	--	26	6.5	29	--	c81	30	42	--	.6	207	92	25	336	8.3	12
May 21-22, 24, 28.....	16,770	7.9	.05	27	5.8	21	1.6	90	19	32	.2	1.2	172	91	17	282	8.1	23
May 23, 30-31.....	31,970	--	--	38	7.1	40	--	92	45	64	--	.4	269	124	49	459	7.8	17
May 25-27, 29.....	25.150	--	--	21	4.0	11	--	66	17	15	--	.6	130	69	15	199	6.9	30

a Sum of determined constituents.
b Includes equivalent of 4 parts per million of carbonate (CO_3).
c Includes equivalent of 3 parts per million of carbonate (CO_3).

RED RIVER BASIN--Continued

RED RIVER AT FULTON, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--Continued

Date of collectiou	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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
June 1-3, 1955	26,000	--	--	41	9.1	66	--	77	73	105	--	0.4	358	140	77	625	7.9	11
June 4-11	8,958	6.5	0.00	65	14	109	4.2	106	131	170	0.2	.7	573	220	132	964	7.0	10
June 12-20	8,962	1.8	.00	89	22	166	6.1	131	188	260	.2	1.4	846	312	205	1,390	7.2	5
June 21-30	18,060	3.2	.00	88	24	167	7.0	124	183	272	.3	1.1	924	318	216	1,440	7.5	11
July 1-5	10,130	4.8	.02	95	21	186	8.3	130	202	290	.7	2.4	901	324	217	1,490	7.5	9
July 6-10	3,616	3.4	.01	90	20	153	7.5	144	178	240	.5	1.5	798	306	188	1,320	7.3	9
July 11-16	4,327	2.2	.01	97	22	165	8.3	144	198	270	.5	1.3	888	332	214	1,450	7.4	10
July 17-19	6,987	--	--	62	16	123	--	102	136	188	--	1.4	609	220	137	1,020	7.8	8
July 20-21, 27-31	5,997	1.7	.02	85	18	141	7.1	124	166	230	.5	.9	746	286	184	1,250	7.2	7
July 22, 26	8,270	--	--	54	13	86	--	102	103	132	--	.8	456	-188	105	782	7.9	16
July 23-25	8,013	--	--	38	7.8	44	--	99	52	66	--	1.0	294	127	46	472	7.8	11
Aug. 1-10	5,988	5.7	.02	92	20	162	8.2	122	197	265	.4	2.4	856	312	212	1,410	7.6	12
Aug. 11-20	4,636	4.2	.04	89	18	162	7.9	124	200	248	.5	1.3	808	296	194	1,330	8.2	7
Aug. 21-31	3,869	4.5	.03	98	23	179	8.6	148	212	278	.3	1.3	902	339	218	1,500	8.2	8
Sept. 1-2	4,680	--	--	101	20	176	--	130	205	270	--	.8	929	334	228	1,550	7.5	12
Sept. 3, 6-10, 12	4,240	4.9	.00	81	17	140	6.9	124	165	220	.3	1.2	731	272	170	1,190	8.0	10
Sept. 4-5	4,940	--	--	61	14	112	--	128	111	158	--	1.1	544	210	104	926	8.0	12
Sept. 11, 13-23	3,242	4.2	.02	99	21	171	8.2	156	196	265	.5	.9	890	334	206	1,450	7.6	12
Sept. 24-25	11,240	--	--	43	8.3	64	--	88	71	98	--	1.6	353	142	70	601	8.0	22
Sept. 26-30	38,220	--	--	30	5.1	31	--	76	28	48	--	1.0	212	96	34	352	7.7	50
Average	12,720	--	--	42	9.3	60	--	86	68	94	--	1.1	349	143	72	579	--	21

RED RIVER BASIN--Continued

RED RIVER AT FULTON, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

RED RIVER BASIN--Continued

BLACK BAYOU NEAR GILLIAM, LA.

LOCATION.--At gaging station at bridge on State Highway 170 (renumbered), 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 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 20, 1954	5.4	14	0.10	217	129	4,400		391	30	7,290		--		12,300	16.7	179	1,070	752	90	58	20,100	7.2	20
Nov. 16	13.0	11	.01	58	26	426		192	28	700		5.4		1,350	1.84	47.4	252	94	79	12	2,530	7.1	35
Dec. 7	12.0	14	.34	158	83	2,230		415	63	3,670		--		6,420	8.73	208	736	396	87	36	11,200	7.3	20
Jan. 14, 1955	59.0	9.6	.01	109	33	889		47	15	1,620		2.5		2,700	3.67	430	408	369	83	19	4,990	6.6	10
Feb. 8	233	15	.10	12	4.2	64		29	10	107		1.8		228	.31	143	48	24	74	4.0	435	6.7	45
Apr. 13	1,050	8.6	.28	23	5.8	109		28	5.5	205		1.2		372	.51	1,050	82	59	74	5.2	743	6.4	80
May 18	28	12	.08	55	22	516		148	12	860		3.5		1,550	2.11	117	228	106	83	15	2,960	7.2	35
June 8	118	12	.61	33	12	287		62	8.8	492		1.0		876	1.19	279	132	81	83	11	1,710	7.1	70
July 13	6.6	8.4	.00	192	98	3,410		360	26	5,650		--		9,560	13.0	170	882	587	89	50	16,300	8.0	5
Aug. 17	7.3	12	.00	110	52	1,500		281	24	2,480		--		4,320	5.88	85.1	488	258	87	29	7,760	7.7	5
Sept. 20	6.2	12	.01	205	126	4,790		321	31	7,900		--		13,200	18.0	221	1,030	766	91	65	21,500	7.1	10

TWELVEMILE BAYOU NEAR DIXIE, LA.

LOCATION.--At gaging station at bridge on State Highway 173(renumbered), 0.1 mile downstream from Cottonwood Bayou, 4.2 miles southwest of Dixie, Caddo Parish, 5.5 miles downstream from Caddo Lake, and 17.3 miles upstream from mouth.
DRAINAGE AREA.--3,137 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 21, 1954	5.8	8.6	0.04	308	176	4,580		179	153	7,900		--		13,200	18.0	207	1,490	1,350	87	52	21,300	7.1	55
Nov. 18	55	6.4	.04	178	67	1,950		190	67	3,350		--		5,710	7.77	848	720	564	85	32	9,910	7.0	20
Dec. 7	6.3	4.8	.25	198	86	2,040		204	106	3,550		--		6,090	8.28	104	848	680	84	30	10,600	7.5	35
Jan. 13, 1955	695	11	.02	32	10	270		30	16	472		0.8		827	1.12	1,550	120	96	83	11	1,590	6.7	10
Feb. 8	3,180	9.6	.26	6.9	3.6	8.3	2.9	44	9.5	4.8		.8		69	.09	592	32	0	34	.6	116	7.4	120
Apr. 14	6,100	9.0	.26	8.1	2.9	47		16	10	79		.2		164	.22	2,700	32	19	76	3.6	317	6.4	90
May 18	495	11	.39	18	6.4	110		40	15	186		1.0		368	.50	492	72	39	77	5.7	721	7.0	70
June 7	930	8.8	.43	17	6.5	110		36	10	190		.2		361	.49	906	69	40	78	5.8	718	7.0	80
July 13	16	6.2	.00	136	63	1,060		180	107	1,870		.5		3,330	4.53	144	598	451	79	19	6,160	7.7	15
Aug. 17	355	13	.06	17	6.9	126		36	11	215		.8		408	.55	391	71	42	79	6.5	792	6.7	15
Sept. 21	17	10	.01	153	73	1,560		141	124	2,720		--		4,710	6.41	216	682	566	83	26	8,400	6.9	10

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RED RIVER BASIN--Continued

BAYOU BODCAU NEAR SAREPTA, LA.

LOCATION.--At gaging station at bridge on State Highway 2(renumbered), 2 miles west of Sarepta, Webster Parish, and 9.5 miles upstream from Caney Creek.
DRAINAGE AREA.--546 square miles.
RECORDS AVAILABLE.--Chemical analyses: September 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents unless otherwise noted. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 19, 1954	0.4	10	0.01	31	14	79		12	2.6	208		0.2		a416	0.57	0.45	135	125	56	2.9	764	6.4	5
Nov. 16	2.6	12	.01	24	11	67		12	6.8	165		.2		a327	.44	2.30	105	95	58	2.8	587	6.7	15
Dec. 8	1.3	14	.12	62	22	336		27	28	655		.2		1,130	1.54	3.97	245	223	75	9.3	2,180	6.6	25
Jan. 13, 1955	72.0	14	.52	33	7.8	173		198	24	215		.5		565	.77	110	115	0	77	7.0	1,000	7.0	400
Feb. 10	1,060	8.8	.81	24	3.7	155		208	35	146		.2		476	.65	1,360	75	0	82	7.8	864	7.4	560
Mar. 28	1,320	6.8	.27	4.4	1.7	13		16	4.5	20		.5		59	.08	210	18	5	61	1.3	113	6.2	100
Apr. 14	591	6.8	.23	13	2.8	69		80	25	73		.5		229	.31	365	44	0	77	4.6	421	6.8	260
May 16	51.0	12	.84	9.7	2.6	18		19	3.4	38		.5		94	.13	12.9	35	19	52	1.3	174	6.3	130
June 9	806	8.2	.44	5.6	1.9	9.0		17	1.9	18		.5		54	.07	118	22	8	47	.8	101	6.2	110
July 11	7.2	7.4	.17	13	3.8	24		28	2.6	52		.5		117	.16	2.27	48	25	52	1.5	236	6.5	70
Aug. 18	1.3	8.0	.01	31	9.0	168		20	3.2	325		.5		a614	.84	2.16	114	98	76	6.8	1,100	6.6	15
Sept. 19	.3	7.0	.02	28	9.5	125		18	3.0	257		.2		439	.60	.36	109	94	71	5.2	885	6.6	15

a Residue on evaporation at 180°C.

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, Bossier Parish, and 6 miles downstream from Lake Bistineau Dam.
DRAINAGE AREA.--2,628 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1954 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents unless otherwise noted. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Nov. 4, 1954	5	6.2	0.00	55	33	144		260	67	215		0.5		a650	0.88	8.78	272	60	53	3.8	1,200	7.6	5
Nov. 22	15	4.0	.05	72	35	176		249	109	275		.2		a817	1.11	33.1	324	120	54	4.2	1,460	7.9	10
Dec. 6	20	9.4	.05	65	34	156		225	98	255		.0		a753	1.02	40.7	302	118	53	4.0	1,340	7.7	25
Jan. 17, 1955	100	11	.38	32	11	64		107	47	90		.5		309	.42	83.4	125	38	53	2.5	560	7.0	80
Feb. 9	1,330	7.8	.25	15	5.5	76		50	12	123		.5		265	.36	952	61	20	73	4.3	514	7.6	90
Apr. 11	3,240	6.0	.36	12	3.4	61		44	12	90		.2		207	.28	1,810	43	7	76	4.0	394	6.9	180
May 19	896	6.4	.86	12	2.9	16		43	2.7	28		.8		91	.12	220	43	8	45	1.1	171	7.3	120
June 6	4,540	6.2	.31	8.9	3.2	23		27	3.5	42		.8		101	.14	1,240	35	13	59	1.7	201	6.6	90
July 18	2,160	8.6	.17	12	3.5	33		34	4.2	59		.8		138	.19	805	44	16	62	2.1	275	6.8	45
Aug. 15	461	11	.57	18	6.6	33		69	11	54		.8		169	.23	210	72	16	50	1.7	311	7.0	90
Sept. 14	30	14	.02	70	31	133		302	68	193		.2		658	.89	53.3	301	54	49	3.3	1,170	7.9	15

a Residue on evaporation at 180°C.

RED RIVER BASIN--Continued

BOGGY BAYOU NEAR KEITHVILLE, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 171, 0.4 mile downstream from Gilmer Bayou, 3 miles north of Keithville, Caddo Parish, and 5 miles upstream from mouth.
DRAINAGE AREA.--79 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1954 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Nov. 19, 1954	1.9	15	0.28	7.6	3.7	18		21	25	22		0.2		102	0.14	0.52	34	17	54	1.4	181	6.3	90
Jan. 14, 1955	3.4	33	.60	12	6.7	31		59	10	46		.2		168	.23	1.54	57	9	54	1.8	269	7.1	55
Feb. 7	566	8.0	.21	3.4	2.1	5.8	2.4	14	8.9	8.2		1.0		47	.06	71.8	17	6	38	.6	78.5	6.7	90
Apr. 13	2,120	4.8	.28	2.5	1.4	4.2	2.8	16	4.2	4.8		.5		33	.04	189	12	0	37	.5	58.1	6.0	100
May 17	1.4	20	1.1	18	8.2	34		94	11	45		.8		184	.25	.70	78	1	49	1.7	324	7.3	90
June 7	296	7.4	.26	4.3	2.6	7.3	3.6	22	6.6	10		.8		54	.07	43.2	21	3	38	.7	91.7	6.5	100
July 19	3.2	14	.42	13	6.4	29		75	10	35		.8		146	.20	1.26	59	0	52	1.6	263	7.4	55
Aug. 16	6.9	16	.74	11	5.1	18		48	12	25		.8		113	.15	2.11	48	9	45	1.1	198	6.8	65
Sept. 22	.2	12	.32	16	7.6	37		104	4.8	44		1.0		174	.24	.09	72	0	53	1.9	316	7.3	45

CYPRESS BAYOU NEAR KEITHVILLE, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 171, immediately downstream from Texas and Pacific Railway bridge, 2 miles south of Keithville, Caddo Parish, and 6 miles upstream from mouth of Boggy Bayou.
DRAINAGE AREA.--66 square miles.
RECORDS AVAILABLE.--Chemical analyses: January to August, 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, January to August 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Jan. 14, 1955	2.1	27	0.41	16	8.0	33		93	15	38		0.2		184	0.25	1.02	74	0	49	1.7	302	7.3	60
Feb. 7	648	8.8	.17	4.0	2.5	6.6	1.9	18	9.8	8.5		.8		52	.07	91.0	20	6	39	.6	84.9	6.5	80
Apr. 12	1,340	4.1	.20	2.3	1.5	3.9	2.2	14	4.3	5.2		.8		32	.04	116	12	1	36	.5	56.0	6.1	80
May 17	1.0	13	.14	32	17	67		170	29	89		.5		332	.45	.90	150	10	49	2.4	618	7.5	70
June 7	29.0	14	.27	11	6.1	21		53	17	26		.8		122	.17	9.55	53	9	47	1.3	210	6.9	80
July 14	62.0	5.0	.12	3.7	2.0	5.0	2.3	20	3.7	6.5		1.0		39	.05	6.53	17	1	35	.5	67.5	6.3	45
Aug. 16	2.0	18	.34	21	10	33		95	24	44		.2		198	.27	1.07	94	16	43	1.5	348	7.2	40

RED RIVER BASIN--Continued

WALLACE LAKE NEAR SHREVEPORT, LA.

LOCATION.--At dam on Wallace Bayou, about 14 miles south of Shreveport, Caddo Parish.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 21, 1954		4.0	0.03	13	5.8	17		a77	3.5	18		0.2		111	0.15		56	0	39	1.0	190	9.0	15
Nov. 19		.8	.05	13	5.9	16		67	10	19		.5		109	.15		57	2	39	1.0	192	7.1	25
Dec. 7		1.4	.04	13	6.5	17		b69	10	20		.2		115	.16		59	3	38	.9	208	8.5	30
Jan. 14, 1955		.7	.01	12	5.8	17		55	16	22		.2		112	.15		55	10	41	1.0	199	7.1	15
Feb. 8		4.7	.26	7.5	3.5	18		36	14	20		.8		c87	.12		33	4	55	1.4	160	7.4	55
Apr. 13		3.2	.38	5.7	2.9	6.9	2.9	30	6.9	9.2		.8		c54	.07		26	0	34	.6	102	6.5	70
May 17		2.9	.39	6.4	2.9	6.9	1.4	37	4.7	6.5		1.2		c51	.07		28	0	34	.6	96.2	6.7	55
June 7		4.8	.31	5.6	2.7	5.4	2.4	27	5.4	7.5		.8		c48	.07		25	3	29	.5	87.2	6.5	80
July 19		2.1	.06	7.0	3.2	9.3	3.6	36	4.6	13		1.2		62	.08		31	1	36	.7	121	6.2	30
Aug. 16		6.3	.10	9.6	4.1	4.6	--	50	2.4	5.5		.5		76	.10		41	0	20	.3	119	6.4	40
Sept. 22		4.1	.11	12	6.3	18		58	20	17		3.0		121	.16		55	7	42	1.1	206	6.9	30

a Includes equivalent of 7 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).
c Sum of determined constituents.

RED RIVER AT ALEXANDRIA, LA.

LOCATION.--At gaging station at old bridge on U. S. Highway 165 between Alexandria, Rapides Parish and Pineville, 1.7 miles downstream from Bayou Rigolette.
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 1955.
Water temperatures: October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 809 ppm July 1-14; minimum, 149 ppm Nov. 1-10.
Hardness: Maximum, 332 ppm Oct. 1-7; minimum, 66 ppm Apr. 1-10.
Specific conductance: Maximum daily, 1,440 micromhos Sept. 11; minimum daily, 204 micromhos Oct. 23.
Water temperatures: Maximum, 90°F July 10, 12, 29; minimum, 48°F Jan. 22, 23, Feb. 13.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 846 ppm Oct. 21-31, 1953; minimum, 91 ppm June 1-9, 1953.
Hardness: Maximum, 365 ppm Nov. 1-10, 1952; minimum, 57 ppm June 1-9, 1953.
Specific conductance: Maximum daily, 1,510 micromhos Oct. 24, 1953; minimum daily, 133 micromhos June 24, 1953.
Water temperatures: Maximum, 92°F July 15, 16, 1954; minimum, 45°F Dec. 25, 1953.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-7, 1954...	6,114	13	0.00	90	26	154		202	151	242		2.5		805	1.09	13,290	332	166	50	3.7	1,340	8.0	10
Oct. 8-9	29,600	12	.00	50	11	60		130	60	91		3.8		359	.49	28,690	170	64	43	2.0	635	7.8	10
Oct. 10-20	16,370	11	.05	30	5.8	28		91	25	40		2.5		198	.27	8,750	99	24	38	1.2	329	7.5	25
Oct. 21-31	21,850	11	.00	27	5.5	18		88	18	26		1.8		165	.22	9,730	90	18	30	.8	267	7.7	35
Nov. 1-10.....	26,470	11	.02	24	4.7	14		78	14	22		1.5		149	.20	10,650	79	15	28	.7	230	7.5	45
Nov. 11-18.....	13,720	11	.17	26	4.0	25		80	20	34		1.8		183	.25	6,780	82	16	40	1.2	305	7.5	30
Nov. 19-30.....	8,392	12	.06	41	6.3	57		109	43	83		1.0		306	.42	6,930	129	40	49	2.2	537	7.6	15
Dec. 1-10.....	5,154	13	.03	61	12	92		152	78	139		.8		494	.67	6,870	202	78	50	2.8	848	7.8	5
Dec. 11-19.....	5,910	14	.00	74	17	118		188	100	178		1.5		594	.81	9,480	254	100	50	3.2	1,040	8.0	5
Dec. 20-31.....	10,750	11	.05	38	8.4	72		88	54	111		2.0		343	.47	9,960	130	58	55	2.8	612	7.4	15
Jan. 1-6, 1955 ..	14,310	11	.03	44	9.8	75		108	58	115		1.5		396	.54	15,300	150	62	52	2.6	662	7.7	10
Jan. 7-20	13,340	12	.23	26	4.7	40		75	24	58		1.2		235	.32	8,460	83	22	51	1.9	364	7.4	50
Jan. 21-31	14,600	13	.23	23	5.3	46		71	23	67		1.8		241	.33	9,500	79	21	56	2.2	386	7.6	40
Feb. 1-10.....	16,870	11	.13	24	4.7	40		80	19	57		1.0		225	.31	10,250	80	14	52	1.9	357	7.3	80
Feb. 11-19.....	29,410	9.4	.14	22	3.4	28		69	15	40		1.5		186	.25	14,770	68	11	48	1.5	281	7.3	90
Feb. 20-27.....	28,460	11	.12	25	4.6	42		80	23	59		1.2		224	.30	17,210	82	16	53	2.0	372	7.6	70
Feb. 28, Mar. 1-9	25,090	10	.38	23	4.1	29		69	15	45		1.2		206	.28	13,960	73	16	47	1.5	293	7.2	90
Mar. 10-20.....	12,350	10	.30	28	4.6	44		78	23	68		1.0		255	.35	8,500	88	24	52	2.1	409	7.1	50
Mar. 21-25	36,140	10	.22	32	6.0	43		94	26	66		1.0		267	.36	26,050	105	28	47	1.8	430	7.5	50
Mar. 26-31	83,170	9.4	.34	26	4.6	20		84	12	32		1.5		187	.25	41,990	84	15	34	1.0	263	7.4	90

RED RIVER AT ALEXANDRIA, LA.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Apr. 1-10, 1955 ..	46,710	10	0.31	21	3.4	25		70	11	36		0.8		187	0.25	23,580	66	9	45	1.3	260	7.3	100
Apr. 11-20.....	54,450	9.4	.29	22	3.8	21		70	14	31		.8		179	.24	26,320	70	13	39	1.1	248	7.3	100
Apr. 21-30.....	36,100	9.4	.29	22	3.8	29		71	18	39		.8		194	.26	18,910	70	12	47	1.5	282	7.3	100
May 1-10	23,980	7.0	.16	24	4.8	24		79	19	34		.8		175	.24	11,330	80	15	40	1.2	292	7.3	30
May 11-24.....	13,170	12	.08	31	5.5	29		103	22	39		1.5		202	.27	7,180	101	17	38	1.2	344	7.9	15
May 25-31.....	46,240	11	.21	26	4.7	25		84	14	39		2.0		193	.26	24,100	85	16	39	1.2	305	7.7	50
June 1-10	36,680	14	.20	31	5.2	40		73	34	63		2.0		244	.33	24,160	99	39	47	1.7	409	8.0	35
June 11-19	16,520	12	.07	40	7.7	65		78	60	104		1.0		352	.48	15,700	132	68	52	2.5	602	7.6	15
June 20-30	16,680	10	.05	68	15	122		108	124	197		.8		652	.89	29,360	230	142	54	3.5	1,060	7.9	10
July 1-14.....	13,620	11	.00	89	18	156		125	169	252		1.5		809	1.10	29,750	298	194	53	3.9	1,330	7.6	10
July 15-20	11,850	9.2	.02	59	13	88		124	90	139		1.5		490	.67	15,680	200	98	49	2.7	830	7.4	15
July 21-31.....	15,200	14	.01	52	11	88		98	86	139		1.2		469	.64	19,250	175	94	52	2.9	790	7.8	15
Aug. 1-11.....	26,800	11	.11	28	5.6	42		83	30	59		1.8		238	.32	17,220	93	25	49	1.9	391	7.7	40
Aug. 12-20	14,720	12	.00	38	13	74		77	74	118		2.0		396	.54	15,740	148	85	52	2.6	682	7.8	20
Aug. 21-31	7,555	12	.00	64	14	116		141	104	171		2.8		569	.77	11,610	216	100	54	3.4	975	7.9	10
Sept. 1-13	5,969	15	.00	83	17	140		152	147	215		2.2		728	.99	11,730	278	154	52	3.6	1,220	7.9	10
Sept. 14-21	4,800	13	.00	73	14	111		163	106	168		1.5		583	.79	7,560	240	106	50	3.1	1,010	8.2	10
Sept. 22-30	7,773	14	.03	81	17	120		183	119	182		2.0		652	.89	13,680	272	122	49	3.2	1,110	7.9	10
Average	20,100	11	0.11	42	8.7	62		103	54	95		1.6		351	0.48	--	141	56	49	2.3	582	--	--

RED RIVER BASIN--Continued

RED RIVER AT ALEXANDRIA, LA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, between 2 p. m. and 4 p. m.)

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

RED RIVER BASIN--Continued

OUACHITA RIVER AT ARKADELPHIA, ARK.

LOCATION.--At gaging station at bridge on State Highway 8, at Arkadelphia, Clark County, 800 feet upstream from Missouri Pacific Railway Bridge.
DRAINAGE AREA.--2,311 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1948 to September 1955.
Water temperatures: October 1948 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 89 ppm Oct. 8-13; minimum, 30 ppm Mar. 17-21, 23, 25-28.
Hardness: Maximum, 43 ppm Oct. 8-13; minimum, 21 ppm Mar. 17-21, 23, 25-28.
Specific conductance: Maximum daily, 388 micromhos Dec. 6; minimum daily, 44.1 micromhos Mar. 21.
Water temperatures: Maximum, 99°F July 7; minimum, 43°F Feb. 21.
EXTREMES, 1948-55.--Dissolved solids: Maximum, 114 ppm Oct. 1-5, 1952; minimum, 30 ppm Mar. 17-21, 23, 25-28, 1955.
Hardness: Maximum, 52 ppm Oct. 1-5, 1952; minimum, 11 ppm Jan. 25-31, 1949.
Specific conductance: Maximum daily, 388 micromhos Dec. 6, 1954; minimum daily, 26.7 micromhos 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 1954 to September 1955 furnished by district office, Corps of Engineers, Vicksburg, Miss.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1-6, 1954	3,028	--	--	9.2	2.0	5.7	--	25	9.6	7.0	--	2.7	68	31	11	96.6	7.0	18
Oct. 8-13	1,001	--	--	12	3.1	7.5	--	18	27	12	--	1.5	89	43	28	139	6.6	15
Oct. 14, 16-20	768	--	--	9.1	2.6	5.0	--	25	16	6.5	--	1.8	68	33	13	98.0	7.3	15
Oct. 21-27, 29, 31	1,903	5.5	0.00	8.8	2.4	3.8	1.2	26	8.2	4.5	0.4	2.6	58	32	10	87.9	7.2	5
Nov. 1-10	1,675	--	--	8.7	2.1	3.6	--	30	9.2	4.0	--	1.4	57	30	6	81.6	7.3	10
Nov. 11-20	696	--	--	8.9	2.1	4.0	--	32	7.4	4.5	--	1.0	58	31	5	86.8	7.1	10
Nov. 21-22, 24-30	806	--	--	9.1	2.3	4.2	--	32	8.0	6.2	--	.8	60	32	6	89.5	7.4	10
Dec. 1-10	678	4.0	.02	9.4	2.0	4.7	1.4	32	7.0	6.2	.1	1.6	58	32	5	96.7	7.3	8
Dec. 11-20	2,645	--	--	7.3	2.1	4.0	--	26	8.0	4.5	--	1.2	52	27	6	81.4	7.3	15
Dec. 21-24, 26-28, 30-31	1,791	--	--	6.9	2.2	4.7	--	26	7.8	5.2	--	1.7	58	26	5	82.1	7.3	15
Jan. 1-10, 1955	1,859	6.5	.00	8.2	1.1	3.8	1.2	26	7.4	5.0	.1	2.4	53	25	4	79.2	7.0	--
Jan. 11-20	1,568	--	--	6.1	2.2	4.3	--	24	6.2	4.8	--	2.4	53	24	5	76.3	7.3	15
Jan. 21-31	1,336	--	--	7.2	1.8	4.2	--	24	8.2	4.5	--	1.9	52	25	6	77.5	7.4	10
Feb. 1-5	2,615	--	--	7.5	2.3	6.2	--	26	5.0	8.2	--	3.6	61	28	7	94.8	7.1	9
Feb. 6, 9-13	3,570	--	--	6.0	2.1	3.5	--	24	4.2	3.8	--	2.0	49	24	4	67.7	7.5	10
Feb. 14-19, 22-24, 27-28	1,899	--	--	6.2	2.1	4.1	--	23	4.2	5.5	--	2.4	51	24	5	74.3	7.5	10
Feb. 20-21, 25-26	2,625	--	--	7.8	2.0	9.2	--	21	3.8	17	--	1.7	74	28	10	112	7.4	15
Mar. 1-10	1,347	--	--	7.0	1.8	5.3	--	24	7.2	5.5	--	1.0	a40	25	5	81.7	7.8	5
Mar. 11-16, 29-31	1,812	--	--	7.2	2.1	5.4	--	23	5.6	7.8	--	.7	a40	27	8	86.3	6.9	8
Mar. 17-21, 23, 25-28	10,470	--	--	6.2	1.3	2.9	--	19	6.0	3.2	--	1.1	a30	21	5	63.2	6.7	10

a Sum of determined constituents.

Apr. 1-8, 10, 1955...	2,283	--	--	7.1	1.7	5.2	--	23	6.0	7.5	--	.6	52	25	6	91.2	6.6	8
Apr. 11-20	1,977	5.6	.08	6.4	1.8	3.4	1.2	22	8.0	4.5	.1	1.2	52	23	5	80.1	--	15
Apr. 21-30	958	--	--	7.2	1.9	5.0	--	26	7.0	6.0	--	.3	46	26	4	86.1	7.0	6
May 1-9.....	362	--	--	7.9	2.7	6.7	--	30	7.4	9.2	--	.2	58	31	6	100	6.9	9
May 10-19.....	430	--	--	9.3	2.5	7.5	--	29	15	9.8	--	.6	68	34	10	113	6.8	10
May 20-26, 28-31	4,380	--	--	6.6	2.0	4.3	--	25	7.6	4.5	--	1.1	52	25	4	75.9	6.8	10
June 1-10	1,053	--	--	7.1	2.1	5.3	--	26	7.8	6.0	--	.4	58	26	5	83.2	6.8	8
June 11-12, 15-19 ...	683	--	--	7.7	1.8	5.1	--	28	7.8	6.0	--	.7	a43	27	4	83.7	7.6	7
June 13-14, 20-30 ...	425	--	--	7.9	2.4	7.3	--	30	11	8.5	--	.3	65	30	5	102	6.6	6
July 1-10.....	435	4.4	00	7.8	2.4	4.7	1.5	29	10	6.0	.2	.4	60	29	6	93.9	7.4	6
July 11-16	519	--	--	8.1	2.2	5.5	--	30	9.6	6.0	--	.6	61	29	5	92.3	7.1	7
July 17-21.....	1,174	--	--	6.5	1.6	3.4	--	24	6.2	3.5	--	.5	a34	23	3	67.8	6.6	8
July 22-31	607	--	--	8.5	2.4	5.3	--	28	13	5.8	--	.8	a50	31	8	95.8	6.8	8
Aug. 1-7, 10-13	475	--	--	9.4	1.3	5.5	--	33	6.0	6.5	--	.8	a46	29	2	93.1	6.1	7
Aug. 8-9, 14-20	349	--	--	11	2.1	7.7	--	30	8.4	12	--	1.1	a57	36	12	127	7.2	6
Aug. 21-31	654	--	--	9.9	2.3	4.8	--	34	8.4	7.0	--	.8	a50	34	6	99.7	6.7	6
Sept. 1-10.....	676	--	--	10	2.4	3.9	--	38	4.2	6.0	--	1.1	a47	35	4	96.9	6.6	8
Sept. 11-20	359	--	--	11	2.1	3.6	--	38	5.2	5.0	--	.8	a47	36	5	96.7	7.0	5
Sept. 21-30	1,774	--	--	11	2.2	3.7	--	32	14	5.0	--	1.3	a53	36	10	104	6.8	13
Average	b1,632	--	--	8.2	2.1	5.0	--	27	8.4	6.4	--	1.3	55	29	7	90.6	--	9

a Sum of determined constituents.
b Mean discharge for water year October 1954 to September 1955 was 1,795 cfs.

RED RIVER BASIN--Continued

OUACHITA RIVER AT ARKADELPHIA, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	56	--	55	50	60	61	79	78	87	88	80
2	75	56	54	55	50	61	--	72	78	85	86	80
3	79	56	53	56	50	62	63	79	80	88	84	80
4	78	53	52	57	50	64	66	80	80	87	84	79
5	79	57	52	57	54	64	66	80	80	88	84	83
6	73	57	52	57	48	65	64	76	80	89	84	83
7	72	57	49	54	49	57	64	77	80	99	85	83
8	72	60	49	54	50	57	66	78	80	89	84	80
9	75	60	49	53	50	57	66	78	74	90	84	80
10	75	60	50	53	50	57	66	78	75	90	84	80
11	76	60	50	53	50	73	67	77	74	87	85	80
12	76	60	50	53	46	73	67	78	75	89	85	80
13	76	60	48	48	48	73	67	78	80	89	85	80
14	74	60	48	47	50	68	67	80	80	--	85	81
15	74	60	48	48	50	68	67	81	80	--	85	81
16	74	60	48	48	55	64	68	82	80	86	85	81
17	68	60	48	48	52	60	73	79	80	86	82	--
18	68	60	48	48	52	60	73	79	81	86	82	83
19	68	58	48	48	52	62	72	79	81	88	85	83
20	84	54	48	50	44	60	72	75	85	89	85	84
21	84	55	48	51	43	58	72	75	85	89	86	84
22	84	55	48	49	--	58	79	75	85	86	86	84
23	67	54	48	52	47	58	75	78	85	87	85	84
24	67	56	48	56	48	60	75	80	85	86	85	84
25	67	55	54	47	48	54	74	80	85	98	86	80
26	67	56	55	46	50	56	74	80	78	98	86	80
27	64	54	56	49	50	55	74	76	78	98	86	80
28	64	54	50	48	50	55	74	75	77	92	86	80
29	63	54	50	47	--	58	77	73	85	92	84	82
30	62	54	50	48	--	58	78	74	85	93	83	82
31	60	--	48	48	--	59	--	76	--	93	82	--
Average	70	57	50	51	49	61	70	78	80	90	85	81

LITTLE MISSOURI RIVER NEAR BOUGHTON, ARK.

LOCATION.--At gaging station at bridge on U. S. Highway 67, 2 miles northeast of Boughton, Nevada County, and 8.7 miles downstream from Antoine Creek.
DRAINAGE AREA.--1,070 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1955.
Water temperatures: October 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 75 ppm Oct. 4, 11, 17, 23, 25-26; minimum, 24 ppm Sept. 1-7, 9-15, 17-27, 29-30.
Hardness: Maximum, 52 ppm July 17-18, 23; minimum, 15 ppm Sept. 1-7, 9-15, 17-27, 29-30.
Specific conductance: Maximum daily, 421 micromhos Jan. 6; minimum daily, 37.7 micromhos Sept. 3.
Water temperatures: Maximum, 86°F Aug. 29; minimum, 39°F Jan. 29.
EXTREMES, 1947-55.--Dissolved solids: Maximum, 121 ppm Feb. 14-23, 1954; minimum, 24 ppm Sept. 1-7, 9-15, 17-27, 29-30, 1955.
Hardness: Maximum, 96 ppm June 6-8, 1951; minimum, 12 ppm June 1-6, Aug. 6-10, 11-20, Sept. 1-10, 21-30, 1953.
Specific conductance: Maximum daily, 421 micromhos, Jan. 6, 1955; minimum daily, 30.5 micromhos June 5, 1953.
Water temperatures: Maximum, 94°F July 29, 1948; minimum, not determined.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 furnished by district office, Corps of Engineers, Vicksburg, Miss.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1-3, 5-10, 12-14, 16, 18-22, 24, 27-31, 1954	921			6.4	1.8	2.9		24	6.0	3.2		1.4	34	23	4	71.8	7.5	35
Oct. 4, 11, 17, 23, 25-26	852			12	3.0	12		32	5.6	24		2.2	75	42	16	159	7.4	35
Nov. 1-30	701			4.1	2.1	2.9		21	5.2	3.0		.8	28	19	2	60.2	7.1	20
Dec. 1-24, 26-28	1,038			5.8	1.8	3.0		24	3.8	3.8		1.0	31	22	2	63.2	6.7	22
Dec. 25, 29-31	3,405			10	2.4	4.0		34	5.0	6.2		1.2	46	35	7	93.1	6.9	34
Jan. 1-5, 8-11, 13, 15-19, 21-29, 31, 1955	1,002			8.8	1.0	4.1		26	7.4	9.0		1.1	44	26	4	80.7	7.0	--
Jan. 7, 14, 20	1,413			13	1.4	8.8		36	4.2	15		1.5	62	38	9	137	7.2	25
Feb. 1-4, 6-8, 10, 12-19, 22-27	2,061			7.5	1.6	3.5		25	3.0	5.0		1.4	34	25	5	73.4	7.0	25
Feb. 5, 9, 11, 20-21, 28.	2,623			12	2.3	11		37	4.4	20		1.9	70	39	9	142	7.3	38
Mar. 1-6, 8-20, 22-30	3,661			6.6	1.6	3.3		22	5.0	5.0		.9	33	23	5	65.3	6.7	30
Apr. 1-4, 10, 16, 18-30	2,324			6.7	1.4	3.1		24	3.4	2.8		.6	30	22	3	64.5	6.9	15
Apr. 5-9, 11-15, 17	4,047			12	1.8	4.3		38	6.2	5.5		.6	49	37	6	98.0	7.2	22
May 1-25, 29-30	1,152			7.8	1.7	3.6		29	4.4	4.0		.6	36	26	3	75.7	6.9	22
June 1-2, 4-8, 10-27, 29-30	777			6.8	.6	4.2		22	2.6	5.5		1.3	32	19	1	66.6	6.2	15

RED RIVER BASIN--Continued

LITTLE MISSOURI RIVER NEAR BOUGHTON, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
July 1-10, 12-14, 16, 19-22, 24-31, 1955....	708			6.0	0.7	3.0		20	0.6	4.0		1.2	25	18	1	56.7	7.0	12
July 17-18, 23.....	1,032			19	1.0	3.6		63	.8	3.5		.9	60	52	0	122	7.3	23
Aug. 1-25, 27-31.....	602			4.9	.8	3.4		21	.6	4.5		.6	25	16	0	53.1	7.2	10
Sept. 1-7, 9-15, 17-27, 29-30	547			5.0	.7	3.2		19	1.4	4.0		.7	24	15	0	51.7	7.1	15
Average	a1,604			8.6	1.5	4.7		29	3.9	7.1		1.1	41	28	4	85.2	--	23

a Mean discharge for water year October 1954 to September 1955, 1,411 cfs.

RED RIVER BASIN--Continued

LITTLE MISSOURI RIVER NEAR BOUGHTON, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

RED RIVER BASIN--Continued

SMACKOVER CREEK NEAR NORPHLET, ARK.

LOCATION.--On county road, 3½ miles north of Norphlet, Union County.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
Water temperatures: October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 55,300 ppm Oct. 18-26; minimum, 603 ppm Mar. 24-27.
Hardness: Maximum, 10,700 ppm Oct. 18-26; minimum, 132 ppm Mar. 24-27.
Specific conductance: Maximum daily, 83,900 micromhos Oct. 26; minimum daily, 766 micromhos Feb. 28.
Water temperatures: Maximum, 100°F July 11; minimum, 40°F Dec. 18.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 73,000 ppm Sept. 1-4, 1954; minimum, 285 ppm May 1-2, 1953.
Hardness: Maximum, 13,200 ppm Sept. 1-4, 1954; minimum, 44 ppm May 1-2, 1953.
Specific conductance: Maximum daily, 96,400 micromhos Sept. 4, 1954; minimum daily, 396 micromhos May 2, 1953.
Water temperatures: Maximum, 102°F July 18, 24, 26, Aug. 17, 1954; minimum, 39°F Jan. 22-23, 1954.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH
Oct. 1-3, 1954.....				2,300	609	13,100	167	43	2.0	26,700			42,900	8,240	8,210	61,100	7.2
Oct. 4-10				3,120	667	17,100	222	61	1.0	33,700			54,800	10,500	10,500	76,900	7.4
Oct. 11-17				2,480	515	13,700	175	58	2.0	27,100			44,000	8,300	8,260	64,000	6.1
Oct. 18-26				3,130	702	17,100	222	65	1.0	34,100			55,300	10,700	10,600	76,900	7.3
Oct. 27-28				2,510	556	13,900	173	51	1.0	27,600			44,800	8,550	8,510	65,000	7.3
Oct. 29-30				1,210	288	7,020	87	86	1.0	13,800			22,400	4,200	4,130	34,900	7.8
Nov. 1-3, 7-9				2,020	618	13,600	182	73	1.0	26,700			43,200	7,580	7,520	61,900	6.8
Nov. 4-6				997	211	5,510	69	42	12	10,700			17,500	3,360	3,320	28,000	7.3
Nov. 10-12, 15-19 ..				1,530	392	8,480	110	24	12	16,700			27,200	5,430	5,410	40,500	6.2
Nov. 13-14, 20, 27..				1,870	376	10,100	125	30	7.0	19,800			32,300	6,210	6,190	47,500	6.7
Nov. 21-23, 28-30 ..				2,120	518	11,400	139	42	1.0	22,600			36,800	7,420	7,380	53,800	6.7
Nov. 24-26				2,320	512	12,600	157	50	1.0	25,000			40,800	7,890	7,850	59,000	7.4
Dec. 1-10				2,070	467	11,500	144	49	2.0	22,600			36,800	7,080	7,040	54,100	7.3
Dec. 11-12				86	21	372	11	2	94	715			1,300	301	300	2,560	4.6
Dec. 13-18				880	216	4,940	63	18	9.0	9,900			16,000	3,080	3,070	25,800	6.2
Dec. 19-22				1,370	348	7,320	92	21	16	14,500			23,700	4,850	4,830	35,100	5.9
Dec. 23-26				1,580	406	8,640	105	27	5.0	17,000			27,700	5,610	5,590	41,400	6.4
Dec. 27-31				376	99	2,010	26	3	20	4,010			6,540	1,340	1,340	11,600	5.2
Jan. 1-3, 1955				482	118	2,500	33	4	15	4,980			8,130	1,690	1,680	13,500	5.3
Jan. 4-6				710	115	3,380	43	4	18	6,750			11,000	2,240	2,240	17,900	5.8
Jan. 7-9				837	240	4,320	56	8	14	9,060			14,500	3,080	3,070	23,600	6.7
Jan. 10, 19, 21				302	83	1,640	21	2	40	3,270			5,360	1,100	1,090	9,690	5.2
Jan. 11-17				502	139	2,720	35	2	22	5,470			8,890	1,820	1,820	14,900	5.0
Jan. 18, 20, 22-23 ..				427	128	2,250	28	2	18	4,510			7,360	1,590	1,590	12,500	5.0
Jan. 24-26				207	155	3,310	42	3	5.0	6,650			10,800	2,190	2,190	17,500	5.2
Jan. 27-31				732	195	4,000	48	3	5.0	7,880			12,900	2,630	2,630	20,600	5.3

Feb. 1-4, 1955			841	207	4,490	53	15	5.0	8,810		14,400	2,950	2,940	23,100	6.7
Feb. 5-9			97	30	550	9.2	34	4.0	1,060		1,770	366	338	3,580	7.0
Feb. 10-11			139	47	742	13	3	5.0	1,490		2,440	540	538	4,760	5.4
Feb. 12-13, 17			246	72	1,350	18	41	22	2,710		4,440	910	876	8,190	4.8
Feb. 14-16, 18-19			368	116	2,110	26	2	22	4,230		6,870	1,400	1,390	11,600	4.9
Feb. 20-21			160	51	893	14	2	10	1,810		2,940	608	607	5,600	4.8
Feb. 22-23, 25			94	31	502	8.8	0	11	1,030		1,680	362	362	3,340	4.5
Feb. 24, 26-27			110	33	566	10	2	10	1,150		1,880	410	408	3,760	4.6
Mar. 1-4			270	72	1,430	19	2	5.0	2,870		4,670	970	968	8,640	5.6
Mar. 5-11			367	121	2,080	26	4	4.0	4,180		6,780	1,410	1,410	11,000	5.5
Mar. 12-13			529	151	2,920	36	3	5.0	5,840		9,480	1,940	1,940	15,100	5.4
Mar. 14-19			380	130	1,960	25	2	18	3,980		6,490	1,480	1,480	11,100	5.0
Mar. 21, 30			83	28	433	8.2	3	5.0	880		1,440	322	320	2,950	5.4
Mar. 22-23, 28-29			43	16	234	6.6	3	5.0	490		796	174	171	1,660	5.4
Mar. 24-27			35	11	181	6.0	2	4.0	365		603	132	131	1,260	5.7
Apr. 1, 7			159	60	892	16	0	5.0	1,830		2,960	543	643	5,820	4.15
Apr. 2-6			232	70	1,270	21	0	12	2,610		4,220	867	867	8,080	4.5
Apr. 8-12			107	33	580	11	1	3.0	1,150		1,880	402	402	3,910	4.6
Apr. 13, 20			60	20	329	7.8	4	5.0	670		1,090	232	228	2,330	5.5
Apr. 14-19, 21			45	13	228	6.0	6	6.0	465		766	166	166	1,640	6.1
Apr. 22-24, 27			211	70	1,210	20	0	4.0	2,400		3,920	814	814	7,670	4.5
Apr. 25-26, 28-30			391	128	2,280	35	3	4.0	4,550		7,390	1,500	1,500	12,600	5.2
May 1-4			542	130	2,870	54	3	3.0	5,660		9,260	1,890	1,880	16,400	4.8
May 5-8			825	207	4,470	80	11	2.0	8,850		14,400	2,910	2,900	24,700	6.5
May 9-15, 17-18			1,110	264	5,940	105	2	2.0	11,700		19,100	3,860	3,850	32,000	5.2
May 16, 20			945	230	5,040	89	3	2.0	10,100		16,400	3,300	3,300	25,700	4.9
May 21-22, 31			205	54	1,100	21	0	2.0	2,250		3,630	734	734	6,640	3.95
May 23, 25, 30			122	33	665	15	0	3.0	1,320		2,160	440	440	4,290	4.45
May 24, 26-27			57	14	288	9.6	3	2.0	590		962	200	197	1,980	5.2
May 28-29			79	27	443	11	4	2.0	885		1,450	308	304	2,920	4.9
June 1-3			332	106	1,750	38	2	3.0	3,680		5,910	1,260	1,260	11,200	5.2
June 4-9			649	170	3,590	65	3	2.0	7,140		11,600	2,320	2,320	20,100	5.0
June 10-11			809	209	4,380	76	4	3.0	8,700		14,200	2,880	2,870	24,200	5.3

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RED RIVER BASIN--Continued

SMACKOVER CREEK NEAR NORPHLET, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Calcium, magnesium	Noncarbonate		
June 12-15, 1955....				1,050	362	5,680	98	2	3.0	11,300			18,400	3,700	3,700	31,000	4.9
June 16-21				1,400	410	7,600	135	20	3.0	15,500			25,100	5,180	5,160	41,300	6.0
June 22-23				371	106	2,320	51	39	6.0	4,500			7,370	1,360	1,330	13,300	6.8
June 24, 29-30				1,620	492	9,280	161	14	4.0	18,700			30,300	6,060	6,050	48,100	6.0
June 25-28				944	270	5,370	90	3	7.0	11,000			17,700	3,470	3,460	27,800	5.0
July 1-8, 13.....				1,980	523	11,000	191	2	2.0	21,800			35,500	7,090	7,090	51,500	5.0
July 9-12, 14-15....				2,170	503	12,300	220	37	2.0	24,700			39,900	7,480	7,450	59,200	6.2
July 16-20, 23-26...				987	267	5,670	111	2	4.0	11,100			18,100	3,560	3,560	30,600	4.7
July 21-22.....				622	179	3,540	61	2	4.0	6,940			11,300	2,290	2,290	19,700	4.6
July 27-31				1,440	433	8,570	149	13	3.0	16,700			27,300	5,370	5,360	43,800	6.3
Aug. 1-7.....				1,620	442	9,130	153	23	2.0	18,200			29,600	5,860	5,840	47,100	6.4
Aug. 8-14.....				1,290	373	7,560	133	24	4.0	14,800			24,200	4,750	4,730	39,300	6.8
Aug. 15-17.....				1,110	314	6,240	113	15	3.0	12,600			20,400	4,060	4,050	34,300	6.5
Aug. 18-19				1,460	489	8,620	146	27	2.0	16,900			27,600	5,650	5,630	41,900	7.1
Aug. 20-24.....				1,920	596	11,300	194	41	1.0	22,500			36,500	7,240	7,210	53,200	7.2
Aug. 25-27.....				2,670	724	15,000	245	58	1.0	29,800			48,500	9,640	9,590	72,600	6.9
Aug. 28-31				886	263	5,210	89	14	3.0	10,200			16,700	3,290	3,280	28,600	6.4
Sept. 1-2				176	34	854	17	6	12	1,680			2,780	579	574	5,460	6.0
Sept. 3-4				279	46	1,340	29	9	10	2,710			4,420	885	878	8,250	6.3
Sept. 5-7.....				827	78	3,540	63	1	7.0	7,140			11,700	2,380	2,380	19,600	5.2
Sept. 8-9				1,310	168	5,890	111	2	4.0	11,800			19,300	3,960	3,960	32,300	4.9
Sept. 10-13				1,900	459	9,900	198	1	3.0	20,200			32,700	6,630	6,630	51,600	4.6
Sept. 14-18				2,290	536	11,800	215	44	2.0	23,900			38,800	7,920	7,880	60,100	6.7
Sept. 19-21.....				2,770	552	13,800	238	57	1.0	27,400			44,800	9,180	9,130	68,200	6.8
Sept. 22-24.....				1,370	220	7,130	116	5	5.0	14,000			22,800	4,320	4,320	37,500	6.0
Sept. 25-30				1,760	414	9,190	180	34	1.0	18,200			29,800	6,090	6,070	47,400	6.7
Average				982	245	5,390	83	17	7.3	10,700			17,400	3,450	3,440	27,200	--

RED RIVER BASIN--Continued

SMACKOVER CREEK NEAR NORPHLET, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	66	62	59	54	60	69	82	83	89	87	82
2	90	60	--	59	51	64	71	83	84	91	87	83
3	92	57	60	60	52	62	73	84	--	93	87	82
4	94	59	59	57	51	72	75	85	86	94	93	81
5	92	63	58	55	52	73	75	86	85	95	--	90
6	89	67	54	53	54	68	71	87	84	96	96	89
7	87	70	53	53	55	68	74	88	85	97	98	87
8	90	69	54	55	56	70	75	85	84	96	83	86
9	92	72	54	54	56	68	73	87	80	98	92	89
10	86	68	53	50	56	71	71	86	82	99	93	90
11	82	67	54	53	50	76	72	84	80	100	86	87
12	84	65	50	57	48	78	70	83	82	97	90	88
13	84	67	48	53	49	73	70	84	84	97	89	85
14	76	68	46	53	54	--	73	86	87	91	92	85
15	70	65	50	50	55	78	75	87	84	92	90	80
16	75	68	52	56	60	77	78	86	86	90	93	82
17	73	68	51	56	54	71	79	85	87	91	85	89
18	78	67	40	52	55	72	79	84	90	95	93	90
19	80	64	46	51	53	69	80	83	91	86	92	94
20	75	68	49	56	50	69	81	82	93	88	94	95
21	74	64	50	54	49	66	83	82	92	89	90	95
22	73	62	54	48	51	65	84	81	93	86	91	88
23	74	64	52	47	52	67	82	82	72	91	91	85
24	--	61	50	49	52	69	81	83	92	95	--	84
25	71	62	58	50	57	65	82	83	93	93	89	86
26	70	64	59	54	59	62	80	84	92	95	94	88
27	74	65	51	51	65	61	79	83	82	94	88	90
28	65	64	59	52	62	62	81	83	89	95	88	89
29	64	62	50	49	--	62	80	80	93	94	85	90
30	63	60	55	51	--	67	78	78	93	93	84	85
31	62	--	54	51	--	69	--	80	--	96	--	--
Average	79	65	53	53	54	68	76	84	86	93	90	87

RED RIVER BASIN--Continued

OUACHITA RIVER AT CALION, ARK.

LOCATION.--At Rock Island and Pacific Railway bridge in Calion, Union County.
DRAINAGE AREA.--Indeterminate.
RECORDS AVAILABLE.--Chemical analyses: October 1949 to September 1954 (discontinued).
Specific conductance and daily chloride: October 1954 to May 1955.
Water temperatures: October 1949 to May 1955 (discontinued).
EXTREMES, 1949-54.--Dissolved solids: Maximum, 9,310 ppm Aug. 6, 1954; minimum, 61 ppm Dec. 7-10, 1952.
Hardness: Maximum, 1,770 ppm Oct. 23, 1952; minimum, 20 ppm May 3, 1950.
Specific conductance: Maximum daily, 14,900 micromhos Oct. 23, 1952; minimum daily, 46.4 micromhos May 18, 1953.
Water temperatures: Maximum, 95°F Aug. 8, 1953; minimum, not determined.
REMARKS.--Once-daily sampling near surface. Records of specific conductance of daily samples available in district office at Fayetteville, Ark. No discharge records available for this station.

Specific conductance (micromhos at 25°C) and chloride, in parts per million, October 1954 to May 1955

	October		November		December	
Day	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	--	--	474	122	680	184
2	--	--	590	159	--	--
3	388	92	675	186	598	161
4	378	90	637	171	1,130	322
5	308	75	1,630	470	1,440	415
6	452	119	1,610	475	1,460	425
7	581	149	603	160	775	218
8	585	151	595	158	983	280
9	434	108	635	168	566	155
10	362	85	853	237	573	154
11	365	85	541	141	369	91
12	529	132	639	171	1,330	388
13	492	122	818	219	940	268
14	582	148	850	230	3,530	1,090
15	--	--	850	233	949	265
16	1,500	430	851	236	773	214
17	669	173	706	189	--	--
18	665	172	587	155	603	161
19	471	114	591	158	656	179
20	405	98	588	155	655	181
21	449	112	361	93	809	228
22	457	111	391	96	730	200
23	333	80	495	128	578	156
24	376	93	873	241	631	170
25	356	87	--	--	739	204
26	405	101	--	--	738	204
27	1,190	335	--	--	741	205
28	679	240	1,600	465	815	222
29	863	235	1,600	458	3,370	1,050
30	651	171	--	--	--	--
31	476	122	--	--	625	167

RED RIVER BASIN--Continued

OUACHITA RIVER AT CALION, ARK.--Continued

Specific conductance (micromhos at 25°C) and chloride, in parts per million, October 1954 to May 1955--Continued

	January		February		March	
Day	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	443	116	1,060	280	679	186
2	629	178	1,120	315	720	206
3	535	142	--	--	778	214
4	633	172	970	270	772	214
5	745	202	2,980	905	876	245
6	--	--	--	--	963	270
7	910	255	572	150	958	270
8	1,000	275	318	80	966	270
9	1,170	330	--	--	955	270
10	1,160	328	507	136	977	272
11	1,710	505	461	122	1,010	275
12	2,020	595	784	212	1,080	305
13	988	270	656	177	1,260	365
14	979	275	662	180	1,640	480
15	818	225	814	225	1,680	490
16	1,250	352	844	235	1,720	505
17	1,260	352	--	--	1,140	330
18	1,010	275	1,070	300	1,140	325
19	1,370	385	1,030	290	577	144
20	1,080	305	2,340	700	645	176
21	1,080	300	2,350	710	649	178
22	881	245	698	185	317	78
23	802	218	382	98	148	33
24	804	220	409	108	694	187
25	826	225	359	90	760	204
26	879	240	650	177	1,160	340
27	1,090	302	671	183	183	40
28	1,100	310	--	--	138	28
29	1,140	318	--	--	946	275
30	1,220	348	--	--	73.2	8.2
31	--	--	--	--	584	161

	April		May	
Day	Conductance	Chloride	Conductance	Chloride
1	608	163	778	212
2	592	163	784	213
3	490	131	--	--
4	469	124	--	--
5	929	262	--	--
6	770	212	682	185
7	580	153	764	210
8	590	155	439	114
9	--	--	--	--
10	453	118	485	124
11	433	114	479	123
12	1,280	360	--	--
13	674	183	553	143
14	--	--	558	144
15	1,050	300	768	208
16	602	160	--	--
17	890	248	608	158
18	1,060	298	773	210
19	1,570	450	--	--
20	613	166	--	--
21	917	258	2,850	930
22	919	260	1,250	370
23	869	240	--	--
24	546	142	1,440	410
25	545	142	916	250
26	622	168	1,570	430
27	626	169	1,550	430
28	863	238	906	248
29	871	240	211	44
30	864	240	203	43
31	--	--	130	23

RED RIVER BASIN--Continued

OUACHITA RIVER AT CALION, ARK.--Continued

Temperature (°F) of water, October 1954 to May 1955

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

HURRICANE CREEK NEAR SHERIDAN, ARK.

LOCATION.--At bridge on Highway 270, 5 miles east of Sheridan, Grant County.
RECORDS AVAILABLE.--Chemical analyses: October 1949 to September 1955.
Water temperatures: October 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,000 ppm Sept. 6-9; minimum, 91 ppm Mar. 21, 23, 25.
Hardness: Maximum, 266 ppm Dec. 21-29, 31; minimum, 22 ppm June 7, 9, 14-17, 19.
Specific conductance: Maximum daily, 1,650 micromhos Oct. 5; minimum daily, 113 micromhos Mar. 23.
Water temperatures: Maximum, 88°F July 30; minimum, 40°F Jan. 30, Feb. 5, 11, 13, 22.
EXTREMES, 1949-55.--Dissolved solids: Maximum, 1,680 ppm Dec. 1-2, 1953; minimum, 41 ppm May 3, 7-9, 1950.
Hardness: Maximum, 370 ppm Sept. 5-6, 1953; minimum, 4 ppm Jan. 1-4, 1954.
Specific conductance: Maximum daily, 2,540 micromhos Dec. 1, 1953; minimum daily, 33.6 micromhos Feb. 12, 1950.
Water temperatures: Maximum, 89°F June 22, 1954; minimum, freezing point on several days during December 1953 and January 1954.
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 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	Color
Oct. 1-10, 1954		2.2	0.01	32	1.6	287	20	a 242	467	26	4.0	0.6	966	86	0	1,460	8.5	10
Oct. 11-20		1.8	.00	71	6.5	205	10	141	493	21	2.0	.6	929	204	88	1,340	7.9	10
Oct. 21-31		2.6	.00	53	4.7	222	11	177	446	26	4.0	1.0	866	152	6	1,310	7.5	10
Nov. 1-10		1.9	.00	57	4.8	196	12	110	470	20	2.0	.5	848	162	72	1,260	6.5	10
Nov. 11-20		1.2	.00	49	5.8	204	11	102	468	22	2.0	.7	838	146	62	1,240	8.1	10
Nov. 21-30		1.7	.03	79	8.0	178	11	95	500	23	2.0	.2	875	230	152	1,260	7.3	6
Dec. 1-10		1.3	.00	26	4.1	213	11	177	358	22	4.0	.6	734	82	0	1,150	7.2	10
Dec. 11-20		2.0	.00	34	4.6	223	12	164	420	25	4.0	.9	824	104	0	1,250	8.2	10
Dec. 21-29, 31		2.3	.00	91	9.5	132	6.7	100	422	15	2.0	.9	770	266	184	1,080	7.4	10
Dec. 30, Jan. 1-5, 1955		4.1	.00	51	7.0	76	4.9	40	258	10	4.0	2.2	448	158	123	669	6.8	10
Jan. 6-10		5.6	.00	57	8.4	96	5.4	26	329	14	2.0	1.4	564	176	155	810	6.5	10
Jan. 11-12, 14-16		2.2	.02	39	4.8	111	5.7	62	268	14	2.0	2.2	500	117	66	7 757	7.5	5
Jan. 13, 17-20		3.6	.00	9.6	.5	240	9.5	243	288	15	10	2.5	702	26	0	1,130	7.9	--
Jan. 21-25, 27		3.0	.02	28	3.3	114	5.9	62	242	14	2.0	1.9	455	84	32	712	7.4	5
Jan. 26, 28-31		5.0	.00	27	3.5	144	7.2	83	282	15	3.0	2.8	532	82	14	846	7.5	--
Feb. 1-5, 7-9		2.8	.00	16	1.9	143	8.0	112	247	15	4.0	2.4	505	48	0	813	7.2	--
Feb. 6, 10-11		--	--	30	4.9	60	--	64	156	10	--	2.0	310	95	43	469	7.5	10
Feb. 12-14		--	--	20	4.0	56	--	34	130	8.5	--	14	275	66	38	401	7.4	10
Feb. 15-21		3.1	.00	16	1.9	103	5.2	120	143	12	4.0	2.4	350	48	0	580	7.6	--
Feb. 22-27		5.5	.11	15	1.8	31	2.6	33	75	6.0	.9	3.3	167	45	18	257	6.9	--
Feb. 28, Mar. 1-4		6.5	.01	17	2.6	55	3.6	56	110	7.0	1.2	.8	237	53	7	381	7.2	--
Mar. 5-7, 9-10		5.5	.01	23	4.3	54	4.4	70	124	9.0	1.0	.5	267	70	12	434	7.2	--
Mar. 11-15		3.2	.00	18	2.2	67	4.0	74	121	9.0	2.0	.6	287	54	0	432	7.5	15
Mar. 16-20		6.5	.19	15	2.3	26	2.7	39	60	4.5	.7	1.1	158	47	15	224	7.4	20
Mar. 21, 23, 25		--	--	11	1.3	7.5	--	25	23	2.0	--	.5	91	33	12	116	7.4	36
Mar. 22, 24, 26-31		5.0	.04	16	2.8	17	1.8	23	57	5.2	.6	1.0	135	51	33	200	7.4	10

a Includes equivalent of 6 parts per million of carbonate (CO_3).

RED RIVER BASIN--Continued

HURRICANE CREEK NEAR SHERIDAN, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Apr. 1-4, 1955.....		--	--	26	4.8	28	--	11	125	6.0	--	0.6	258	85	76	328	5.9	4
Apr. 5-10		5.9	0.02	18	3.0	26	2.5	25	82	5.0	0.5	3.4	175	57	37	252	6.5	15
Apr. 11-13, 17-20 ...		7.2	.02	15	3.0	26	2.8	34	70	5.8	.5	1.0	164	50	22	236	6.8	20
Apr. 14-16		--	--	10	2.7	9.2	--	19	35	3.0	--	.2	98	36	20	129	7.1	25
Apr. 21-24, 26, 29-30		8.1	.14	18	2.6	28	2.6	38	75	5.2	.9	.3	179	56	24	255	7.4	20
Apr. 25, 27-28		--	--	13	3.1	17	--	32	46	5.0	--	.1	134	45	19	185	7.2	30
May 1-5		6.0	.12	17	3.3	38	2.8	61	79	7.0	1.6	.5	189	56	6	291	7.1	16
May 6-12		5.2	.00	21	3.1	62	4.3	96	97	10	2.8	.7	266	65	0	419	7.9	15
May 13-19.....		6.6	.00	30	7.1	74	5.7	52	191	12	1.8	.8	375	104	62	578	7.0	7
May 20-23		.5	.00	27	4.8	47	3.9	30	142	6.5	1.6	1.8	259	87	62	413	6.7	10
May 24-31, June 1-2 .		2.0	.02	14	2.8	28	2.5	37	64	4.5	1.2	.3	152	46	16	230	6.5	26
June 3-6, 10		6.0	.12	31	4.2	72	4.0	63	177	8.0	2.4	.3	352	95	44	532	7.2	19
June 7, 9, 14-17, 19 .		5.2	.00	7.4	1.0	199	8.6	b 268	208	9.0	9.0	1.8	581	22	0	879	8.7	14
June 8, 11-13, 18, 20.		3.9	.00	34	4.9	50	3.4	44	168	7.0	2.0	.3	296	105	69	452	6.7	10
June 21-26.....		4.1	.00	37	3.8	62	4.4	68	182	8.0	2.0	.6	331	108	52	508	7.4	11
June 27-30.....		2.2	.00	29	4.2	150	8.2	82	310	12	3.6	1.6	574	90	23	870	7.2	11
July 1-10.....		6.1	.00	54	7.2	81	5.3	66	258	8.5	2.2	.8	493	164	110	701	7.5	6
July 11-16.....		3.5	.00	62	4.5	78	5.8	72	262	7.0	1.0	.4	473	173	114	684	6.8	7
July 17-21		3.6	.03	70	5.2	156	9.6	86	441	11	3.0	1.1	754	196	126	1,070	6.3	7
July 22-24.....		--	--	37	3.5	62	--	40	188	5.8	--	1.4	377	107	74	538	7.0	10
July 25-28.....		4.2	.03	74	8.7	96	7.2	46	365	8.0	1.0	.3	595	220	183	838	7.2	15
July 29-31.....		--	--	34	1.5	38	--	110	68	4.0	--	1.4	231	91	1	345	7.7	10
Aug. 1-4		4.2	.01	30	1.9	48	4.9	122	82	5.0	2.2	1.0	242	83	0	377	7.9	10
Aug. 5-7, 9		2.4	.02	19	2.5	116	8.3	c 171	144	8.5	5.0	1.2	401	58	0	618	8.3	12
Aug. 8, 10		--	--	29	1.2	200	--	180	341	10	--	1.0	708	78	0	1,040	8.0	9
Aug. 11-14.....		1.7	.01	75	7.0	197	14	123	516	12	5.0	1.5	890	216	115	1,270	7.5	7
Aug. 15-16, 20, 25-26		1.3	.01	25	1.2	105	8.1	146	161	10	3.0	1.4	388	68	0	607	7.6	10
Aug. 17-19, 21-24....		3.8	.00	74	8.8	146	10	82	442	9.0	2.0	.7	740	220	154	1,050	7.6	12
Aug. 27-31		2.8	.02	78	9.2	137	9.2	79	439	11	2.0	.7	735	232	168	1,040	7.2	7

b Includes equivalent of 8 parts per million of carbonate (CO_3).
c Includes equivalent of 2 parts per million of carbonate (CO_3).

Sept. 1-5, 10, 1955 ..		--	--	29	2.6	215	--	178	362	16	--	.3	732	83	0	1,130	7.6	12
Sept. 6-9		--	--	62	4.2	248	--	136	566	13	--	.8	1,000	172	60	1,460	8.1	10
Sept. 11-20		2.5	.03	25	2.1	228	15	198	368	15	7.0	1.5	762	71	0	1,130	8.0	12
Sept. 21-23, 27-30...		2.2	.00	73	4.3	183	11	140	454	11	3.0	.2	811	200	85	1,150	8.1	12
Sept. 24-26.....		--	--	56	3.3	267	--	162	550	13	--	.8	990	153	20	1,460	7.6	7
Average		3.7	0.02	36	4.1	113	7.1	93	250	11	2.7	1.3	489	107	31	727	--	12

RED RIVER BASIN--Continued

HURRICANE CREEK NEAR SHERIDAN, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

SALINE RIVER NEAR RYE, ARK.

LOCATION.--At gaging station at bridge on State Highway 15, 4 miles southwest of Rye, Cleveland County, and 5 miles upstream from Hudgin Creek.
DRAINAGE AREA.--2,062 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1947, October 1948 to September 1955.
Water temperatures: October 1946 to September 1947, October 1948 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 186 ppm July 13-15; minimum, 24 ppm Mar. 17-31.
Hardness: Maximum, 70 ppm July 13-15; minimum, 16 ppm Mar. 17-31.
Specific conductance: Maximum daily, 299 micromhos July 14; minimum daily, 43.2 micromhos Mar. 19.
Water temperatures: Maximum, 87°F Aug. 22, 27-28; minimum, 39°F Dec. 16, Feb. 12, 21.
EXTREMES, 1946-47, 1948-55.--Dissolved solids: Maximum, 186 ppm July 13-15, 1955; minimum, 18 ppm Jan. 11-14, 1950.
Hardness: Maximum, 77 ppm Jan. 24, 30, 1949; minimum, 8 ppm June 1-7, 9-10, 1947.
Specific conductance: Maximum daily, 534 micromhos Jan. 18, 1949; minimum daily, 19.7 micromhos June 24, 1947.
Water temperatures: Maximum, not determined; minimum, 36°F Feb. 1, 1951.
REMARKS.--Records of specific conductance of daily samples available in district office at Fayetteville, Ark. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 1-28, 1954	51.7			3.6	2.2	9.3		25	11	5.5		0.6	48	18	0	89.3	7.1	15
Oct. 29-31	73.3			13	3.5	14		39	34	7.0		2.8	109	47	15	172	7.0	15
Nov. 1-17	234			14	4.1	11		36	30	5.5		6.2	108	52	22	164	6.7	16
Nov. 18-30	88.8			16	3.7	14		36	42	6.0		3.8	122	55	26	190	6.6	10
Dec. 1-23, 26	206			15	3.7	10		48	28	5.2		1.5	107	53	13	166	7.5	10
Dec. 24-25, 27-31, 1954, Jan. 1, 1955	388			8.6	3.0	6.9		25	16	5.2		8.0	87	34	13	114	7.1	38
Jan. 2-31, Feb. 1	632			13	3.3	8.4		33	27	5.5		3.6	93	46	19	139	7.4	22
Feb. 2-19, 21-28	1,950			6.9	2.2	4.9		16	18	3.5		2.5	a46	26	13	86.5	6.4	30
Mar. 1-11	1,314			8.3	2.7	5.6		22	20	3.5		1.4	a52	32	14	100	7.0	18
Mar. 12-16	711			11	3.0	9.9		28	30	6.0		1.2	a75	40	17	140	7.0	27
Mar. 17-31	8,375			3.8	1.5	2.3		11	7.4	2.0		1.1	a24	16	7	52.6	6.4	55
Apr. 1-9, 11-19	6,468			5.1	1.8	3.5		16	11	2.6		.6	a33	20	7	71.5	6.0	30
Apr. 10, 20-28, 30	2,739			7.5	3.2	5.5		28	13	4.2		.9	a48	32	9	99.7	6.9	30
May 1-7, 9-20, 25-26	426			11	3.2	6.3		42	13	4.0		1.3	a60	41	6	117	7.6	35
May 8, 21-24, 28-31	1,210			6.0	1.8	4.0		19	9.6	2.8		1.0	a35	22	7	70.8	7.0	35
June 1-9	6,663			6.6	1.6	2.3		20	9.6	1.2		.8	a32	23	7	70.2	7.2	50
June 10-14	952			10	2.8	5.2		35	10	3.2		1.6	a50	36	8	105	6.5	40
June 15-30	403			11	3.1	11		42	21	3.5		1.2	a72	40	6	134	6.9	27
July 1, 4, 12, 16-23, 31	268			16	4.3	14		52	37	6.0		3.8	126	58	15	185	7.5	15
July 2-3, 5-11, 24-30	279			12	3.2	8.2		43	21	3.5		.7	94	43	8	133	7.2	16
July 13-15	183			21	4.4	30		51	85	4.5		.4	186	70	29	280	7.5	15

a Sum of determined constituents.

RED RIVER BASIN--Continued

SALINE RIVER NEAR RYE, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Aug. 1, 8-11, 18, 20-31, 1955	130			13	2.7	11		53	15	4.5		2.3	a74	44	0	131	7.5	15
Aug. 2-7	179			17	3.6	12		52	29	6.0		3.0	a97	57	15	183	7.7	10
Aug. 12-17, 19	145			10	2.2	4.8		40	4.8	2.0		1.3	a45	34	1	96.4	7.6	25
Sept. 1-30	41.1			12	3.6	7.8		54	8.6	5.5		1.9	a66	45	0	136	7.4	8
Average	b1,364			11	3.0	8.9		35	22	4.3		2.1	76	40	11	129	--	24

a Sum of determined constituents.

b Mean discharge for watsr year October 1954 to September 1955, 1,323 cfs.

RED RIVER BASIN--Continued

SALINE RIVER NEAR RYE, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

RED RIVER BASIN--Continued

BAYOU LAPILE NEAR STRONG, ARK.

LOCATION.--On county road about 1 mile north of Strong, Union County.
DRAINAGE AREA.--Indeterminate.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955.
Water temperatures: October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 62,700 ppm Oct. 1-11; minimum, 1,400 ppm May 26-27.
Hardness: Maximum, 12,600 ppm Oct. 1-11; minimum, 303 ppm May 26-27.
Specific conductance: Maximum daily, 97,700 micromhos Oct. 6; minimum daily, 1,070 micromhos Mar. 28.
Water temperatures: Maximum, 92°F July 10, 25, 27, 30; minimum, 37°F Feb. 14.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 84,000 ppm Sept. 28-29, 1954; minimum, 306 ppm Apr. 29-30, 1953.
Hardness: Maximum, 15,600 ppm Sept. 28-29, 1954; minimum, 50 ppm Apr. 29-30, 1953.
Specific conductance: Maximum daily, 111,000 micromhos Sept. 28, 1954; minimum daily, 441 micromhos Apr. 30, 1953.
Water temperatures: Maximum, 98°F on several days during summer months; minimum, 36°F Jan. 22, 1954.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	H^+
														Calcium, magnesium	Noncarbonate			
Oct. 1-11, 1954				3,760	794	19,200	209	0	1.0	38,700			62,700	12,600	12,600	86,700	3.62	0.20
Oct. 12-14				3,080	673	15,900	170	0	1.0	31,600			51,400	10,500	10,500	73,600	3.80	.26
Oct. 15-21				1,740	488	9,150	106	0	2.0	19,000			30,500	6,350	6,350	47,500	4.07	.20
Oct. 22-26, 28				2,040	463	10,500	117	0	2.0	21,100			34,200	6,990	6,990	51,800	4.05	.20
Oct. 27, 29-30				2,370	530	12,200	143	0	1.0	24,600			39,800	8,090	8,090	56,800	4.20	.20
Nov. 1-3				2,770	642	14,600	171	0	1.0	29,100			47,300	9,550	9,550	66,900	4.15	.20
Nov. 4-11				1,390	326	7,430	86	0	2.0	14,800			24,000	4,810	4,810	37,100	4.35	.16
Nov. 12-15				1,410	378	7,640	89	0	5.0	15,400			24,900	5,070	5,070	37,900	4.5	--
Nov. 16-19				1,720	395	9,040	109	0	1.0	18,100			29,400	5,920	5,920	43,900	4.20	.23
Nov. 20-24				1,470	396	8,050	96	0	5.0	16,100			26,100	5,300	5,300	39,400	4.18	.20
Nov. 25-27				1,640	363	8,510	99	4	3.0	17,000			27,600	5,580	5,580	41,600	4.6	--
Nov. 28-30				2,090	476	10,600	125	2	2.0	21,800			35,100	7,220	7,220	51,800	4.6	--
Dec. 1-10				2,300	559	12,000	131	0	2.0	23,800			38,800	8,040	8,040	59,500	4.5	--
Dec. 11, 13				2,260	485	11,600	125	0	2.0	22,900			37,400	7,630	7,630	56,200	4.5	--
Dec. 12, 14-16				2,010	468	10,500	117	1	2.0	20,400			33,500	6,940	6,940	49,800	4.7	--
Dec. 17-20				1,360	287	7,010	109	1	2.0	13,700			22,500	4,570	4,570	34,800	4.6	--
Dec. 21-28				1,730	419	8,880	108	2	2.0	17,700			28,800	6,040	6,040	45,000	4.6	--
Dec. 29-31				880	247	4,590	67	2	3.0	9,310			15,100	3,210	3,210	24,100	4.8	--

Jan. 1-5, 1955			1,010	234	5,300	67	0	4.0	10,500		17,100	3,480	3,480	26,800	4.5	--
Jan. 6-13			1,350	276	6,710	80	0	4.0	13,300		21,700	4,500	4,500	33,800	4.25	.23
Jan. 14-15, 19-24			794	207	4,170	54	0	5.0	8,470		13,700	2,830	2,830	22,200	4.40	.23
Jan. 16-18, 25-29			1,000	291	5,510	64	0	2.0	11,000		17,900	3,690	3,690	27,900	4.30	.26
Jan. 30-31			1,370	301	7,110	75	0	5.0	14,000		22,900	4,660	4,660	34,700	4.20	.20
Feb. 1-3			1,260	285	6,780	79	0	2.0	13,300		21,700	4,320	4,320	33,600	4.25	.23
Feb. 4-5			1,010	254	5,080	60	0	5.0	10,300		16,700	3,560	3,560	26,300	4.5	--
Feb. 6, 8, 10, 12			493	139	2,700	43	2	2.0	5,370		8,750	1,800	1,800	14,900	4.6	--
Feb. 7, 9, 11			316	77	1,670	20	2	3.0	3,310		5,400	1,100	1,100	9,830	4.7	--
Feb. 13-17			834	172	4,260	38	0	3.0	8,420		13,700	2,790	2,790	21,900	4.5	--
Feb. 18-21			1,040	244	5,460	61	0	4.0	10,800		17,600	3,600	3,600	27,300	4.5	--
Feb. 22-27			600	165	3,270	42	1	4.0	6,560		10,600	2,180	2,170	17,400	4.6	--
Feb. 28, Mar. 1, 3			818	181	4,090	50	0	5.0	8,330		13,500	2,780	2,780	22,000	4.40	.23
Mar. 2, 4-11			1,210	230	6,190	68	0	4.0	12,200		19,900	3,960	3,960	31,600	4.5	--
Mar. 12-20			1,530	336	7,800	84	0	2.0	15,700		25,500	5,200	5,200	38,600	4.20	.23
Mar. 21, 31			686	189	3,490	44	1	4.0	7,000		11,400	2,490	2,490	19,000	4.7	--
Mar. 22, 24			99	26	517	12	3	4.0	1,030		1,690	354	352	3,420	5.2	--
Mar. 25-27			226	55	1,120	16	2	5.0	2,160		3,580	790	788	7,200	4.7	--
Mar. 29-30, Apr. 1			482	113	2,430	28	0	6.0	4,980		8,040	1,670	1,670	13,300	4.5	--
Apr. 3, 11			818	181	3,790	51	2	4.0	8,080		12,900	2,780	2,780	22,700	4.7	--
Apr. 4-9			945	258	5,050	61	0	4.0	10,300		16,600	3,420	3,420	28,200	4.40	.20
Apr. 12, 21-23			572	165	3,070	40	0	3.0	6,210		10,100	2,110	2,110	18,200	--	.23
Apr. 13, 18-20			376	105	1,950	29	1	5.0	3,920		6,390	1,370	1,370	11,900	4.7	--
Apr. 14-17			257	59	1,280	17	3	4.0	2,580		4,200	884	881	7,080	4.9	--
Apr. 24-27			911	233	4,740	58	0	3.0	9,450		15,400	3,230	3,230	26,500	3.80	.23
Apr. 28-30			1,100	274	5,650	69	0	2.0	11,400		18,500	3,870	3,870	31,500	3.80	.33
May 1-3, 5			1,200	337	6,330	78	0	1.0	12,700		20,600	4,380	4,380	35,300	3.80	.16
May 4, 6-11			1,470	383	7,580	96	0	1.0	15,300		24,800	5,240	5,240	41,200	3.70	.30
May 12-15			1,690	493	8,950	106	0	1.0	18,100		29,300	6,240	6,240	47,400	3.70	.13
May 16-19			2,230	523	11,400	131	0	1.0	22,700		37,000	7,710	7,710	58,700	3.80	.06
May 21, 23, 30-31			305	88	1,640	22	2	2.0	3,300		5,360	1,120	1,120	9,700	4.7	--
May 24, 28-29			208	60	1,110	16	2	3.0	2,240		3,640	766	764	6,850	5.1	--
May 26-27			77	27	427	7.1	8	4.0	850		1,400	303	296	2,840	5.2	--

RED RIVER BASIN--Continued

BAYOU LAPILE NEAR STRONG, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	H+
														Calcium, magnesium	Noncarbonate			
June 1-3, 1955				493	156	2,680	33	0	4.0	5,370			8,740	1,870	1,870	14,700	4.10	0.13
June 4-8, 10				748	188	3,860	46	0	1.0	7,680			12,500	2,640	2,640	22,000	3.90	.20
June 9, 11-12				903	291	4,770	55	0	1.0	9,690			15,700	3,450	3,450	26,400	3.80	.20
June 13-17				1,560	401	8,150	93	0	1.0	16,300			26,500	5,540	5,540	42,500	3.75	.30
June 18-22, 29-30				1,730	437	8,950	108	0	1.0	17,900			29,100	6,110	6,110	44,400	3.70	.23
June 23-28				1,950	455	9,970	117	0	1.0	19,800			32,300	6,740	6,740	51,900	3.55	.33
July 1-2				1,590	457	8,490	99	0	1.0	17,000			27,600	5,850	5,850	42,100	3.85	.26
July 3-4				1,190	309	6,280	73	0	1.0	12,600			20,500	4,240	4,240	32,000	4.00	.20
July 5-12, 20, 30				790	195	4,040	49	0	1.0	8,170			13,200	2,770	2,770	21,500	3.85	.13
July 13-15, 18-19, 31				1,080	283	5,750	71	0	1.0	11,500			18,700	3,860	3,860	29,400	3.70	.26
July 16-17				1,380	415	7,100	87	0	2.0	15,000			24,000	5,100	5,100	37,200	3.70	.26
July 21-29				427	128	2,290	30	0	2.0	4,630			7,510	1,590	1,590	14,100	4.30	.06
Aug. 1-2, 4				1,080	218	5,490	81	0	1.0	11,100			18,000	3,590	3,590	30,000	3.95	.28
Aug. 5-15				1,410	266	6,890	111	0	1.0	13,700			22,400	4,610	4,610	36,800	3.75	.26
Aug. 16-24				1,700	353	8,480	133	0	1.0	16,900			27,600	5,690	5,690	44,400	3.95	.28
Aug. 25-31				1,680	395	8,240	134	0	1.0	17,000			27,400	5,770	5,770	44,200	3.70	.34
Sept. 2-4				1,930	372	9,080	152	0	1.0	18,300			29,800	6,340	6,340	47,800	3.95	.16
Sept. 5-7				2,370	412	11,000	175	0	1.0	22,000			36,000	7,610	7,610	56,500	4.30	.06
Sept. 8-14				2,940	551	13,800	207	0	1.0	28,100			45,600	9,600	9,600	68,300	3.90	.23
Sept. 15-25				3,300	594	15,400	228	0	1.0	31,300			50,800	10,700	10,700	74,700	3.80	.26
Sept. 26-30				3,620	692	17,700	263	0	1.0	35,500			57,800	11,900	11,900	84,500	3.90	.16
Average				1,360	318	6,980	87	1	2.4	14,000			22,800	4,700	4,700	35,400	--	--

RED RIVER BASIN--Continued

BAYOU LAPILE NEAR STRONG, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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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 1955.
Water temperatures: October 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,460 ppm July 22-24; minimum, 124 ppm Apr. 1-8.
Hardness: Maximum, 452 ppm July 22-24; minimum, 24 ppm Apr. 1-8.
Specific conductance: Maximum daily, 7,610 micromhos Oct. 7; minimum daily, 115 micromhos Apr. 5.
Water temperatures: Maximum, 92°F July 31; minimum, 45°F many days during winter months.
EXTREMES, 1949-55.--Dissolved solids: Maximum, 2,460 ppm July 22-24, 1955; minimum, 44 ppm Jan. 23-31, Mar. 1-9, 1950.
Hardness: Maximum, 494 ppm Nov. 20-30, 1952; minimum, 15 ppm Jan. 23-31, Mar. 1-9, 1950.
Specific conductance: Maximum daily, 7,610 micromhos Oct. 7, 1954; minimum daily, 55.7 micromhos 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 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 1-3, 9, 1954		5.9	0.02	70	18	343	5.9	20	15	680	0.2	4.5	1,330	248	232	2,330	6.7	8
Oct. 4-5		--	--	98	21	481	--	10	24	960	--	6.5	1,740	331	323	3,200	6.5	12
Oct. 6, 8		--	--	126	30	673	--	6	22	1,320	--	7.0	2,450	438	433	4,220	6.1	10
Oct. 10-12		5.1	.02	41	13	210	5.1	24	13	415	.2	4.4	812	156	136	1,400	6.7	8
Oct. 13-15, 18-19		3.6	.02	33	8.3	144	3.4	25	12	280	.2	2.4	615	116	96	1,010	6.6	10
Oct. 16-17, 20-23		2.9	.09	27	6.1	108	4.0	28	11	206	.2	2.4	472	92	70	776	6.5	25
Oct. 24-25, 29		--	--	48	12	226	--	22	23	425	--	6.0	818	170	152	1,530	6.9	12
Oct. 26-28		3.1	.04	71	18	338	6.7	14	18	675	.2	6.5	1,380	251	240	2,260	6.1	20
Oct. 30-31		--	--	27	7.3	106	--	24	16	205	--	2.4	410	98	78	771	6.7	25
Nov. 3-5, 9		4.8	.07	28	7.2	121	3.1	25	13	230	.2	2.1	518	100	79	849	7.0	10
Nov. 6-8		--	--	21	6.1	84	--	26	11	162	--	3.2	326	78	56	618	7.2	25
Nov. 10-12		4.3	.03	63	17	311	6.3	20	13	610	.2	5.2	1,260	227	210	2,050	7.0	14
Nov. 13-14		--	--	36	11	180	--	29	11	350	--	5.8	712	135	111	1,250	7.0	25
Nov. 15-19		5.6	.07	26	6.5	110	2.6	23	11	210	.2	2.0	495	92	72	788	6.7	15
Nov. 20-30		2.6	.11	35	7.6	139	3.9	33	12	270	.3	5.2	578	118	92	977	7.6	15
Dec. 1-4		5.0	.01	42	9.2	175	3.8	25	13	352	.2	4.9	786	143	122	1,270	6.8	20
Dec. 5-6		--	--	55	13	258	--	19	17	500	--	3.8	1,010	190	175	1,730	7.2	15
Dec. 7-11		5.3	.01	75	19	353	6.4	18	16	710	.1	8.4	1,480	265	250	2,380	6.4	15
Dec. 12, 15-16		2.7	.00	54	15	267	4.9	19	12	530	.1	5.3	1,120	196	181	1,800	7.3	20
Dec. 13-14, 17		1.8	.03	40	8.6	175	3.2	26	11	342	.1	2.9	757	136	114	1,210	7.3	20
Dec. 19-31		3.1	.04	26	7.0	109	3.0	26	13	205	.3	2.4	467	94	72	776	6.7	5
Jan. 1, 3, 10, 1955		--	--	28	6.3	116	--	22	9.0	222	--	5.7	502	96	78	813	7.1	15
Jan. 4-9		2.3	.12	21	5.2	80	2.6	22	12	154	.2	2.4	354	74	56	454	6.4	25
Jan. 11-15		2.6	.12	30	7.5	131	3.0	18	14	252	.2	2.6	557	106	91	925	7.0	30

Jan. 16-21, 1955	4.7	.10	35	9.0	154	3.1	19	12	308	.2	2.6	661	124	109	1,100	7.0	30
Jan. 22, 24-25.....	3.6	.14	43	10	196	3.4	19	14	390	.2	2.1	802	148	133	1,360	6.9	30
Jan. 23, 26-29	4.7	.12	38	8.4	164	3.3	14	14	320	.5	2.9	697	130	118	1,130	6.9	30
Jan. 30-31.....	--	--	29	6.8	123	--	22	12	235	--	4.2	530	100	82	859	6.8	22
Feb. 1-2	--	--	31	7.6	128	--	26	12	245	--	1.4	608	108	87	894	7.3	20
Feb. 3-7	4.5	.08	37	10	159	4.6	22	13	322	.0	4.4	723	134	116	1,160	6.8	15
Feb. 9, 15-17, 20-22.	4.4	.11	21	5.5	83	2.6	13	11	162	.1	3.1	397	75	64	616	6.4	25
Feb. 10-12	--	--	13	4.1	40	--	13	5.2	82	--	1.0	230	49	39	338	6.6	40
Feb. 13-14, 18-19....	4.2	.09	17	3.7	58	2.4	14	11	114	.1	1.3	300	58	46	447	6.6	30
Feb. 23-24	--	.--	34	9.6	159	--	10	11	315	--	1.4	711	124	116	1,130	6.5	20
Feb. 25-28	4.2	.12	14	3.7	45	1.9	14	9.2	89	.1	1.4	242	50	39	351	5.7	30
Mar. 1-9.....	4.2	.12	19	4.7	75	2.7	11	10	149	.3	1.7	352	67	58	564	6.9	25
Mar. 10-16.....	5.2	.04	25	7.1	108	3.0	18	13	208	.0	1.2	507	92	76	771	7.4	15
Mar. 17-22	3.5	.01	28	7.4	118	3.1	17	13	234	.1	2.7	586	100	86	864	7.8	10
Mar. 24-26	--	--	17	4.0	66	--	11	6.8	127	--	1.5	347	59	50	474	6.3	35
Mar. 27-31.....	2.2	.83	7.8	2.3	25	1.9	10	6.8	50	.2	1.8	150	29	21	208	7.1	50
Apr. 1-8	4.5	.33	7.0	1.7	20	2.8	10	6.0	36	.2	3.0	124	24	16	159	6.4	40
Apr. 9-17	4.2	.23	11	3.2	32	2.4	18	6.8	61	.2	1.7	175	41	26	266	6.0	40
Apr. 18-25	3.5	.28	9.8	2.3	28	2.3	16	4.6	53	.2	1.4	199	34	21	222	6.4	45
Apr. 26-30	2.1	.50	14	3.4	40	2.7	20	4.0	80	.2	1.2	211	49	33	323	6.0	40
May 1-3.....	--	--	15	4.6	48	--	28	10	91	--	.2	244	56	33	390	7.0	12
May 4-12	5.0	.50	19	4.5	70	2.9	29	4.6	130	.3	1.0	312	66	42	525	7.4	30
May 13-20.....	5.1	.00	24	8.1	108	3.4	30	12	201	.2	1.1	486	94	69	745	6.6	10
May 21-22, 27-28	--	--	22	7.0	101	--	18	8.4	195	--	1.1	436	84	69	702	7.3	30
May 23-26.....	--	--	39	10	180	--	22	9.6	345	--	1.2	716	138	120	1,220	7.3	16
May 29-31.....	--	--	16	4.2	66	--	16	5.6	126	--	1.1	306	57	44	484	7.3	14
June 1-5.....	4.1	.08	10	2.4	27	1.8	22	3.4	50	.3	1.4	148	35	17	225	6.4	40
June 7-10.....	--	--	13	2.8	38	--	21	5.2	70	--	1.0	194	44	27	300	6.7	45
June 11-13	--	--	14	3.8	44	--	22	8.0	82	--	1.4	220	51	32	343	6.5	45
June 14-20.....	2.2	.17	22	5.6	93	2.4	25	7.2	174	.3	2.7	395	78	58	646	6.1	31
June 21-26.....	1.1	.12	25	6.2	102	2.4	26	9.0	190	.1	1.4	445	88	66	712	6.0	15
June 27-30	--	--	21	5.2	76	--	28	14	140	--	.8	334	74	51	552	6.6	10

RED RIVER BASIN--Continued

OUACHITA RIVER NEAR FELSENTHAL, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
July 1-2, 1955		--	--	48	12	222	--	26	13	435	--	1.3	888	170	148	1,510	7.6	8
July 3, 9-10		--	--	38	8.9	170	--	29	14	320	--	1.5	703	132	108	1,150	6.7	5
July 4-8		4.2	0.23	26	5.7	99	2.5	22	9.4	191	0.3	1.7	413	88	70	725	6.6	18
July 11, 18-20		4.2	.02	38	9.7	175	4.6	29	16	340	.3	.7	686	135	111	1,210	7.1	10
July 12-17		4.1	.01	48	11	214	4.9	29	25	410	.3	1.3	823	165	141	1,450	6.6	10
July 21, 25		--	--	56	13	276	--	23	13	520	--	1.8	1,110	193	174	1,790	7.0	6
July 22-24		--	--	125	34	655	--	15	66	1,280	--	4.1	2,460	452	440	4,090	6.8	6
July 26-27		--	--	41	12	200	--	23	12	385	--	2.3	852	152	133	1,360	7.3	7
July 28-31		6.3	.01	37	7.8	153	6.5	27	21	300	.3	2.3	619	124	102	1,090	7.2	12
Aug. 1, 9-10		--	--	36	8.1	151	--	26	10	295	--	13	626	124	102	1,070	7.2	8
Aug. 2-8		5.6	.02	48	9.0	198	8.7	26	17	395	.3	2.9	797	157	136	1,390	6.7	7
Aug. 11-12, 17-18		--	--	29	7.3	124	--	26	6.6	245	--	1.1	509	102	81	886	7.3	8
Aug. 13, 19		--	--	34	7.5	150	--	26	8.8	290	--	1.5	581	116	94	1,040	7.2	10
Aug. 14-16, 20		--	--	44	9.9	196	--	24	13	385	--	1.8	760	150	131	1,350	7.2	8
Aug. 21-24		4.9	.04	54	11	245	8.7	24	19	475	.3	1.1	945	180	160	1,640	6.8	10
Aug. 25-31		4.2	.02	42	14	207	7.2	23	12	405	.2	1.9	830	162	144	1,410	7.3	7
Sept. 1-3		--	--	38	7.6	164	--	27	11	315	--	.7	650	126	104	1,150	7.4	7
Sept. 4, 8-11		3.5	.02	53	14	255	8.0	25	11	510	.3	2.2	1,010	190	169	1,760	7.1	9
Sept. 5-7		--	--	44	11	224	--	26	10	420	--	.8	833	155	134	1,460	7.3	12
Sept. 12, 20		--	--	75	17	380	--	20	14	730	--	2.1	1,400	257	240	2,450	6.7	7
Sept. 13-17		2.8	.02	123	29	608	14	14	15	1,210	.1	2.3	2,350	426	414	4,000	6.8	9
Sept. 18-19		--	--	99	26	510	--	18	13	1,010	--	2.2	1,870	354	339	3,290	6.7	7
Sept. 21-22, 25-27		3.5	.00	56	10	255	8.2	24	12	495	.1	1.9	975	180	161	1,710	6.9	10
Sept. 23-24, 28-30		4.2	.00	42	10	191	9.1	24	8.2	380	.2	1.4	753	146	126	1,310	6.8	12
Average		--	--	39	9.6	175	--	21	13	342	--	2.7	714	137	120	1,200	--	19

RED RIVER BASIN--Continued

OUACHITA RIVER NEAR FELSENTHAL, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

RED RIVER BASIN--Continued

CORNIE CREEK NEAR JUNCTION CITY, ARK.

LOCATION.--At bridge on State Highway 15, about 13 miles west of Junction City, Union County, and about 20 miles southwest of El Dorado.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955. (Specific conductance, chloride and pH: May 1950 to September 1952).
Water temperatures: May 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 17,500 ppm Dec. 1-10; minimum, 674 ppm Mar. 19-23, 25-26.
Hardness: Maximum, 6,080 ppm Dec. 1-10; minimum, 237 ppm Mar. 19-23, 25-26.
Specific conductance: Maximum daily, 33,200 micromhos Dec. 9; minimum daily, 1,320 micromhos Mar. 20.
Water temperatures: Maximum, 90°F July 12; minimum, 42°F Dec. 21-22.
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 July 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.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Specific conductance (micromhos at 25°C)	pH	H+
Oct. 1-7, 1954				1,590	242	3,560	93	0	1.0	9,270			14,800	4,960	4,960	23,800	3.12	1.11
Oct. 8-9				1,520	231	3,390	93	0	1.0	8,780			14,000	4,740	4,740	22,800	3.12	1.18
Oct. 10-20				1,610	232	3,560	93	0	1.0	9,150			14,600	4,970	4,970	23,500	3.22	.85
Oct. 21-28				1,640	263	3,690	92	0	1.0	9,360			15,000	5,170	5,170	23,900	3.32	.72
Oct. 29-31				1,170	217	2,710	74	0	25	7,000			11,200	3,810	3,810	18,300	3.30	.33
Nov. 1-2, 4-10				1,370	186	2,990	77	0	7.0	7,700			12,300	4,180	4,180	19,800	3.18	.49
Nov. 11, 15, 17, 19				874	137	1,830	54	0	22	4,880			7,800	2,740	2,740	13,300	4.12	.03
Nov. 12-14, 16, 18, 20				1,330	184	2,860	74	0	7.0	7,500			12,000	4,080	4,080	19,400	3.22	.39
Nov. 21-24				1,320	207	2,830	76	0	7.0	7,290			11,700	4,140	4,140	19,100	4.00	.13
Nov. 25-30				1,700	263	3,650	92	0	18	9,550			15,300	5,320	5,320	24,300	4.00	.26
Dec. 1-10				1,980	276	4,170	91	0	21	11,000			17,500	6,080	6,080	27,900	3.20	.33
Dec. 11-15				1,660	230	3,720	119	0	7.0	9,350			15,100	5,090	5,090	23,900	4.00	.20
Dec. 16-21				743	142	1,730	51	0	6.0	4,480			7,150	2,440	2,440	12,100	4.5	--
Dec. 22, 24-27				1,370	205	3,070	80	0	22	7,880			12,600	4,260	4,260	20,200	4.5	--
Dec. 28-29				1,080	184	2,620	65	0	10	6,450			10,400	3,450	3,450	16,900	4.5	--
Dec. 30-31				565	128	1,400	39	4	8.0	3,540			5,680	1,940	1,930	9,880	4.8	--
Jan. 1, 9-16, 1955				752	108	1,590	47	0	25	3,980			6,500	2,320	2,320	10,800	4.5	--
Jan. 2-4, 7-8				1,460	98	2,740	79	2	25	7,190			11,600	4,050	4,040	18,800	4.6	--
Jan. 5-6				1,800	244	3,800	89	2	25	9,630			15,600	5,490	5,490	24,400	4.6	--
Jan. 17-27				1,010	143	2,170	38	0	21	5,450			8,830	3,110	3,110	15,600	4.5	--
Jan. 28-31				699	102	1,540	40	0	20	3,880			6,280	2,160	2,160	10,400	4.5	--

Feb. 1-5, 1955				483	67	1,030	27	0	19	2,660			4,290	1,480	1,480	7,790	4.45	.33
Feb. 6-11				288	55	629	19	1	17	1,600			2,610	944	944	5,060	4.6	--
Feb. 12-15				421	65	890	25	0	14	2,280			3,700	1,320	1,320	6,980	4.2	.52
Feb. 16, 19-20				559	93	1,170	31	0	17	3,080			4,950	1,780	1,780	9,190	4.35	.66
Feb. 17-18				228	33	483	15	1	8.0	1,220			1,990	704	704	4,000	4.7	--
Feb. 21-28				320	53	690	20	0	8.0	1,760			2,850	1,020	1,020	5,540	4.5	--
Mar. 1-8				494	86	1,050	28	0	12	2,710			4,380	1,590	1,590	8,250	4.25	.59
Mar. 9-18				682	115	1,460	38	0	8.0	3,780			6,080	2,170	2,170	11,000	4.20	.72
Mar. 19-23, 25-26				72	14	161	7.4	3	8.0	410			674	237	234	1,460	5.1	--
Mar. 27-28				139	26	300	12	1	6.0	770			1,250	454	453	2,480	4.8	--
Mar. 30-31, Apr. 1-6				411	78	900	27	0	9.0	2,360			3,790	1,350	1,350	7,520	4.30	.43
Apr. 7-11, 16				513	81	1,110	32	0	6.0	2,880			4,620	1,610	1,610	8,960	4.30	.49
Apr. 12-15				116	24	261	10	1	4.0	670			1,090	388	387	2,370	4.8	--
Apr. 19-20				241	36	503	17	0	8.0	1,310			2,120	750	750	4,410	4.20	.39
Apr. 22-23				321	71	709	21	0	7.0	1,880			3,010	1,090	1,090	5,990	4.20	.39
Apr. 25-30				524	106	1,130	33	0	6.0	2,950			4,750	1,740	1,740	9,160	3.80	.66
May 1-8				591	85	1,230	38	0	5.0	3,220			5,170	1,820	1,820	9,970	3.25	.69
May 9-17				747	129	1,600	47	0	4.0	4,180			6,710	2,390	2,390	12,600	3.55	.79
May 18-21				562	72	1,160	35	0	4.0	3,000			4,830	1,700	1,700	9,610	3.90	.39
May 22-24				97	15	208	9.0	0	3.0	520			852	304	304	2,020	4.5	--
May 25-27				125	21	268	11	0	8.0	680			1,110	398	398	2,420	4.5	--
May 28-31				210	42	459	16	0	7.0	1,210			1,940	696	696	4,050	4.10	.26
June 1-2, 4-10				322	55	730	23	0	5.0	1,910			3,050	1,030	1,030	5,870	3.75	.52
June 11-19				364	62	795	24	0	4.0	2,030			3,280	1,160	1,160	6,380	3.70	.56
June 20-22				238	50	550	22	0	4.0	1,420			2,280	800	800	4,570	4.10	.16
June 23-30				157	23	338	14	0	5.0	865			1,400	486	486	2,940	3.90	.13
July 1-4				363	46	760	29	0	3.0	1,930			3,130	1,090	1,090	6,060	3.80	.39
July 6-8				720	99	1,480	53	0	4.0	3,830			6,190	2,200	2,200	11,700	3.15	.64
July 9-13				897	113	1,850	64	0	3.0	4,870			7,800	2,700	2,700	13,900	3.50	.85
July 14-18				1,250	176	2,690	87	0	4.0	6,850			11,100	3,840	3,840	19,300	3.40	1.00
July 19-27				524	66	1,080	45	0	3.0	2,850			4,570	1,580	1,580	8,700	3.50	.54
July 28-31				815	78	1,650	63	0	3.0	4,230			6,840	2,350	2,350	12,600	3.50	.66

RED RIVER BASIN--Continued

CORNIE CREEK NEAR JUNCTION CITY, ARK.--Continued

Chemical analyses, in parts per million, water year October 1964 to September 1954--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 (micromhos at 25°C)	pH	H+
														Calcium, magnesium	Noncarbonate			
Aug. 1-3, 1955.....				863	96	1,750	66	0	3.0	4,500			7,280	2,550	2,550	12,400	3.55	0.62
Aug. 4-8.....				617	95	1,360	45	0	2.0	3,440			5,560	1,930	1,930	10,400	3.20	.41
Aug. 9-11, 17-18.....				279	41	572	26	0	2.0	1,520			2,440	864	864	4,850	4.40	.07
Aug. 12-16.....				620	93	1,300	47	0	2.0	3,340			5,400	1,930	1,930	10,100	4.10	.26
Aug. 19-21.....				367	52	759	32	0	3.0	2,000			3,210	1,130	1,130	6,240	4.10	.20
Aug. 22-31.....				438	65	904	39	0	3.0	2,380			3,830	1,360	1,360	7,330	3.85	.31
Sept. 1-2.....				470	75	908	43	0	10	2,540			4,050	1,480	1,480	7,780	3.60	.30
Sept. 3-11.....				561	72	1,160	47	0	2.0	3,000			4,840	1,700	1,700	8,860	3.50	.30
Sept. 12-20.....				597	86	1,340	50	0	2.0	3,200			5,180	1,840	1,840	9,530	3.50	.30
Sept. 21-24, 29-30....				622	78	1,240	50	0	1.0	3,300			5,290	1,870	1,870	9,440	3.50	.36
Sept. 25-28.....				691	94	1,440	54	0	1.0	3,690			5,970	2,110	2,110	11,000	3.70	.30
Average.....				737	109	1,590	47	0	8.4	4,100			6,580	2,290	2,290	11,400	--	--

RED RIVER BASIN--Continued

CORNIE CREEK NEAR JUNCTION CITY, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

RED RIVER BASIN--Continued

THREE CREEKS NEAR JUNCTION CITY, ARK.

LOCATION.--At bridge on State Highway 15, about 10 miles northwest of Junction City, Union County, and about 17 miles southwest of El Dorado.
RECORDS AVAILABLE.--Chemical analyses: October 1952 to September 1955. (Specific conductance, chloride, and pH: May 1950 to September 1952.)
Water temperatures: May 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 2,590 ppm June 26-30; minimum, 182 ppm May 24-25.
Hardness: Maximum, 952 ppm June 26-30; minimum, 42 ppm Aug. 31, Sept. 1-4.
Specific conductance: Maximum daily, 10,100 micromhos Feb. 17; minimum daily, 302 micromhos Sept. 2.
Water temperatures: Maximum, 87°F July 10; minimum, 38°F Dec. 22, Jan. 24, Feb. 12.
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.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 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)	Dissolved solids (residue on evaporation at 180°C)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
Oct. 1-4, 1954				61	8.1	201	5.5	155	12	345			709	186	58	1,420	7.6	
Oct. 5-6				141	21	349	10	119	10	770			1,360	438	341	2,700	8.1	
Oct. 7-9				98	15	273	8.0	136	10	550			1,020	306	194	2,040	7.9	
Oct. 10-17				22	2.6	112	4.0	a206	10	94			347	66	0	667	8.4	
Oct. 18-22, 29-30				47	5.0	174	4.5	a165	10	260			582	138	2	1,150	8.4	
Oct. 23-28				19	3.3	111	4.1	192	12	93			337	61	0	634	7.9	
Nov. 1-6				28	2.8	136	3.8	161	9.0	170			429	82	0	846	7.3	
Nov. 7-8				103	14	236	7.1	93	13	515			934	314	238	1,920	8.1	
Nov. 9-10				46	6.3	153	5.6	137	14	245			538	141	29	1,080	7.9	
Nov. 11-12				88	11	182	6.3	66	15	430			764	264	210	1,570	7.2	
Nov. 13, 16				117	15	248	8.3	70	13	580			1,020	354	296	2,060	7.8	
Nov. 14-15, 20-21				44	6.9	151	5.0	134	10	245			528	138	28	1,070	8.1	
Nov. 17-19, 22-23				29	5.7	105	4.3	136	8.0	154			373	96	0	773	7.8	
Nov. 24-25, 29-30				71	10	190	6.4	112	8.0	385			725	218	126	1,460	8.0	
Nov. 26-28				122	19	270	9.7	74	14	630			1,100	382	322	2,220	8.0	
Dec. 1-3				36	7.5	143	5.4	136	10	220			489	121	10	983	7.9	
Dec. 4-5				27	4.8	116	4.6	a142	10	148			380	87	0	752	8.4	
Dec. 6-10				20	2.8	94	3.6	146	9.0	102			303	62	0	592	8.0	
Dec. 11-12				35	6.8	128	44	119	8.0	200			441	116	18	876	8.2	
Dec. 13-18				132	15	325	10	103	10	730			1,270	391	306	2,460	7.6	
Dec. 19-25				211	29	468	15	63	8.0	1,130			1,890	646	594	3,700	7.4	
Dec. 26-27				149	21	371	11	92	7.0	860			1,460	458	383	2,910	8.0	
Dec. 28-29				63	8.7	165	6.8	56	7.0	360			638	193	147	1,310	7.3	

a Includes equivalent of 4 parts per million of carbonate (CO_3).

Dec. 30-31, 1954, Jan. 1, 1955			248	38	518	16	14	20	1,320		2,170	775	764	4,210	6.7
Jan. 2-4			130	21	296	12	24	25	715		1,210	411	392	2,400	6.9
Jan. 5-6, 9-10			103	23	254	7.6	46	13	600		1,020	352	314	2,070	7.0
Jan. 7-8			83	15	208	9.6	50	12	472		825	268	228	1,690	7.9
Jan. 11, 20-24			181	33	367	13	18	22	955		1,580	587	572	3,150	6.7
Jan. 12-19			143	21	302	12	43	22	730		1,250	444	408	2,480	6.8
Jan. 25-28			125	24	286	10	26	23	700		1,180	410	389	2,350	7.4
Jan. 29-31			91	14	212	8.4	43	12	500		858	284	250	1,760	6.8
Feb. 1-4, 10			81	13	189	7.6	46	12	438		764	256	218	1,570	6.9
Feb. 5-9			69	11	139	7.0	3	14	360		602	217	214	1,250	5.5
Feb. 11-16			110	19	241	9.2	21	12	600		1,000	352	336	2,020	6.5
Feb. 19, 22			204	32	408	14	20	20	1,050		1,740	640	624	3,430	6.3
Feb. 20, 23			77	12	166	8.3	14	12	408		690	242	230	1,440	6.6
Feb. 24-25, 27-28			118	19	247	10	8	12	625		1,030	372	366	2,070	5.9
Mar. 1-7			128	20	288	11	26	13	700		1,170	402	380	2,350	7.0
Mar. 10-11			149	19	331	12	43	12	790		1,330	450	415	2,670	7.7
Mar. 12-14			122	18	282	10	55	10	655		1,120	378	334	2,230	7.4
Mar. 15-19			97	18	236	9.3	7	8.0	530		902	316	310	1,890	6.0
Mar. 20, 26-28, 31			87	14	188	8.0	5	18	470		788	274	270	1,610	6.6
Mar. 21-22, 25			37	6.8	72	4.9	3	2.0	192		316	120	118	691	6.6
Mar. 23-24			24	4.8	51	5.2	11	4.0	126		220	80	71	459	7.0
Mar. 29-30			106	21	237	9.1	6	18	590		984	351	346	1,950	7.0
Apr. 1, 5-9			88	17	208	9.8	33	8.0	502		849	290	262	1,790	6.3
Apr. 2-4, 10			78	14	182	8.3	35	6.0	428		733	252	224	1,560	6.8
Apr. 11, 16-17, 19			59	12	136	6.6	12	7.0	335		562	196	186	1,210	6.9
Apr. 12-15			39	6.9	81	5.6	10	6.0	206		349	126	118	777	6.7
Apr. 18, 20-22			87	13	189	8.2	16	5.0	470		780	270	258	1,630	6.7
Apr. 23-30			105	17	232	9.4	34	5.0	580		965	332	304	1,990	6.8
May 1-10			92	15	227	9.4	62	4.0	510		887	291	240	1,840	7.4
May 11-13			78	12	204	7.9	89	4.0	425		775	244	171	1,630	8.2
May 14-16			109	15	247	9.2	89	4.0	560		988	334	260	2,050	7.9
May 17-20			268	28	551	22	26	6.0	1,390		2,280	784	762	4,660	6.9
May 21-22, 31			93	19	216	9.6	20	4.0	540		891	310	294	1,940	7.4
May 23, 28-30			82	14	175	8.4	8	4.0	450		737	262	256	1,610	6.5
May 24-25			20	3.6	42	3.5	6	6.0	104		182	65	60	414	6.7
May 26-27			52	9.7	117	5.6	7	7.0	285		480	170	164	1,030	6.7

RED RIVER BASIN--Continued

THREE CREEKS NEAR JUNCTION CITY, ARK.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH	Color
														Calcium, magnesium	Noncarbonate			
June 1-7, 1955				98	22	242	9.8	21	6.0	575			963	335	318	2,020	6.4	
June 8-12				174	33	385	13	24	11	960			1,590	570	550	3,280	6.3	
June 13-18				221	30	443	16	15	3.0	1,150			1,870	675	662	3,870	6.0	
June 19-20				171	25	378	14	19	4.0	940			1,540	530	514	3,210	6.6	
June 21-23				47	9.0	130	6.6	24	4.0	290			499	154	134	1,120	6.8	
June 24-25				233	36	452	16	0	5.0	1,200			1,940	730	730	3,970	4.5	
June 26-30				306	46	598	22	15	4.0	1,610			2,590	952	940	5,160	6.3	
July 1-3				126	24	323	11	49	5.0	750			1,260	413	373	2,580	7.0	
July 4-7				92	13	253	8.4	77	5.0	540			949	283	220	1,880	7.7	
July 8-14				118	20	301	9.5	70	5.0	680			1,170	376	319	2,340	7.5	
July 15, 20-29				79	12	214	5.6	71	5.0	450			801	246	188	1,620	7.4	
July 16-17				32	6.0	129	3.9	129	4.0	190			429	104	0	860	7.8	
July 18-19				58	8.5	185	5.3	116	4.0	340			658	180	84	1,340	8.0	
July 30-31				39	7.5	127	4.5	94	3.0	230			457	128	52	932	7.6	
Aug. 1-5, 8-10				25	4.2	101	3.4	120	4.0	136			333	80	0	713	7.7	
Aug. 6-7				85	11	201	9.0	84	5.0	442			794	257	188	1,630	7.8	
Aug. 11-13, 17-21				68	10	163	7.7	44	4.0	378			653	210	174	1,350	6.9	
Aug. 14-16				93	14	202	9.8	18	4.0	505			837	290	274	1,760	7.0	
Aug. 22-23				35	5.8	136	6.1	159	4.0	198			463	112	0	911	8.1	
Aug. 24-30				23	3.5	110	5.0	197	6.0	105			350	72	0	658	7.5	
Aug. 31, Sept. 1-4				14	1.8	71	3.4	128	8.0	60			221	42	0	434	8.2	
Sept. 5-6				97	11	280	9.0	72	10	580			1,020	287	228	2,020	7.7	
Sept. 7-9				56	4.7	208	6.9	116	3.0	360			696	159	64	1,390	8.2	
Sept. 10-11, 21-24				24	3.6	123	5.1	b172	4.0	142			387	75	0	763	8.3	
Sept. 12-13, 15-20				17	1.3	100	3.5	a206	8.0	66			298	48	0	545	8.4	
Sept. 14, 25-26				40	4.8	137	5.5	9	12	285			489	120	112	1,080	5.5	
Sept. 27-30				83	11	255	10	113	16	510			941	252	160	1,870	7.9	
Average				92	14	224	8.8	69	9.1	502			884	287	87	1,800	--	

a Includes equivalent of 4 parts per million of carbonate (CO_3).
b Includes equivalent of 2 parts per million of carbonate (CO_3).

RED RIVER BASIN--Continued

THREE CREEKS NEAR JUNCTION CITY, ARK.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

RED RIVER BASIN--Continued

CORNIE BAYOU NEAR LILLIE, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 167, 2 miles upstream from Little Cornie Bayou and 3 miles south of Lillie, Union Parish.
DRAINAGE AREA.--462 square miles.
RECORDS AVAILABLE.--Chemical analyses: November 1954 to September 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, November 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Nov. 19, 1954	0.4	2.2	0.03	130	21	282		4	4.3	720		0.2		1,160	1.58	1.25	411	408	60	6.0	2,390	5.6	0
Dec. 9	.1	2.0	.08	130	22	299		4	4.3	750		.2		1,210	1.65	.33	415	412	61	6.4	2,410	5.3	5
Jan. 12, 1955	48.0	3.5	.00	215	34	477		0	6.3	1,210		.5		1,950	2.65	253	676	676	61	8.0	3,770	4.5	0
Feb. 11	106	9.5	.01	256	42	566		0	9.7	1,440		.5		2,320	3.16	664	811	811	60	8.6	4,440	4.5	0
Mar. 21	500	7.4	.05	52	6.6	121		1	5.6	292		.5		485	.66	655	156	156	63	4.2	988	4.7	25
Apr. 15	535	9.6	.16	66	9.6	145		4	5.9	362		.2		600	.82	867	204	200	61	4.4	1,230	5.3	25
May 20	27.0	7.9	.15	69	11	169		2	4.2	410		.2		672	.91	49.0	217	216	63	5.0	1,330	4.9	15
June 8	110	8.2	1.1	43	6.8	102		6	3.5	248		.2		416	.57	124	136	130	62	3.8	837	5.7	65
July 13	34.0	6.6	.01	92	13	209		0	2.9	520		.2		844	1.15	77.5	283	283	62	5.4	1,700	4.4	5
Aug. 26	24.0	5.5	.01	102	14	234		0	1.8	580		.2		938	1.28	61.8	312	312	62	5.8	1,850	4.6	0
Sept. 20	16.0	4.4	.2	128	17	308		2	3.3	748		.2		1,210	1.65	52.3	390	388	63	6.8	2,370	4.8	0

OUACHITA RIVER AT LOCK AND DAM NO. 4, AT MONROE, LA.

LOCATION.--At lock and dam No. 4, about 5 miles downstream from Illinois Central Railroad bridge and 5½ miles downstream from gaging station at bridge on U. S. Highway 80 at Monroe, Ouachita Parish.
DRAINAGE AREA.--15,298 square miles, at gaging station.
RECORDS AVAILABLE.--Chemical analyses: August 1954 to September 1955.
Water temperatures: August 1954 to September 1955.
EXTREMES, August 1954 to September 1955.--Dissolved solids: Maximum, 2,860 ppm Oct. 16-18; minimum, 125 ppm Apr. 10-20.
Hardness: Maximum, 558 ppm Oct. 16-18; minimum, 26 ppm Apr. 1-9.
Specific conductance: Maximum daily, 6,070 micromhos Oct. 17; minimum daily, 142 micromhos Apr. 10.
Water temperatures: Maximum, 91°F Aug. 13, 1954; minimum, 43°F Jan. 29-31.
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 sums of determined constituents unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for Ouachita River at Monroe for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, August 1954 to September 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: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
Aug. 13-20, 1954.	(a)	8.6	0.00	42	10	226		64	20	398	0.3	2.0		808	1.10	--	146	94	77	8.1	1,470	7.5	35
Aug. 21-31.....	(a)	7.6	.00	46	11	269		58	21	475	.3	4.5		965	1.31	--	160	112	78	9.2	1,670	7.3	25
Sept. 1-10.....	(a)	7.4	.00	54	13	300		51	17	550	.2	4.8		1,070	1.46	--	188	146	78	9.5	1,910	7.3	20
Sept. 11-20.....	(a)	10	.02	58	15	316		53	21	582	.3	5.9		1,030	1.40	--	206	162	77	9.6	1,990	7.1	20
Sept. 21-30.....	(a)	7.8	.03	59	15	333		66	28	600	.3	3.2		1,080	1.47	--	208	154	78	10	2,070	7.2	30
Oct. 1-6, 21-24..	(a)	8.4	.09	53	14	286		52	20	525	.3	6.6		986	1.34	--	190	147	77	9.0	1,860	7.4	25
Oct. 7-15, 19-20.	(a)	7.0	.02	85	21	466		27	15	900	.1	5.5		1,510	2.05	--	298	276	77	12	2,940	7.0	15
Oct. 16-18.....	3,870	7.0	.04	158	40	884		5	18	1,730	.1	23		2,860	3.89	29,880	558	554	77	16	5,350	5.7	25
Oct. 25-31.....	(a)	6.2	.05	31	7.5	148		36	12	270	.2	8.3		528	.72	--	108	79	75	6.2	1,020	7.2	20
Nov. 1-10.....	4,651	11	.08	38	8.7	178		30	12	335	.5	7.3		676	.92	8,490	130	106	75	6.8	1,180	7.4	15
Nov. 11-20.....	2,699	11	.05	30	6.9	136		32	11	252	.4	7.2		531	.72	3,870	104	78	74	5.8	930	7.2	15
Nov. 21-30.....	2,030	12	.05	46	11	230		32	15	430	.5	13		856	1.16	4,690	161	135	76	7.9	1,510	6.8	10
Dec. 1-7.....	2,277	9.2	.09	32	7.5	150		51	19	262	.2	5.2		612	.83	3,760	110	68	75	6.2	1,010	7.5	40
Dec. 8-16.....	2,542	11	.07	40	9.3	190		42	16	352	.2	5.0		b 645	.88	4,430	139	104	75	7.0	1,270	7.5	20
Dec. 17-22.....	6,750	7.8	.04	60	14	303		26	12	585	.2	8.2		1,000	1.36	18,220	207	186	76	9.2	1,990	7.2	10
Dec. 23-31.....	3,211	7.4	.07	30	7.2	141		31	14	260	.2	6.8		b 482	.66	4,180	105	80	75	6.0	953	7.3	15
Jan. 1-4, 6-10, 1955.....	7,958	11	.05	25	6.6	116		30	13	212	.4	4.2		439	.60	9,430	89	64	74	5.4	779	7.1	15
Jan. 11-20.....	5,388	12	.05	26	7.8	123		28	13	230	.4	3.8		474	.64	6,900	98	75	73	5.4	836	7.2	20
Jan. 5, 21-23....	6,900	12	.04	47	13	240		24	13	462	.3	9.9		887	1.21	16,520	171	152	75	8.0	1,570	7.3	15
Jan. 24-31.....	5,195	13	.04	38	8.6	178		27	14	338	.3	5.1		657	.89	9,220	130	108	75	6.8	1,180	7.1	15

a Includes days of less than 1,000 cubic feet per second. Records not sufficiently accurate for publication.
b Sum of determined constituents.

OUACHITA RIVER AT LOCK AND DAM NO. 4 AT MONROE, LA.--Continued

Chemical analyses, in parts per million, August 1954 to September 1955--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: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
Feb. 1-9, 11, 25-26, 1955	10,300	9.2	0.07	29	6.9	139		22	13	260	0.3	6.3		543	0.74	15,100	102	84	75	6.0	948	7.0	15
Feb. 10, 12	16,650	12	.16	46	11	245		14	11	472	--	6.6		932	1.27	41,900	161	150	77	8.4	1,590	7.1	--
Feb. 13-17, 27-28	17,770	7.0	.17	12	3.2	53		15	9.9	93	.4	3.0		218	.30	10,460	43	31	73	3.5	365	6.8	40
Feb. 18-24	13,140	8.4	.06	22	4.7	86		25	12	160	.4	2.5		354	.48	12,560	75	54	71	4.3	601	7.0	30
Mar. 1-10	13,240	9.0	.10	17	3.9	87		14	9.9	127	.3	3.0		286	.39	10,220	58	47	71	3.8	489	6.6	25
Mar. 11-22	9,450	4.8	.11	21	5.0	89		18	10	170	.3	2.5		362	.49	9,240	73	58	73	4.6	632	7.2	25
Mar. 23-31	29,560	6.4	.17	9.2	2.4	39		10	4.9	72	.4	1.5		175	.24	13,970	33	25	72	2.9	283	6.5	45
Apr. 1-9	34,990	6.0	.10	6.8	2.2	25		12	4.9	45	.4	1.0		129	.18	12,190	26	16	68	2.1	189	6.4	70
Apr. 10-20	37,100	6.0	.11	7.5	2.2	24		14	6.4	42	.5	1.0		125	.17	12,520	28	16	65	2.0	181	6.6	70
Apr. 21-30	38,370	6.0	.14	9.2	2.5	30		20	5.9	52	.5	1.0		144	.20	14,920	33	17	66	2.3	224	7.1	80
May 1-10	32,590	5.4	.17	10	3.0	33		18	6.3	62	.3	1.2		156	.21	13,730	38	23	66	2.4	262	6.2	50
May 11-20	13,420	7.0	.39	15	4.2	51		24	6.5	97	.3	1.5		226	.31	8,190	54	34	67	3.0	390	7.4	65
May 21-27, 30	16,010	8.8	.40	17	3.5	63		23	6.6	118	.4	2.0		268	.36	11,580	57	38	71	3.6	463	6.6	50
May 28-29, 31	22,070	7.8	.06	44	11	229		8	6.7	448	.4	7.8		876	1.19	52,200	155	148	76	8.0	1,550	5.9	30
June 1-10	21,470	10	.19	12	3.2	46		16	7.9	86	.3	1.5		206	.28	12,060	44	31	70	3.0	335	6.2	45
June 11-20	9,096	12	.24	13	3.5	45		22	8.3	82	.3	1.2		206	.28	5,060	46	28	68	2.9	338	6.8	55
June 21-30	2,977	13	.34	19	4.7	74		33	9.9	133	.3	2.0		305	.41	2,450	66	39	71	4.0	524	6.9	60
July 1-10	2,791	12	.19	19	4.3	70		29	9.1	128	.4	2.5		290	.39	2,190	84	40	70	3.8	505	6.7	45
July 11-12, 14, 19-20	5,958	12	.12	17	4.3	72		29	11	128	--	1.2		293	.40	4,710	60	36	72	4.0	517	7.3	45
July 13, 15-18	7,388	10	.07	30	6.7	133		31	11	250	--	1.5		525	.71	10,470	102	76	74	5.7	932	7.3	--
July 21	9,400	--	--	--	--	--		14	--	103	--	--		--	--	--	44	32	--	--	393	7.2	--
July 22-26	6,500	9.6	.10	23	5.7	108		20	6.9	206	--	.5		426	.58	7,480	82	66	74	5.2	743	6.9	--
July 27-31	3,720	9.6	.03	67	17	358		20	9.2	700	--	2.5		1,170	1.59	11,750	237	220	77	10	2,290	7.0	--
Aug. 1-10	3,272	11	.03	40	8.6	192		31	11	362	.5	3.8		708	.06	6,250	135	110	76	7.2	1,240	6.9	15
Aug. 11-20	2,130	11	.02	32	6.9	144		31	13	268	.4	3.5		531	.72	3,050	109	84	74	6.0	967	7.7	20
Aug. 21-31	2,370	9.6	.00	31	6.7	142		35	13	262	.3	4.0		525	.71	3,360	106	78	74	6.0	970	7.2	20
Sept. 1-10	2,475	8.4	.30	42	9.1	198		35	17	370	.3	4.5		734	1.00	4,900	143	114	75	7.2	1,330	7.1	15
Sept. 11-17, 21-26	1,838	9.0	.01	44	9.9	214		38	15	400	.3	4.0		773	1.05	3,840	150	119	76	7.6	1,400	7.1	20
Sept. 18-20, 27-30	2,411	7.6	.03	69	16	353		30	14	680	--	7.8		1,160	1.58	7,550	238	214	76	9.9	2,250	7.0	15
Average	8,930	9.1	0.10	36	8.7	178		29	12	334	0.3	4.6		640	0.87	--	126	101	75	6.9	1,170	--	--

RED RIVER BASIN--Continued

OUACHITA RIVER AT LOCK AND DAM NO. 4 AT MONROE, LA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(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	81	58	58	50	49	52	58	72	75	82	--	84
2	82	--	57	49	46	51	58	71	74	83	85	82
3	81	60	55	48	45	55	59	70	74	82	84	81
4	80	--	58	51	45	56	61	72	75	83	85	81
5	82	57	55	50	44	60	64	73	75	84	85	81
6	82	54	57	52	--	60	64	75	74	85	86	81
7	79	55	50	49	45	80	59	75	75	86	--	81
8	79	54	56	51	44	57	59	75	76	87	85	82
9	78	55	55	52	45	56	63	76	75	86	--	--
10	78	54	53	51	49	61	63	77	74	--	82	81
11	79	54	54	49	47	60	63	77	73	87	85	81
12	79	59	54	48	46	64	54	79	73	87	84	82
13	79	60	55	47	45	65	63	78	74	88	84	80
14	79	60	48	47	44	66	62	78	74	88	84	80
15	77	59	49	48	45	66	64	78	74	87	84	81
16	72	61	48	47	46	67	--	78	74	85	83	81
17	71	59	50	47	45	66	63	77	75	82	83	82
18	70	59	49	47	45	65	65	78	76	79	82	84
19	70	60	50	48	50	64	66	77	78	78	82	88
20	68	58	49	47	50	64	68	76	78	78	83	82
21	67	59	48	47	50	61	69	77	79	82	85	81
22	68	58	48	48	47	57	70	76	79	80	85	81
23	69	58	47	46	46	56	72	76	78	--	85	81
24	69	56	48	45	46	59	71	76	79	82	84	81
25	70	57	50	44	50	61	69	77	80	83	84	80
26	70	55	49	45	50	56	71	77	82	--	84	81
27	70	56	51	45	55	56	69	78	82	--	85	82
28	68	56	52	44	49	55	70	78	82	85	85	82
29	66	57	48	43	--	55	71	78	82	85	85	81
30	65	56	45	43	--	55	70	76	82	85	85	81
31	63	--	46	43	--	55	--	76	--	85	85	--
Average	74	57	51	47	47	59	65	76	77	84	84	82

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RED RIVER BASIN--Continued

BOEUF RIVER NEAR GIRARD, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 80, 200 feet upstream from Illinois Central Railroad bridge and 0.5 mile east of Girard, Richland Parish.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 14, 1954	132	17	0.01	78	33	61		312	78	90		0.2		525	0.71	187	330	74	29	1.5	887	7.8	5
Nov. 18	110	16	.01	88	33	66		314	78	113		.2		566	.77	168	355	98	29	1.5	975	7.8	5
Dec. 7	72	13	.02	62	23	46		231	48	77		.0		395	.54	76.8	249	60	28	1.3	679	7.7	15
Jan. 10, 1955	83	15	.00	79	28	62		284	65	103		1.2		508	.69	114	312	80	30	1.5	862	7.4	5
Feb. 9	521	7.0	.26	7.7	2.6	3.6	2.2	28	8.7	4.5		2.5		a53	.07	74.6	30	7	19	.3	98.8	6.5	80
Apr. 11	334	5.8	.38	10	3.4	4.9	4.2	50	6.5	5.5		1.5		a67	.09	60.4	40	0	19	.3	122	6.8	90
May 17	127	9.6	.37	25	7.5	11		100	12	16		1.0		a131	.18	44.9	93	11	21	.5	241	7.4	55
June 6	149	9.0	.53	12	4.2	4.7	4.1	56	6.4	6.0		1.2		a76	.10	30.6	47	1	16	.3	135	6.7	90
July 11	100	10	.00	54	21	43		198	50	71		.2		370	.50	99.9	221	59	30	1.3	644	8.2	15
Aug. 23	78	10	.44	21	7.2	12		92	9.5	16		1.0		146	.20	30.7	82	7	25	.6	223	7.2	55
Sept. 13	62	13	.03	53	19	40		210	40	59		.8		340	.46	56.9	210	38	29	1.2	578	7.7	15

a Sum of determined constituents.

BAYOU LA FOURCHE NEAR CREW LAKE, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 80, 1.1 miles upstream from Illinois Central Railroad bridge, and 2.5 miles west of town of Crew Lake, Richland Parish.
RECORDS AVAILABLE.--Chemical analyses: October 1953 to September 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 14, 1954	3	20	0.02	51	19	34		309	1.2	18		0.8		310	0.42	2.51	205	0	27	1.0	533	7.5	5
Nov. 18	20	11	.46	38	12	90		222	16	101		.2		a 378	.51	20.4	144	0	58	3.3	697	7.1	240
Dec. 6	3.6	15	.50	54	17	63		308	9.9	55		.2		395	.54	3.84	204	0	40	1.9	644	7.7	90
Jan. 10, 1955	19	8.8	.02	37	13	29		187	17	26		1.5		227	.31	11.6	145	0	31	1.1	414	7.6	5
Feb. 8	5,420	8.8	.57	20	4.0	52		120	11	49		.5		a 205	.28	3,000	66	0	63	2.8	368	7.3	220
Mar. 29	10,400	3.9	.25	8.9	2.4	5.3	3.0	42	4.8	5.5		.8		a 56	.08	1,570	32	0	24	.4	102	6.8	100
Apr. 11	1,900	5.6	.39	14	3.5	24		74	8.5	22		.5		a 114	.16	585	49	0	51	1.5	215	6.9	160
May 16	197	8.6	.24	21	6.3	8.3	4.6	95	8.1	9.5		1.0		a 115	.16	61.2	78	0	18	.4	202	7.4	55
June 13	93	7.8	.25	17	5.3	11		82	7.2	8.0		2.0		a 99	.13	24.9	64	0	27	.6	181	7.2	90
July 11	56	7.0	.02	21	6.3	13		90	11	13		3.5		131	.18	19.8	78	5	26	.6	220	7.9	20
Aug. 22	23	8.2	.04	24	7.1	16		120	7.1	12		.5		153	.21	9.50	89	0	28	.7	243	7.5	35
Sept. 13	11	11	.05	34	10	24		180	7.9	15		.8		199	.27	5.91	125	0	30	.9	357	7.9	15

a Sum of determined constituents.

RED RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA

Chemical analyses, in parts per million, water year October 1954 to September 1955

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				
LEBOS CREEK NEAR ELDORADO, JACKSON COUNTY													
Oct. 21, 1954	3.90	760	123		174	0	1,550	2,400	2,260			7,960	7.6
Dec. 14	3.21	800	86		206	0	1,500	2,350	2,180			7,780	8.0
Apr. 19, 1955	4.78	650	311		154	0	1,560	2,900	2,770			8,060	7.1
Sept. 6	2.82	696	195		148	0	1,650	2,540	2,420			8,170	7.7
GYPSUM CREEK NEAR OLUSTEE, JACKSON COUNTY													
Oct. 21, 1954	2.27	800	208		154	0	1,500	2,850	2,720			7,710	7.6
Dec. 14	3.09	700	122		178	0	1,450	2,250	2,100			7,390	7.9
Apr. 19, 1955	2.96	724	156		144	0	1,550	2,450	2,330			7,840	7.6
Sept. 6	3.52	668	200		106	0	1,400	2,490	2,400			7,560	7.7
SALT FORK RED RIVER AT MANGUM, GREER COUNTY													
June 3, 1955	7,060	126	91	56	256	0	70	690	480	15	0.9	1,560	7.0
July 5	5.70	216	102	179	116	0	210	960	865	29	2.5	2,610	7.1
TURKEY CREEK NEAR OLUSTEE, JACKSON COUNTY													
Feb. 16, 1955	0.94	616	127	295	166	0	500	2,060	1,920	24	2.8	4,380	8.0
ALTUS LUGERT RESERVOIR NEAR LUGERT, KIOWA COUNTY													
Dec. 14, 1954		165	41	139	164	0	195	580	446	34	2.5	1,720	7.6
Apr. 12, 1955		172	46	144	174	0	200	620	478	34	2.5	1,740	7.3
ELK CREEK NEAR HOBART KIOWA COUNTY													
Apr. 13, 1955	11.0	176	82	76	245	0	55	775	574	18	1.2	1,680	6.8
May 9	1,920	43	3.0	7.0	160	0	7.0	120	0	11	.3	289	7.6
May 10	1,090	30	3.2	3.0	112	0	4.5	88	0	7	.1	201	7.4
June 16	8.52	52	15	31	136	0	40	190	78	26	1.0	544	7.2
July 6	6.76	35	12	17	112	0	18	135	43	22	.6	343	7.0

NORTH FORK RED RIVER NEAR HEADRICK, JACKSON COUNTY

Nov. 23, 1954	0.05	320	107		284	0	1,600	1,240	1,010			6,540	8.0
Mar. 15, 1955	1.09	617	85		157	0	4,980	1,890	1,760			15,600	7.7
Apr. 18	11.9	516	147		114	0	5,860	1,890	1,800		[1]	18,700	6.8
May 9	29.6	484	25		106	0	1,700	1,310	1,220			7,110	7.1
May 11	1,980	197	17	264	168	0	500	560	422	51	4.9	2,500	7.0
July 6	14.8	493	161		157	0	4,070	1,890	1,760			13,800	7.3
July 20	16.3	182	40		136	0	1,150	620	508			4,180	7.1
Aug. 2	20.8	288	32		110	0	1,150	850	760			4,740	7.3
Aug. 17	11.2	448	49		108	0	2,050	1,320	1,230			7,740	7.1
Sept. 22	2.87	304	59		124	0	1,500	1,000	898			5,900	7.5

CACHE CREEK NEAR WALTERS, COTTON COUNTY

Feb. 24, 1955	10.4	50	13	84	228	0	73	180	0	50	2.7	756	7.1
Mar. 16	6.91	60	7.4	99	248	0	90	180	0	54	3.2	779	7.3
Aug. 15	5.42	66	13	78	296	0	68	220	0	44	2.3	759	7.3

WEST CACHE CREEK NEAR COOKIETOWN, COTTON COUNTY

July 22, 1955	2.20	40	9.7	53	160	0	66	140	9	45	1.9	488	7.2

DEEP RED RUN NEAR RANDLETT, COTTON COUNTY

Feb. 8, 1955	15.7	35	7.9	50	138	0	56	120	7	47	2.0	451	7.3
May 17	210	22	2.7	21	94	0	16	66	0	41	1.1	216	6.8
May 23	1,760	21	9.1	14	106	0	14	90	3	25	.6	211	7.1
July 22,	3.90	26	5.6	21	119	0	20	88	0	34	1.0	266	6.4
Sept. 23	397	27	6.4	22	124	0	13	94	0	34	1.0	276	7.5

RED RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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				
LITTLE BEAVER CREEK NEAR DUNCAN, STEPHENS COUNTY													
Jan. 17, 1955	0.12	122	57	48	312	0	52	540	284	16	0.9	1,050	8.2
Apr. 11	4.23	108	50	25	178	0	20	475	329	10	.5	960	7.8
May 12	15.5	88	32	95	142	0	190	350	234	37	2.2	1,270	7.1
July 26	.59	104	29	50	334	0	60	380	106	22	1.1	906	7.3
Sept. 27	6.94	37	12	11	106	0	18	140	53	15	.4	317	7.0
BARNITZ CREEK NEAR ARAPAHO, CUSTER COUNTY													
May 11, 1955	2.62	112	24	9.6	114	0	22	380	286	52	0.2	800	7.3
RAINEY MOUNTAIN CREEK NEAR MOUNTAIN VIEW, KIOWA COUNTY													
June 15, 1955	3.33	88	34	83	222	0	98	360	178	33	1.9	1,140	8.0
July 20	15.4	46	16	54	142	0	44	180	64	39	1.8	575	7.9
STINKING CREEK NEAR CARNEGIE, KIOWA COUNTY													
June 15, 1955	8.99	56	12	31	194	0	51	190	31	26	1.0	590	7.9
July 20	.64	35	12	18	152	0	10	136	12	22	.7	332	8.0
WASHITA RIVER AT ANADARKO, CADDO COUNTY													
Oct. 12, 1954	15.3	232	49	115	210	0	180	780	608	24	1.8	1,880	8.2

SUGAR CREEK NEAR ANADARKO, CADDO COUNTY

Jan. 18, 1955	0.70	86	16	15	122	0	12	280	180	10	0.4	566	7.8
Feb. 15	.76	92	7.4	24	206	8	13	260	78	17	.6	631	8.4
Apr. 20	1.29	82	13	22	212	8	14	260	73	16	.6	610	8.3
June 16	6.62	130	13	25	284	0	22	380	148	13	.6	893	8.2

WASHITA RIVER NEAR CHICKASHA, GRADY COUNTY

Oct. 12, 1955		85	24	10	194	0	16	310	151	6	0.2	548	7.6

LITTLE WASHITA RIVER NEAR NINNEKAH, GRADY COUNTY

Dec. 20, 1954	6.23	360	37	223	242	0	395	1,050	852	32	3.0	2,870	7.9
Jan. 17, 1955	10.6	344	49	190	190	0	320	1,060	904	28	2.5	2,490	7.8
Apr. 11	16.4	286	75	164	209	0	300	1,020	848	26	2.2	2,450	7.2
June 10	28.0	226	77	98	176	0	153	880	736	19	1.4	1,940	7.3
July 26	2.66	404	56	147	192	0	240	1,240	1,080	20	1.8	2,520	7.1
Sept. 20	3.38	344	64	162	132	0	228	1,120	1,010	24	2.1	2,450	8.0

FINN CREEK NEAR STORY, McCLAIN COUNTY

Dec. 8, 1954	0.45	96	41	59	572	0	18	410	0	24	1.3	952	8.2
Feb. 1, 1955	.51	74	57	41	454	12	16	420	28	17	.9	794	8.4
Feb. 28	.47	49	46	44	408	12	17	310	0	24	1.1	752	8.3
June 14	.82	46	51	47	448	0	15	325	0	24	1.1	734	7.4
July 28	.27	40	24	16	234	0	10	200	8	15	.5	416	7.4
Sept. 20	2.46	23	13	7.5	134	0	3.5	110	0	13	.3	227	8.1

WILDHORSE CREEK NEAR HOOVER, GARVIN COUNTY

Dec. 7, 1954	0.56	73	14	18	278	0	32	240	12	14	0.5	550	8.1
Jan. 17, 1955	32.2	81	14	8.1	246	0	14	260	58	6	.2	443	8.0
Feb. 28	25.7	43	3.0	7.5	140	0	11	120	6	12	.3	299	8.0
June 14	24.8	58	45	38	328	0	50	330	61	20	.9	874	7.2
July 27	1.74	56	22	36	212	0	4.6	230	56	25	1.0	574	6.8
Sept. 20	.71	49	21	43	218	0	58	208	30	31	1.3	579	8.0

RED RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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				
CHIGLEY SANDY CREEK NEAR DAVIS, MURRAY COUNTY													
Apr. 12, 1955	0.21	19	19	29	184	0	19	124	0	34	1.1	375	7.7
Sept. 26	64.9	26	3.6	6.6	100	0	9.5	80	0	15	.3	150	7.4
HONEY CREEK NEAR DAVIS, MURRAY COUNTY													
Feb. 28, 1955	13.4	47	6.7	2.8	174	0	8.0	145	2	4	0.1	317	8.1
LAWRENCE SPRINGS NEAR SULPHUR, MURRAY COUNTY													
Dec. 20, 1954	2.40	77	34	8.1	400	0	12	330	2	5	0.2	652	7.8
IRWIN SPRINGS NEAR SULPHUR, MURRAY COUNTY													
Dec. 20, 1954	2.35	114	3.8	1.6	368	0	5.0	300	0	1	0.0	590	8.2
ROCK CREEK NEAR DOUGHERTY, MURRAY COUNTY													
Dec. 7, 1954	7.20	99	31	276	318	0	500	400	140	60	6.0	2,140	8.0
Jan. 17, 1955	13.3	108	29	200	292	0	325	390	150	53	4.4	1,680	7.8
Mar. 1	12.7	90	23	164	304	0	285	320	71	53	4.0	1,500	8.0
Apr. 11	.68	22	14	13	146	0	10	114	0	20	.5	299	7.6
June 14	6.27	62	23	237	250	0	362	250	45	67	6.5	1,680	7.0
July 27	2.93	59	34	317	218	0	480	285	106	71	8.2	1,970	7.1
Sept. 20	.37	58	38	347	228	0	558	300	113	72	8.7	2,240	7.7
MILL CREEK NEAR MILL CREEK, JOHNSTON COUNTY													
Nov. 23, 1954	1.96	90	38	3.8	396	14	9.0	380	32	2	0.1	651	8.3
Dec. 21	2.00	74	38	4.4	406	0	7.0	340	8	3	.1	600	8.2
Feb. 1, 1955	2.55	66	43	4.6	372	0	8.0	340	35	3	.1	574	8.1
Mar. 1	3.07	62	31	4.6	264	0	9.5	280	64	3	.1	588	8.2
June 13	1.68	34	33	4.8	244	0	8.8	220	20	5	.1	466	7.2
July 27	1.42	59	43	4.3	368	0	9.0	325	24	3	.1	538	7.2
Sept. 21	.95	49	46	5.7	364	0	7.0	310	12	4	.1	552	8.2

PENNINGTON CREEK NEAR REAGAN, JOHNSTON COUNTY

Nov. 23, 1954	9.65	114	26	1.9	344	14	6.0	390	84	1	0.0	606	8.4
Dec. 21	10.3	64	34	2.8	382	0	4.0	300	0	2	.1	668	8.1
Feb. 1, 1955	18.8	65	48	2.2	364	0	5.0	360	62	1	.1	556	8.1
Mar. 2	23.4	58	26	2.3	296	0	6.0	250	8	2	.1	556	7.9
June 13	20.4	26	38	3.7	268	0	4.5	220	0	4	.1	433	7.4
July 27	21.6	59	37	3.1	358	0	4.5	300	6	2	.1	522	7.2
Sept. 21	12.0	36	50	3.1	318	2	3.0	296	32	2	.1	566	8.3

BLUE CREEK AT CONNERVILLE, JOHNSTON COUNTY

Nov. 23, 1954	17.9	85	51	1.4	402	4	6.0	420	84	1	0.0	624	8.3
Dec. 21	22.1	88	39	2.4	406	0	5.5	380	48	1	.1	599	8.3
Feb. 1, 1955	28.0	74	33	2.6	348	0	5.0	320	35	2	.1	546	7.9
Mar. 2	26.6	53	34	2.9	294	0	5.0	270	29	2	.1	527	8.0
June 13	25.6	68	39	5.0	368	0	5.5	330	28	3	.1	607	7.0
July 27	17.4	69	36	5.0	300	0	8.0	320	74	3	.1	568	7.2
Sept. 21	15.1	29	45	3.6	272	0	6.0	256	33	3	.1	602	8.2

BLUE RIVER NEAR BLUE, BRYAN COUNTY

Nov. 11, 1954	33.8	51	19	8.2	200	8	8.5	205	28	8	0.3	352	8.5
Dec. 21	38.4	56	26	9.7	256	18	10	245	5	8	.3	463	8.6
Jan. 5, 1955	68.6	56	17	11	220	8	9.0	210	16	10	.3	388	8.5
Mar. 3	74.0	56	18	12	240	0	16	215	18	11	.4	419	7.9
Mar. 31	95.4	28	18	14	164	0	9.0	146	12	17	.5	317	8.1
Apr. 26	62.3	48	29	8.8	264	0	19	240	24	7	.2	453	7.9
June 29	28.4	28	32	7.0	240	0	10	200	4	7	.2	373	7.7
July 21	62.0	35	13	6.5	160	0	7.0	140	9	9	.2	271	7.5

BYRD'S MILL SPRING NEAR ADA, PONTOTOC COUNTY

Dec. 22, 1954	11.3	64	29	4.0	412	0	7.0	330	0	3	0.1	623	8.1

BIG CANYON SPRING NEAR ADA, PONTOTOC COUNTY

Dec. 22, 1954	1.04	85	38	30	406	0	50	370	38	15	0.7	828	7.8

RED RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN OKLAHOMA--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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				
CLEAR BOGGY CREEK NEAR FITTSTOWN, PONTOTOC COUNTY													
Sept. 8, 1955	1.45	58	32	8.5	312	0	7.5	276	20	6	0.2	503	7.5
Sept. 21	.98	60	34	5.8	338	0	7.0	288	11	4	.1	566	6.9
CLEAR BOGGY CREEK NEAR CANEY, ATOKA COUNTY													
Nov. 10, 1954	13.2	69	14	72	156	6	145	230	92	40	2.1	739	8.5
Dec. 7	10.2	86	50	214	232	4	430	420	224	53	4.5	1,740	8.3
Jan. 5, 1955	69.1	70	22	64	192	10	110	265	91	34	1.7	751	8.5
Feb. 20	26.3	34	6.1	23	104	0	43	110	25	31	1.0	321	7.2
Mar. 31	113	34	16	40	108	0	84	150	62	37	1.4	500	7.3
July 21	5.20	45	13	54	144	0	114	165	47	42	1.8	604	7.4
CHICKASAW CREEK NEAR STRINGTOWN, ATOKA COUNTY													
Sept. 27, 1955	35.6	4.0	1.9	5.8	16	0	3.9	18	5	41	0.6	61.5	6.9
MUDDY BOGGY CREEK NEAR FARRIS, ATOKA COUNTY													
Nov. 10, 1954	21.1	8.0	2.9	11	30	0	13	32	8	43	0.8	125	7.4
Dec. 7	1.74	21	5.7	17	80	0	18	76	10	33	.8	223	7.8
Jan. 5, 1955	190	8.8	1.0	7.3	20	0	14	26	10	38	.6	89.5	7.3
Feb. 20	8,120	8.8	1.9	9.4	18	0	17	30	16	41	.7	120	6.3
Mar. 31	175	10	3.6	9.6	30	0	14	40	16	34	.7	147	6.6
July 21	1.69	23	7.4	16	98	0	23	88	8	28	.7	260	7.2
Sept. 26	9,200	4.0	2.4	4.7	10	0	6.1	20	12	33	.4	56.7	6.1
TENMILE CREEK NEAR MILLER, PUSHMATAHA COUNTY													
Sept. 27, 1955	479	3.6	1.7	5.1	18	0	11	16	2	41	0.6	55.7	6.6

MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN TEXAS

Chemical analyses, in parts per million, water year October 1954 to September 1955

Date of collection	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)	Boron (B)	Dissolved solids (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
															Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
BUCK CREEK NEAR WELLINGTON																							
Jan. 12, 1955	2.68	29		568	125	137		77		1,770	225		7.0		2,900	3.94		1,930	1,870	13	1.4	3,320	7.8
DOZIER CREEK NEAR WELLINGTON																							
Jan. 12, 1955	0.24	30		560	84	71		69		1,660	75		8.0		2,520	3.43		1,740	1,690	8	0.7	2,720	7.8
SWEETWATER CREEK NEAR WHEELER																							
Jan. 12, 1955	2.98	36			13					18	16		1.0						0			506	
ELM CREEK NEAR SHAMROCK																							
Jan. 12, 1955	1.67	39		131	28	78		76		393	98		2.5		a863	1.17		442	380	28	1.6	1,280	7.9
ROARING SPRINGS NEAR ROARING SPRINGS																							
Jan. 18, 1955	1.51	49			31					77	96		26									986	
LAKE TEXOMA AT PERRIN AIR FORCE BASE																							
Nov. 1, 1954		6.6	0.01	105	25	247		112		251	388	0.4	1.0		1,080	1.47		365	273	60	5.6	1,850	7.6
RANDELL LAKE NEAR DENISON																							
February 1955		3.8	0.00	73	18	129		122		141	205	0.3	0.2		a682	0.93		256	156	52	3.5	1,130	7.7
CANEY LAKE AT RED RIVER ARSENAL NEAR TEXARKANA																							
Aug. 22, 1955		4.5	0.00	3.6	2.2	8.6		27		5.0	5.8	0.2	0.8		44	0.06		18	0	51	0.9	69.0	6.9
BIG CYPRESS BAYOU NEAR KARNACK																							
Nov. 2, 1954		15	0.10	7.4	3.7	24		39		13	28	0.3	0.2		a120	0.16		34	2	61	1.8	185	7.1

a Residue on evaporation at 180°C.

RED RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RED RIVER BASIN IN LOUISIANA

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
PAW PAW BAYOU NEAR GREENWOOD																							
Sept. 21, 1955....	0.29	8.8	0.59	8.6	4.0		20	44	6.1	27		0.5		98	0.13		38	2	53	1.5	186	6.9	90
CLARKE BAYOU NEAR HAUGHTON																							
Sept. 20, 1955....	0.32	8.2	0.07	637	277	12,200		256	419	20,300				34,000	46.2		2,730	2,520	91	102	47,700	7.3	40
CANEY CREEK NEAR COTTON VALLEY																							
Sept. 19, 1955....	0.09	14	0.01	39	12		21	197	1.6	20		0.5		205	0.28		146	0	24	0.7	358	8.0	10
RAMBIN BAYOU NEAR FRIERSON																							
Aug. 16, 1955....	2.21	18	0.59	18	9.5		39	75	36	50		0.5		[a]222	0.30		84	22	51	1.9	364	7.1	50
BAYOU PIERRE WEST OF WESTDALE																							
Feb. 9, 1955.....		7.0	0.19	9.7	4.1		16	36	18	18		1.8		93	0.13		41	12	45	1.1	178	6.8	50
SALINE BAYOU NEAR LUCKY																							
July 20, 1955.....	[b]934	7.4	0.07	1.4	0.5	1.5	1.0	6	1.0	2.5		0.5		19	0.03	47.9	6	1	32	0.3	26.4	6.0	90
Aug. 25.....	[b]31	15	.48	2.8	1.1		21	12	1.6	32		.5		80	.10	6.70	12	2	80	2.7	135	6.1	55
Sept. 23.....	[b]28	12	.81	1.9	.8		13	12	3.3	16		.5		54	.07	4.08	8	0	78	2.0	73.0	6.4	65
MILL CREEK NEAR CASTOR																							
Aug. 15, 1955....	5.73	25	0.73	5.6	2.0		11	34	1.0	11		1.0		[a]89	0.12		22	0	51	1.0	96.8	6.8	45
GRAND BAYOU NEAR COUSHATTA																							
Aug. 23, 1955....	1.5	16	0.81	7.0	2.6		10	34	2.8	14		0.5		71	0.10		28	0	45	0.9	118	6.5	100
BAYOU FUNNY LOUIS NEAR TROUT																							
Sept. 26, 1955....	[b]1.3	14	0.59	11	5.0		186	40	2.3	295		0.2		534	0.73	1.87	47	14	90	12	1,030	6.9	45

a Residue on evaporation at 180°C.

b Daily mean discharge.

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 1955.
Water temperatures: August 1954 to September 1955.
EXTREMES, August 1954 to September 1955.--Dissolved solids: Maximum, 304 ppm Sept. 21-30, 1955; minimum, 156 ppm Apr. 1-10, 11-20.
Hardness: Maximum, 169 ppm Dec. 1-10; minimum, 86 ppm Apr. 11-20.
Specific conductance: Maximum daily, 642 micromhos July 12; minimum daily, 173 micromhos Apr. 15.
Water temperatures: Maximum observed, 87°F July 12, Aug. 12, 1955; minimum observed, 42°F Jan. 28-30.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. No discharge records available.

Chemical analyses, in parts per million, August 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Aug. 22-31, 1954		7.8	0.04	40	13	28		135	69	20	0.4	3.5		262	0.36		153	43	29	1.0	430	7.7
Sept. 1-10		11	.02	38	11	20		129	52	15	.4	3.0		223	.30		140	34	24	.8	367	7.9
Sept. 11-20		9.8	.03	38	12	21		132	53	16	.4	3.5		228	.31		144	36	24	.8	376	7.7
Sept. 21-30		11	.03	42	13	22		149	49	20	.4	4.0		248	.34		158	36	23	.8	408	8.0
Oct. 1-10		13	.02	40	12	26		140	55	22	.3	3.5		248	.34		149	34	28	.9	417	8.1
Oct. 11-20		11	.02	41	13	27		143	60	22	.3	3.5		252	.34		156	39	27	.9	421	8.0
Oct. 21-31		11	.04	38	12	22		132	55	16	.3	4.0		229	.31		144	36	25	.8	382	8.1
Nov. 1-10		13	.04	42	11	30		106	75	30	.7	6.8		a261	.35		150	63	30	1.1	416	7.8
Nov. 11-20		13	.04	41	12	27		125	68	23	.6	4.4		a250	.34		152	50	28	1.0	398	7.8
Nov. 21-30		15	.05	46	12	25		141	63	22	.6	4.2		a257	.35		163	47	25	.8	413	7.8
Dec. 1-10		15	.05	45	14	26		155	61	21	.4	4.5		278	.38		169	42	25	.9	430	8.1
Dec. 11-20		13	.06	40	12	23		128	60	20	.3	4.0		255	.35		150	45	25	.8	395	8.2
Dec. 21-31		11	.05	40	11	21		119	55	22	.3	4.5		250	.34		145	48	24	.8	390	7.8
Jan. 1-10, 1955		10	.03	38	11	21		107	55	26	.4	5.0		240	.33		140	52	25	.8	373	7.8
Jan. 11-20		9.0	.06	36	8.3	15		97	43	20	.4	5.0		206	.28		124	44	21	.6	320	7.8
Jan. 21-31		8.8	.07	34	9.2	18		91	44	25	.4	6.3		212	.29		123	48	24	.7	332	7.8
Feb. 1-10		9.4	.06	33	9.6	20		104	44	20	.3	5.8		a193	.26		122	37	26	.8	340	7.6
Feb. 11-19		9.8	.04	34	10	22		112	41	24	.3	5.8		222	.30		126	34	28	.9	349	7.6
Feb. 20-28		7.8	.08	28	7.3	19		85	38	20	.3	5.0		176	.24		100	30	30	.8	293	7.5
Mar. 1-10		9.8	.08	31	7.9	15		92	36	16	.4	6.3		179	.24		110	34	22	.6	295	7.8
Mar. 11-20		9.0	.11	29	7.4	12		84	35	13	.3	6.6		169	.23		103	34	21	.5	272	7.4
Mar. 21-31		9.0	.13	27	7.0	14		78	33	16	.3	5.6		164	.22		96	32	24	.6	262	7.5
Apr. 1-10		9.6	.08	26	6.4	14		82	30	14	.4	4.0		156	.21		91	24	26	.7	241	7.5
Apr. 11-20		9.2	.14	24	6.3	11		76	25	12	.4	3.5		156	.21		86	24	21	.5	223	7.4
Apr. 21-30		9.0	.10	27	8.0	17		97	32	14	.4	3.5		174	.24		100	21	27	.7	271	7.4

a Sum of determined constituents.

MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER NEAR ST. FRANCISVILLE, LA.--Continued

Chemical analyses, in parts per million, August 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-10, 1955...		15	0.00	34	9.0	15		103	42	16	0.2	4.5		191	0.26		122	38	21	0.6	312	7.7
May 11-20		11	.00	36	9.3	16		109	48	14	.2	5.0		202	.27		129	40	21	.6	324	7.8
May 21-31		11	.00	40	11	29		120	54	34	.2	5.0		244	.33		145	47	30	1.0	422	7.8
June 1-10		14	.05	39	9.7	49		116	49	68	.2	3.5		299	.41		138	43	44	1.8	512	8.0
June 11-20		13	.07	38	9.0	28		114	48	33	.3	4.5		233	.32		133	40	32	1.1	397	7.9
June 21-30		14	.05	38	11	27		122	50	30	.2	4.5		240	.33		139	39	30	1.0	401	8.2
July 1-10		13	.00	43	13	39		133	57	50	.4	5.0		303	.41		160	51	34	1.3	497	7.7
July 11-20		11	.00	43	11	42		134	58	48	.5	4.2		298	.41		152	42	37	1.5	497	8.1
July 21-31		11	.01	38	11	29		119	57	29	.5	3.5		251	.34		139	42	31	1.1	406	8.1
Aug. 1-10		11	.00	38	10	24		125	49	22	.4	5.0		224	.30		137	35	28	.9	376	8.0
Aug. 11-20		11	.00	42	11	30		143	49	30	.4	4.0		254	.35		150	33	30	1.1	423	8.2
Aug. 21-31		8.2	.00	41	12	29		144	54	27	.4	3.5		250	.34		152	34	30	1.0	424	8.2
Sept. 1-10		9.4	.00	46	12	32		150	53	36	.4	3.5		278	.38		164	41	30	1.1	460	8.2
Sept. 11-20		11	.00	47	12	38		155	68	34	.5	2.5		302	.41		167	40	33	1.3	488	8.0
Sept. 21-30		9.6	.00	48	11	40		155	67	37	.5	3.0		304	.41		166	39	34	1.3	491	7.8
Average		11	0.04	38	10	25		120	51	25	0.4	4.4		234	0.32		136	38	29	0.9	381	--

a Sum of determined constituents.

MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER NEAR ST. FRANCISVILLE, LA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, between 6 a. m. and 7 a. m./

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

MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER AT NEW ORLEANS, LA.

LOCATION.--At raw water intake to the Carrollton Purification Plant at the foot of Eagle Street, New Orleans, Orleans Parish, 2¼ miles downstream from Huey P. Long Bridge.
DRAINAGE AREA.--1,243,600 square miles (above gaging station).
RECORDS AVAILABLE.--Chemical analyses: August 1954 to September 1955 (discontinued).
Water temperatures: August 1954 to September 1955 (discontinued).
EXTREMES, August 1954 to September 1955.--Dissolved solids: Maximum, 316 ppm Sept. 21-30, 1955; minimum, 150 ppm Apr. 1-10.
Hardness: Maximum, 176 ppm Sept. 21-30, 1955; minimum, 93 ppm Apr. 11-20.
Specific conductance: Maximum daily, 614 micromhos July 18; minimum daily, 230 micromhos Apr. 13.
Water temperatures: Maximum, 88°F Aug. 16-20, 22-25, 1955; minimum, 40°F Jan. 29-30.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of gage heights for gaging station near New Orleans for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, August 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Aug. 23-31, 1954..		9.0	0.05	45	13	32		140	76	27	0.4	3.0		274	0.37		166	51	30	1.1	472	8.0	10
Sept. 1-10.....		12	.00	39	14	32		137	67	28	.4	3.5		270	.37		155	43	31	1.1	446	8.0	--
Sept. 11-20.....		9.8	.01	38	12	25		127	57	22	.4	3.5		239	.33		144	40	27	.9	397	8.0	10
Sept. 21-30.....		11	.02	41	13	24		132	51	29	.5	5.0		247	.34		156	48	25	.8	423	7.7	15
Oct. 1-10.....		13	.02	45	12	25		156	51	22	.3	4.0		251	.34		162	34	25	.9	423	7.8	10
Oct. 11-20.....		11	.02	42	12	29		141	58	26	.3	4.0		252	.34		154	39	29	1.0	431	7.9	5
Oct. 21-31.....		9.4	.02	42	13	26		140	61	23	.3	3.5		248	.34		158	44	26	.9	422	7.8	10
Nov. 1-10.....		14	.04	43	11	27		114	67	28	.6	6.6		254	.35		150	57	28	1.0	414	7.8	5
Nov. 11-20.....		13	.04	43	11	25		109	69	28	.6	6.3		253	.34		152	63	27	.9	407	7.8	5
Nov. 21-30.....		13	.04	44	12	26		128	64	28	.5	4.8		259	.35		160	55	26	.9	423	7.7	5
Dec. 1-10.....		15	.13	45	14	30		150	65	28	.3	4.0		294	.40		169	46	28	1.0	451	8.0	10
Dec. 11-20.....		14	.06	47	13	26		150	63	26	.3	4.0		290	.39		172	49	25	.9	453	8.0	10
Dec. 21-31.....		11	.05	41	12	28		125	61	29	.3	4.0		265	.36		151	49	28	1.0	419	8.0	10
Jan. 1-10, 1955...		13	.03	42	12	22		117	58	30	.5	4.5		261	.35		155	59	24	.8	406	7.8	10
Jan. 11-20.....		8.8	.03	36	9.3	19		102	43	26	.4	4.0		218	.30		129	45	24	.7	342	7.7	15
Jan. 21-31.....		9.4	.05	35	9.0	17		92	42	26	.4	7.2		215	.29		125	50	23	.7	335	7.6	15
Feb. 1-10.....		11	.04	33	10	22		104	46	24	.3	5.0		208	.28		124	39	28	.9	347	7.8	5
Feb. 11-19.....		10	.04	33	9.9	21		109	41	22	.3	4.5		204	.28		122	33	27	.8	341	7.7	10
Feb. 20-28.....		8.8	.04	31	8.3	17		96	38	19	.3	4.5		182	.25		112	33	25	.7	306	7.6	10
Mar. 1-13.....		10	.06	32	7.9	16		92	38	18	.3	7.3		187	.25		112	37	24	.7	307	7.6	5
Mar. 14-22.....		9.2	.07	30	7.6	11		86	34	13	.3	6.3		166	.23		106	36	18	.5	275	7.4	10
Mar. 23-31.....		9.4	.03	28	6.7	12		80	34	12	.3	5.4		159	.22		97	32	21	.5	261	7.5	15

Apr. 1-10, 1955 ...		10	.05	27	7.5	13	82	33	15	.3	4.5		a 150	.20		98	31	23	.6	259	7.4	15
Apr. 11-20.....		9.8	.05	26	6.8	12	83	30	11	.4	3.5		153	.21		93	25	22	.5	237	7.7	20
Apr. 21-30.....		8.6	.06	28	8.2	14	94	32	14	.4	3.0		166	.23		104	26	22	.6	245	7.5	20
May 1-10		11	.02	34	9.2	17	107	40	18	.2	4.5		188	.26		122	34	23	.7	315	7.9	10
May 11-20		10	.04	35	9.7	16	106	48	15	.2	4.0		193	.26		128	41	21	.6	327	7.6	10
May 21-31		10	.02	38	11	22	111	53	27	.2	4.0		a 220	.30		140	49	26	.8	386	7.9	5
June 1-10		14	.08	40	10	43	115	52	58	.2	4.0		286	.39		141	47	40	1.6	477	7.7	10
June 11-20.....		13	.07	37	9.5	38	114	49	48	.2	3.5		257	.35		132	39	39	1.5	431	7.7	15
June 21-30		11	.06	39	10	25	119	49	29	.2	4.0		232	.32		138	40	29	.9	382	8.1	10
July 1-10		12	.00	44	13	45	131	55	64	.3	5.2		312	.42		163	56	37	1.5	536	8.1	--
July 11-20		11	.00	45	12	43	133	62	54	.4	5.0		312	.42		162	53	36	1.5	518	8.2	15
July 21-31		11	.00	40	11	29	121	54	35	.5	4.5		256	.35		146	47	30	1.1	428	8.1	15
Aug. 1-10.....		9.6	.00	41	10	27	125	53	28	.4	4.5		239	.33		143	41	29	1.0	404	8.2	10
Aug. 11-20.....		9.6	.00	42	10	28	134	51	29	.4	5.0		245	.33		147	37	30	1.0	407	7.8	10
Aug. 21-31.....		8.6	.00	43	12	35	145	56	36	.4	4.0		272	.37		157	38	32	1.2	456	8.1	5
Sept. 1-10		9.4	.00	45	11	29	143	50	35	.5	2.5		267	.36		158	41	29	1.0	437	8.0	5
Sept. 11-20		8.6	.00	49	12	41	156	69	42	.5	2.5		a 302	.41		173	45	34	1.4	490	8.0	5
Sept. 21-30		9.4	.00	49	13	41	157	72	42	.5	2.0		316	.43		176	48	34	1.3	514	7.9	5
Average.....		11	0.03	39	11	26	120	52	28	0.4	4.4		239	0.33		142	44	28	0.9	394	--	--

a Sum of determined constituents.

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MISSISSIPPI RIVER MAIN STEM--Continued

MISSISSIPPI RIVER AT NEW ORLEANS, LA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

TANGIPAHOA RIVER AT ROBERT, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 190, 1 mile west of Robert, Tangipahoa Parish, 2 miles downstream from Chappepeela Creek, and 6 miles east of Hammond.
DRAINAGE AREA.--646 square miles.
RECORDS AVAILABLE.--Chemical analyses: August 1954 to August 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, August 1954 to August 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Aug. 20, 1954	330	14	0.10	1.7	0.9	4.6	1.0	16	1.5	4.2		0.2		38	0.05	33.9	8	0	52	0.7	42.9	6.9	10
Oct. 26	351	15	.10	1.6	.8	6.6	1.0	19	1.6	4.0		.2		40	.05	37.9	7	0	63	1.0	48.6	6.8	10
Dec. 29	1,410	9.0	.12	1.2	.7	3.9	1.3	10	2.0	4.0		.8		a 28	.04	107	6	0	53	.7	38.6	6.0	35
Jan. 25, 1955	1,190	13	.07	2.0	1.0	4.0	1.0	13	2.6	4.5		.8		a 35	.05	112	9	0	46	.6	45.9	6.3	20
Feb. 25	1,330	9.8	.13	1.1	.9	3.3	1.0	10	1.9	3.2		.8		a 27	.04	97.0	6	0	48	.6	40.2	6.8	45
Mar. 15	530	13	.01	1.9	.8	4.5	1.0	14	1.4	4.2		.8		38	.05	54.4	8	0	51	.7	44.4	6.4	15
Apr. 19	1,430	10	.16	1.4	.9	4.0	1.5	12	2.1	3.8		.8		a 31	.04	120	7	0	49	.7	41.8	6.1	30
May 11	408	12	.07	1.5	1.1	5.2	1.5	16	1.2	5.0		.8		38	.05	41.9	8	0	53	.8	46.0	6.2	15
June 6	384	12	.09	1.6	.7	4.7	1.2	16	1.0	3.8		.2		38	.05	39.4	7	0	55	.8	40.9	6.7	15
July 6	351	11	.04	2.0	.7	4.1	1.4	14	1.0	4.2		.8		a 32	.04	30.3	8	0	48	.6	42.0	6.9	10
Aug. 4	4,060	6.4	.19	1.2	.6	1.9	1.6	7	1.7	2.5		.5		a 20	.03	219	5	0	36	.4	29.2	5.9	60

a Sum of determined constituents.

MISSISSIPPI RIVER DELTA--Continued

ATCHAFALAYA RIVER AT KROTZ SPRINGS, LA.

LOCATION.--At gaging station at bridge on U. S. Highway 190, half a mile north of town of Krotz Springs, St. Landry Parish, 0.6 mile upstream from New Orleans, Texas and Mexico Railroad bridge, 10 miles upstream from Bayou Courtableu, and 42 miles downstream from confluence of Red River and Old River (head of Atchafalaya).
RECORDS AVAILABLE.--Chemical analyses: August 1952 to September 1955 (discontinued).
Water temperatures: August 1952 to September 1955 (discontinued).
EXTREMES, 1954-55.--Dissolved solids: Maximum, 448 ppm Oct. 10-12; minimum, 158 ppm Apr. 1-10.
Hardness: Maximum, 206 ppm Oct. 10-12; minimum, 79 ppm Apr. 21-30.
Specific conductance: Maximum daily, 892 micromhos Oct. 11; minimum daily, 223 micromhos Apr. 16.
Water temperatures: Maximum, 86°F on several days during August; minimum, 42°F on several days during January and February.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 486 ppm Dec. 1-11, 1952; minimum, 115 ppm June 11-20, 1953.
Hardness: Maximum, 218 ppm Oct. 21-31, Nov. 1-10, 11-20, 21-30, 1952; minimum, 57 ppm June 11-20, 1953.
Specific conductance: Maximum daily, 945 micromhos Jan. 16, 1954; minimum daily, 164 micromhos June 18-19, 1953.
Water temperatures: Maximum, 88°F on many days during July 1954; minimum, 42°F on several days during January and February 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1391.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-9, 13-20, 1954	54,630	11	0.01	42	12	41		141	56	48		3.5		a283	0.38	41,740	154	39	37	1.5	493	7.8	10
Oct. 10-12	54,670	12	.01	56	16	81		157	80	118		3.0		448	.61	66,130	206	77	46	2.5	790	8.1	10
Oct. 21-31	85,210	9.6	.03	37	11	29		122	49	33		4.0		a233	.32	53,610	138	38	31	1.1	409	7.7	15
Nov. 1-10	107,200	9.2	.01	39	10	32		101	57	44		4.2		259	.35	74,970	138	55	34	1.2	436	7.7	15
Nov. 11-20	71,320	12	.04	38	10	37		109	50	51		4.0		269	.37	51,800	136	47	37	1.4	456	7.8	10
Nov. 21-30	49,250	13	.06	43	11	40		132	54	52		3.2		286	.39	38,030	153	45	36	1.4	495	8.0	5
Dec. 1-10	48,300	12	.05	46	13	39		150	58	47		4.0		318	.43	41,470	169	46	33	1.3	514	8.2	10
Dec. 11-20	59,060	12	.04	43	13	37		136	61	45		3.5		306	.42	48,800	160	49	34	1.3	480	7.9	5
Dec. 21-31	68,320	9.6	.08	42	11	49		118	57	69		3.5		330	.45	60,870	151	54	41	1.7	525	7.8	10
Jan. 1-8, 1955	96,100	10	.05	43	11	48		106	57	75		4.0		326	.44	84,590	152	65	41	1.7	535	7.7	5
Jan. 9-20	144,800	7.8	.07	35	8.9	22		96	42	33		4.5		222	.30	86,790	125	46	28	.8	352	7.5	15
Jan. 21-31	131,700	7.6	.16	33	8.6	32		88	39	51		5.0		250	.34	88,900	118	46	37	1.3	399	7.7	25
Feb. 1-7	95,910	8.4	.07	33	9.8	45		100	42	65		4.2		267	.36	69,140	122	40	45	1.8	461	7.7	10
Feb. 8	106,000	9.8	.22	29	8.3	100		76	25	165		3.0		403	.55	115,300	106	44	67	4.2	707	7.8	15
Feb. 9-19	121,500	8.6	.23	26	6.6	39		79	23	60		2.8		229	.31	75,120	91	26	48	1.8	380	7.4	50
Feb. 20-28	169,800	8.0	.08	27	6.7	27		79	31	38		3.5		192	.26	88,020	94	29	39	1.2	317	7.7	45
Mar. 1-10	229,400	8.8	.12	28	7.2	17		85	30	22		4.7		172	.23	106,500	99	30	27	.7	289	7.5	15
Mar. 11-20	250,900	8.8	.14	28	6.5	14		80	34	15		5.6		162	.22	109,700	97	31	24	.6	270	7.6	25
Mar. 21-31	325,500	8.8	.15	28	6.3	16		81	32	19		4.2		166	.23	145,900	96	29	26	.7	279	7.7	25

a Sum of determined constituents.

Apr. 1-10, 1955 ...	393,300	10	.13	25	5.5	17	75	26	21		4.0		158	.21	167,800	85	24	30	.8	236	7.7	--
Apr. 11-20	400,800	10	.17	24	5.6	14	74	24	18		3.2		160	.22	173,100	83	22	27	.7	228	7.4	--
Apr. 21-30	301,300	9.0	.12	23	5.2	22	73	22	30		2.5		174	.24	141,600	79	19	38	1.1	260	7.2	--
May 1-10	254,500	7.8	.16	25	6.9	20	78	27	28		2.5		164	.22	112,700	91	27	32	.9	283	7.2	30
May 11-20	181,600	9.4	.12	28	7.6	23	86	31	32		3.0		184	.25	90,220	100	30	33	1.0	310	8.1	20
May 21-31	150,400	10	.06	33	8.8	29	99	37	41		3.2		219	.30	88,930	118	37	34	1.1	385	7.7	10
June 1-10	160,500	12	.07	36	5.7	50	92	35	77		2.5		276	.38	119,600	113	38	49	2.1	481	7.9	15
June 11-20	136,700	12	.12	32	7.9	34	94	39	46		3.0		228	.31	84,150	112	35	39	1.4	386	7.8	25
June 21-30	127,500	10	.07	38	11	37	114	53	49		3.5		268	.36	92,260	139	46	37	1.4	460	8.0	15
July 1-10	108,500	12	.00	48	13	59	125	72	85		3.8		375	.51	109,900	173	70	42	1.9	631	7.5	5
July 11-20	96,440	10	.01	45	12	53	125	67	72		3.8		342	.47	89,050	162	60	41	1.8	577	7.5	10
July 21-31	106,500	12	.02	38	9.5	43	105	51	61		3.0		292	.40	83,960	133	47	42	1.6	479	7.8	20
Aug. 1-10	92,240	12	.02	32	8.8	36	104	40	46		2.0		240	.33	59,770	116	31	40	1.4	399	7.9	25
Aug. 11-20	72,920	12	.03	37	8.7	52	109	43	74		2.0		293	.40	57,690	128	39	47	2.0	506	7.7	20
Aug. 21-31	65,650	9.4	.00	44	10	41	136	53	51		2.0		282	.38	49,990	152	41	37	1.4	490	7.9	5
Sept. 1-10	55,980	11	.07	53	9.2	45	151	56	59		2.0		320	.44	48,370	169	46	37	1.5	536	8.1	5
Sept. 11-20	51,920	10	.00	54	13	55	158	76	69		1.5		376	.51	52,710	187	58	39	1.8	624	8.1	5
Sept. 21-30	44,600	12	.00	51	13	56	164	67	70		1.5		356	.48	42,870	181	46	40	1.8	611	7.9	5
Average	138,200	10	0.08	37	9.4	39	108	46	53		3.3		265	0.36	--	131	42	39	1.5	445	--	--

MISSISSIPPI RIVER DELTA--Continued

ATCHAFALAYA RIVER AT KROTZ SPRINGS, LA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually between 4 p.m. and 7 p.m./

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

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 1955.
Water temperatures: January 1949 to September 1955.
EXTREMES, 1954-55.--Specific conductance: Maximum daily, 15,300 micromhos Oct. 12; minimum daily, 51.5 micromhos Feb. 8.
Water temperatures: Maximum, 89°F Aug. 24; minimum, 48°F Jan. 24, Feb. 23.
EXTREMES, 1949-55.--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.

Chemical analyses, in parts per million, October 1954 to March 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 20-23, 1954		12	0.00	20	8.4	175		35	8.1	302		1.2		582	0.79		84	56	82	8.3	1,060	7.2	45
Oct. 25-31		13	.04	10	5.5	45		43	10	70		1.5		196	.27		48	12	67	2.8	332	7.2	55
Mar. 1-20, 1955		8.4	.25	8.9	3.1	30	2.3	36	3.5	47	0.4	1.8	0.07	a124	.17		35	6	63	2.2	225	7.4	160

a Sum of determined constituents.

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 1954 to September 1955

Day	October		November		December	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	9,090	2,900	314	--	7,100	2,230
2	8,990	--	366	--	4,230	1,250
3	10,700	--	382	84	4,360	--
4	13,400	4,510	1,580	435	4,570	--
5	10,300	3,340	417	101	6,140	1,890
6	10,200	--	377	--	1,750	465
7	8,620	2,700	314	--	4,270	1,270
8	7,370	2,320	242	53	15,200	5,200
9	8,310	--	302	--	10,500	3,420
10	9,090	--	324	--	5,950	1,800
11	10,400	3,470	348	80	12,700	4,260
12	15,300	5,230	338	77	15,000	5,100
13	10,800	3,470	735	189	3,340	950
14	356	79	2,110	608	4,070	--
15	389	97	1,190	318	4,750	--
16	304	68	418	--	3,610	1,040
17	511	128	548	--	5,610	1,710
18	504	130	617	--	1,160	292
19	1,520	452	735	--	885	209
20	1,100	--	791	--	--	--
21	1,090	--	949	245	5,880	--
22	1,100	--	1,250	332	5,320	--
23	980	--	3,420	1,010	6,130	--
24	559	--	3,310	980	6,700	--
25	384	--	1,700	460	6,520	--
26	329	--	3,580	1,050	7,080	--
27	297	--	6,210	1,920	6,830	2,130
28	265	--	5,960	1,840	1,630	440
29	317	--	1,810	492	1,750	--
30	374	--	6,920	2,180	1,880	538
31	315	--	--	--	2,410	710

Day	January		February		March	
1	919	241	171	--	202	--
2	1,350	385	186	--	209	--
3	518	125	355	84	210	--
4	730	195	309	--	189	--
5	376	--	297	--	198	--
6	325	74	79.3	--	255	--
7	319	--	62.6	--	230	--
8	364	--	51.5	6.8	192	--
9	490	--	223	58	244	--
10	282	--	270	--	252	--
11	274	53	219	--	248	--
12	156	25	220	--	272	--
13	195	--	233	--	263	--
14	440	--	246	62	256	--
15	484	117	232	--	153	--
16	188	38	208	--	155	--
17	73.4	12	163	--	192	--
18	72.8	--	147	29	246	--
19	479	--	213	51	249	--
20	527	--	217	--	265	--
21	809	227	149	--	237	--
22	254	53	84.3	--	286	--
23	203	--	189	--	270	--
24	225	--	145	--	251	--
25	269	--	275	--	242	--
26	224	--	234	--	203	--
27	289	66	210	--	281	--
28	184	33	219	--	310	--
29	272	--	--	--	270	--
30	219	--	--	--	263	--
31	243	--	--	--	265	--

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 1954 to September 1955--Continued

Day	April		May		June	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	296	--	252	--	122	--
2	326	62	226	--	111	--
3	238	38	178	--	109	13
4	298	--	177	23	114	--
5	306	--	263	50	117	--
6	287	--	195	--	127	--
7	288	--	242	--	190	36
8	325	--	223	--	188	--
9	385	--	213	--	143	--
10	309	--	218	--	180	--
11	68.1	--	242	--	88.1	15
12	79.4	--	239	--	95.4	--
13	66.7	6.5	273	--	116	--
14	124	--	270	--	344	84
15	287	71	259	--	521	--
16	204	--	258	--	521	136
17	152	--	300	--	289	--
18	147	--	300	--	264	--
19	144	--	321	58	316	--
20	185	--	198	30	263	--
21	168	--	60.6	8.5	206	38
22	174	--	65.0	--	209	--
23	186	--	140	--	214	--
24	247	--	156	--	277	--
25	250	49	159	32	277	59
26	169	23	154	--	294	--
27	222	--	150	--	343	77
28	183	--	151	--	226	--
29	221	--	145	--	233	--
30	248	--	124	--	214	--
31	--	--	152	--	--	--

	July		August		September	
1	179	28	223	--	222	--
2	208	--	320	76	226	--
3	267	--	112	17	215	31
4	201	--	118	--	384	83
5	391	94	154	--	548	139
6	287	--	172	--	308	--
7	344	--	89.2	13	273	--
8	267	52	176	--	236	--
19	349	--	177	--	240	--
10	334	--	175	--	314	--
11	285	--	233	--	395	--
12	327	--	219	--	420	94
13	253	--	218	42	339	--
14	221	--	115	20	307	--
15	205	--	167	32	266	--
16	425	--	209	--	241	--
17	240	--	217	--	236	--
18	274	--	187	--	221	39
19	310	--	180	--	226	--
20	330	--	157	--	275	--
21	266	59	240	--	262	--
22	244	--	220	--	260	--
23	142	--	193	--	295	--
24	121	22	168	--	294	--
25	145	--	171	--	338	--
26	232	--	189	--	390	83
27	228	--	163	--	219	--
28	220	--	194	--	219	--
29	185	--	176	--	240	--
30	205	--	206	--	213	35
31	263	--	194	--	--	--

MISSISSIPPI RIVER DELTA--Continued

VERMILION RIVER AT BANCKER'S FERRY, NEAR ABBEVILLE, LA.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
[Once-daily measurement between 7 a. m. and 10 a. m.]

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

MISCELLANEOUS ANALYSES OF STREAMS IN THE MISSISSIPPI DELTA IN LOUISIANA

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
BAYOU LA FOURCHE AT NAPOLEONVILLE																							
Sept. 22, 1955.....		2.0	0.01	48	13	35		154	68	36		1.2		a286	0.39		172	46	31	1.2	498	7.3	5
BAYOU LA FOURCHE AT THIBODAUX																							
Sept 22, 1955.....		2.1	0.01	47	14	38		164	62	41		1.2		286	0.39		176	42	32	1.2	509	7.5	15
BAYOU DES GLAISES DIVERSION CHANNEL AT MOREAUVILLE																							
Sept. 19, 1955.....	21	15	0.03	39	14	23		190	17	20		1.8		a232	0.32	13.2	154	0	24	0.8	395	7.4	25
BAYOU TECHE AT ARNAUDVILLE																							
Sept 20, 1955.....	430	12	0.22	14	5.7	10		76	4.9	9.5		0.8		94	0.13		59	0	28	0.6	163	7.3	45
BAYOU CARENCRO NEAR SUNSET																							
Sept. 20, 1955.....	0.6	12	0.31	18	6.6	59		73	4.9	95		0.8		233	0.32	0.38	72	12	64	3.0	438	7.3	45

a Residue on evaporation at 180°C.

PART 8. WESTERN GULF OF MEXICO BASINS

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 1955.
Water temperatures: January 1949 to September 1952.
EXTREMES, 1954-55.--Specific conductance: Maximum daily, 808 micromhos Oct. 5; minimum daily, 64.5 micromhos Apr. 10.
EXTREMES, 1949-55.--Specific conductance: Maximum daily, 6,330 micromhos June 30, 1952; minimum daily, 30.8 micromhos Aug. 10, 1951.
REMARKS.--No discharge records available for this station.

Chemical analyses, in parts per million, October to November 1954

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 (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
Oct. 1-9, 1954		16	0.00	15	16	115		79	23	187		1.5		448	0.61		104	39	71	4.9	796	7.4	30
Oct. 10-25.....		9.4	.17	7.1	3.8	30		42	4.2	41		1.8		138	.19		33	0	66	2.3	216	7.3	70
Oct. 26-30.....		8.6	.08	6.4	3.5	55		26	4.0	87		3.0		206	.28		30	9	80	4.4	356	6.9	50
Nov. 1-10		9.4	.00	7.5	3.7	57		31	3.9	90		1.2		207	.28		34	9	78	4.2	363	6.8	--

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 1954 to September 1955

	October		November		December	
Day	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	802	--	348	--	535	--
2	788	--	355	--	535	138
3	785	--	368	--	604	158
4	787	--	366	--	607	--
5	808	--	365	--	621	--
6	789	--	382	--	667	177
7	788	--	--	--	611	160
8	--	--	361	--	550	143
9	--	--	343	--	553	--
10	223	--	358	--	549	--
11	257	--	358	--	543	--
12	222	--	366	--	633	--
13	212	--	378	--	545	--
14	212	--	371	94	568	149
15	223	--	423	106	606	154
16	217	--	373	--	568	148
17	211	--	402	--	553	--
18	212	--	367	--	--	--
19	199	--	366	91	--	--
20	202	--	599	156	--	--
21	199	--	602	145	622	167
22	198	--	649	180	675	180
23	200	--	591	--	702	187
24	197	--	--	--	702	--
25	198	--	402	80	702	--
26	336	--	600	153	740	--
27	351	--	540	137	711	--
28	345	--	533	--	708	--
29	350	--	535	--	702	--
30	366	--	535	--	708	--
31	--	--	--	--	--	--

	January		February		March	
1	707	--	110	20	83.7	--
2	706	--	149	32	77.5	--
3	711	--	112	--	79.4	--
4	715	--	129	--	74.9	--
5	712	--	107	20	92.2	15
6	709	189	114	--	69.9	8.2
7	549	146	140	24	113	17
8	549	--	112	--	95.0	--
9	551	--	112	--	102	--
10	552	146	114	--	90.7	--
11	221	46	119	14	94.1	--
12	226	--	68.3	8.8	98.8	--
13	228	--	71.0	--	107	--
14	225	--	78.0	--	100	--
15	219	40	75.1	--	103	12
16	165	30	101	--	93.0	12
17	--	--	108	19	114	16
18	161	--	80.4	10	91.8	--
19	110	19	71.2	--	82.4	--
20	135	25	70.0	10	89.0	11
21	127	--	71.4	--	136	20
22	97.3	--	71.4	--	99.1	11
23	95.4	--	79.9	--	88.0	--
24	149	--	86.5	12	108	--
25	130	--	102	14	130	14
26	118	--	91.0	--	99.1	11
27	126	21	83.5	--	96.7	--
28	166	34	139	26	100	--
29	116	--	--	--	88.9	--
30	150	--	--	--	87.4	--
31	113	--	--	--	88.6	--

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 1954 to September 1955--Continued

Day	April		May		June	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	153	26	85.1	--	106	--
2	90.7	12	81.1	--	106	--
3	93.3	--	93.6	12	105	12
4	92.0	--	71.0	--	--	--
5	116	--	69.3	--	117	12
6	108	--	66.3	6.5	111	--
7	116	--	72.0	--	103	--
8	117	--	96.4	14	105	--
9	80.7	--	66.1	--	101	12
10	64.5	6.5	79.9	--	114	--
11	85.6	10	70.0	--	102	12
12	85.8	--	74.0	8.0	102	--
13	80.3	--	144	26	102	--
14	78.2	--	91.2	--	102	--
15	79.3	--	85.1	--	102	--
16	75.3	--	91.0	--	102	--
17	81.0	--	118	--	126	16
18	73.6	--	103	--	121	--
19	66.9	8.0	100	11	126	--
20	68.3	--	98.8	--	124	--
21	81.1	--	97.0	--	130	--
22	72.1	--	113	--	124	--
23	70.4	--	133	18	93.1	12
24	99.1	--	142	--	132	23
25	73.3	7.5	115	--	106	--
26	133	26	112	--	105	--
27	81.5	--	114	--	102	--
28	79.3	--	109	--	121	--
29	80.3	--	84.5	8.0	95.1	--
30	84.3	--	103	--	98.1	--
31	--	--	--	--	--	--

Day	July		August		September	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
1	115	--	141	17	133	--
2	128	--	135	--	146	--
3	124	--	136	--	149	--
4	117	--	138	--	172	19
5	120	--	138	--	153	--
6	126	--	133	--	146	--
7	117	--	137	18	180	--
8	114	13	141	--	171	--
9	177	26	142	--	184	23
10	121	--	141	--	180	--
11	127	--	146	--	176	--
12	123	--	138	--	176	--
13	144	--	135	--	169	--
14	163	23	150	19	170	22
15	131	--	144	--	175	--
16	114	--	138	--	169	--
17	109	14	133	--	180	--
18	146	--	145	--	183	--
19	117	--	134	16	190	24
20	115	--	135	--	185	--
21	121	--	135	--	178	--
22	127	--	136	--	190	23
23	108	14	135	--	182	--
24	119	--	121	--	179	--
25	124	--	133	--	182	--
26	122	--	130	--	181	--
27	122	--	127	--	181	--
28	178	--	124	--	179	--
29	128	--	137	--	178	22
30	198	33	159	--	182	--
31	152	18	138	--	--	--

CALCASIEU RIVER NEAR KINDER, LA.

LOCATION.--Temperature recorder at gaging station at bridge on U. S. Highway 190, 0.5 mile downstream from Whiskey Chitto Creek and 4 miles west of Kinder, Allen Parish.
DRAINAGE AREA.--1,700 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1954 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 87°F July 7, 9-11; minimum, 49°F Dec. 19-21, Jan. 24-26, 28-30, Feb. 23.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Temperature °(F) of water, water year October 1954 to September 1955

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	80	62	58	63	59	58	55	55	52	65	62	67	63	80	76	82	78	82	81	83	81	80	79
2	86	80	63	60	64	62	60	58	58	55	66	63	68	64	80	76	83	80	84	80	82	81	80	77
3	83	79	60	57	64	61	62	60	58	57	67	66	71	67	80	76	82	78	82	80	81	77	80	78
4	83	80	58	56	66	62	64	62	60	57	69	67	71	68	80	76	83	79	84	80	77	77	80	79
5	85	80	58	54	68	64	64	63	61	58	70	69	74	70	80	76	83	80	84	82	77	77	79	78
6	84	80	58	54	64	58	64	61	58	56	70	68	75	72	79	76	83	79	86	82	77	75	78	77
7	84	79	59	54	58	54	61	59	56	55	68	65	74	72	79	76	85	81	87	84	78	76	79	77
8	81	76	62	56	61	56	60	58	55	54	65	63	72	70	80	76	85	81	88	84	79	78	82	78
9	81	76	63	58	61	58	60	60	54	54	64	63	70	63	80	77	83	80	87	84	79	78	82	80
10	80	77	62	59	58	54	60	58	55	54	67	64	62	60	81	77	80	76	87	83	78	78	82	80
11	79	77	63	59	59	55	58	55	55	53	71	67	62	60	79	78	79	75	87	83	79	78	84	80
12	77	75	64	59	60	57	56	56	52	51	73	70	65	61	78	76	79	75	85	81	79	79	82	80
13	76	74	66	61	57	54	56	54	51	50	73	72	67	65	80	76	81	77	83	79	79	79	82	79
14	77	75	66	64	55	51	55	54	52	50	74	72	67	66	82	78	81	78	79	77	79	79	82	80
15	76	70	66	64	54	52	55	55	54	52	76	73	68	67	83	78	81	79	77	77	80	79	82	79
16	70	67	64	63	54	51	55	54	55	53	77	74	68	67	84	79	82	78	78	77	80	79	82	79
17	70	65	66	62	54	53	54	53	56	55	75	73	68	68	81	79	82	79	79	78	80	79	83	79
18	71	66	66	63	53	51	54	54	56	56	75	73	69	68	79	78	82	79	79	79	80	79	83	79
19	71	66	64	61	52	49	55	53	59	57	74	73	70	69	78	72	84	79	80	78	82	80	84	80
20	71	66	62	58	52	49	53	52	59	56	74	72	71	70	73	72	85	80	81	80	83	81	84	81
21	70	66	61	57	53	49	52	52	56	51	74	70	72	71	73	72	85	81	82	80	85	81	83	81
22	68	66	60	58	54	51	52	51	51	50	70	65	74	72	74	72	85	80	82	80	85	83	82	80
23	68	66	60	56	54	51	51	50	50	49	66	62	73	73	74	74	85	81	80	79	86	83	81	79
24	71	67	60	56	54	53	50	49	52	50	68	64	75	73	76	74	86	81	80	79	85	84	82	79
25	73	68	58	54	56	52	50	49	53	52	70	66	75	73	77	76	86	81	81	80	86	82	84	81
26	75	70	58	54	57	54	50	49	57	53	68	60	75	74	79	77	85	82	82	80	85	83	82	80
27	74	72	62	58	60	56	51	50	59	57	60	57	75	73	81	79	86	82	81	81	85	81	82	80
28	72	69	66	61	64	60	50	49	62	59	61	57	76	73	81	79	84	82	82	80	81	79	83	80
29	70	66	63	59	62	56	50	49	--	--	61	57	78	74	81	80	83	79	82	80	81	79	82	81
30	66	61	60	56	56	52	50	49	--	--	64	58	79	75	81	78	83	81	82	80	81	79	82	79
31	63	56	--	--	55	53	52	50	--	--	65	61	--	--	82	78	--	--	81	79	81	79	--	--
Average	75	72	62	58	58	55	56	54	56	54	69	66	71	69	79	76	83	79	82	80	81	79	82	79

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 northeast of Lake Charles.
RECORDS AVAILABLE.--Chemical analyses: October 1951 to September 1955.
Water temperatures: October 1951 to September 1955.
EXTREMES, 1954-55.--Specific conductance: Top samples - Maximum daily, 18,800 micromhos Oct. 7; minimum daily, 20.7 micromhos May 24. Bottom samplee - Maximum daily, 35,400 micromhos Oct. 2,3; minimum daily, 25.5 micromhos Aug. 8, 9.
Water temperatures: Maximum, 85°F July 12, Aug. 24; minimum, 46°F Feb. 12.
EXTREMES, 1951-55.--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, 88°F June 22, 25, July 9-10, 1953, July 1, 1954; minimum, 43°F Dec. 24, 1953.

Specific conductance (micromhos at 25°C) and chloride, in parts per million, water year October 1954 to September 1955

Day	October				November				December			
	Conductance		Chloride		Conductance		Chloride		Conductance		Chloride	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
1	14,300	34,700	--	--	9,970	34,000	--	--	8,810	34,800	--	--
2	13,200	35,400	--	--	9,470	33,700	--	--	8,240	34,100	--	--
3	15,400	35,400	--	--	9,340	33,900	--	--	7,790	32,400	2,450	12,600
4	15,000	35,300	--	--	9,910	34,600	--	--	7,840	34,400	2,520	13,500
5	16,400	34,600	--	--	11,700	30,800	3,940	11,800	9,500	34,900	--	--
6	17,100	34,700	--	--	11,100	--	--	--	8,900	33,800	--	--
7	18,800	34,400	6,710	13,500	10,200	34,000	--	--	10,400	34,500	--	--
8	15,000	32,700	5,080	12,600	9,310	33,700	--	--	11,300	34,600	--	--
9	15,100	34,500	--	--	8,730	31,400	--	--	11,900	34,100	--	--
10	15,400	33,700	--	--	9,360	33,600	3,070	13,000	12,900	33,800	4,340	13,400
11	16,000	34,300	5,380	13,300	9,230	33,600	--	--	13,200	34,100	--	--
12	17,500	34,100	--	--	9,880	33,200	3,250	12,800	14,400	32,700	--	--
13	15,100	33,700	--	--	11,400	34,400	--	--	13,300	32,700	--	--
14	15,200	33,800	--	--	13,500	34,100	--	--	11,800	33,600	--	--
15	14,500	31,300	--	--	14,400	35,200	--	--	9,820	31,100	--	--
16	12,800	31,600	--	--	12,700	34,200	4,240	13,400	8,830	33,600	--	--
17	11,400	29,900	--	--	10,800	34,500	--	--	9,650	33,400	3,150	13,000
18	9,910	32,800	--	--	9,480	34,700	3,050	13,600	7,690	30,600	2,400	11,800
19	8,440	33,100	2,810	12,400	8,190	33,900	--	--	6,770	32,700	2,100	12,700
20	--	--	--	--	6,210	34,300	1,900	13,600	--	--	--	--
21	7,260	33,200	--	--	6,800	34,300	--	--	7,470	33,100	--	--
22	6,420	33,100	--	--	7,290	34,300	--	--	7,270	32,800	--	--
23	6,680	33,100	--	--	7,130	34,300	--	--	7,150	30,200	--	--
24	7,830	32,900	--	--	7,120	34,700	--	--	6,880	30,800	2,210	12,200
25	7,560	30,700	2,420	11,700	8,600	34,000	2,800	13,200	7,150	32,500	--	--
26	7,680	34,100	--	--	7,910	34,300	2,520	13,400	6,810	32,900	--	--
27	8,520	34,000	--	--	8,150	34,000	--	--	7,030	33,500	--	--
28	8,540	33,700	--	--	8,490	34,300	--	--	7,140	30,400	--	--
29	9,120	33,700	--	--	9,130	33,700	--	--	7,400	29,500	--	--
30	9,830	33,700	--	--	9,130	34,400	--	--	7,500	29,700	2,450	11,600
31	9,970	34,000	3,270	13,000	--	--	--	--	7,350	30,800	--	--

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 1954 to September 1955--Continued

Day	January				February				March			
	Conductance		Chloride		Conductance		Chloride		Conductance		Chloride	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
1	7,210	30,800	--	--	812	22,000	--	--	55.9	60.0	9.2	10
2	6,230	33,300	1,980	13,400	765	25,400	--	--	63.5	64.2	--	--
3	6,500	30,500	--	--	684	24,800	--	--	68.3	70.7	--	--
4	6,520	33,600	--	--	1,070	27,500	298	11,000	77.1	78.1	--	--
5	7,020	32,000	--	--	2,080	24,000	612	--	64.8	66.2	--	--
6	7,280	32,600	--	--	1,340	2,180	--	632	65.3	69.7	--	--
7	7,790	30,300	--	--	127	--	30	--	72.1	72.2	--	--
8	7,280	30,300	--	--	60.7	--	14	--	78.2	88.4	14	17
9	7,830	32,800	2,550	13,200	34.6	--	--	--	82.2	82.9	--	--
10	7,560	30,800	--	--	31.1	--	5.0	--	90.4	93.7	--	--
11	8,290	24,700	--	--	29.7	--	4.8	--	96.2	96.2	--	--
12	5,830	23,900	--	--	33.3	--	--	--	104	105	--	--
13	3,350	20,900	--	--	39.3	--	--	--	106	113	20	22
14	2,410	24,100	--	--	33.6	--	--	--	113	117	--	--
15	1,690	27,500	472	10,600	35.3	--	--	--	124	131	--	--
16	2,020	17,700	588	6,320	67.3	--	12	--	130	132	--	--
17	2,060	5,000	--	--	41.6	50.0	6.2	7.0	134	134	--	--
18	986	1,550	273	435	44.2	45.8	--	--	150	150	--	--
19	1,180	1,510	--	--	48.9	46.5	--	--	155	165	32	34
20	292	341	75	88	53.4	64.4	8.2	10	162	169	--	--
21	207	225	--	--	70.0	73.6	--	--	178	179	--	--
22	153	211	35	51	74.4	82.8	14	14	170	170	--	--
23	122	140	--	--	70.4	73.2	--	--	180	182	--	--
24	127	137	--	--	60.1	64.4	--	--	191	192	--	--
25	118	128	27	29	56.1	59.1	--	--	202	205	45	45
26	123	121	--	--	55.0	57.1	--	--	169	169	--	--
27	138	140	--	--	55.7	62.4	--	--	166	169	--	--
28	130	139	--	30	55.6	57.2	--	--	183	185	--	--
29	266	4,700	68	1,500	--	--	--	--	177	177	--	--
30	406	16,400	--	--	--	--	--	--	179	180	--	--
31	551	25,200	148	9,700	--	--	--	--	186	191	39	40

Day	April				May				June			
1	275	7,290	63	2,300	74.0	80.0	--	--	57.7	58.4	--	--
2	473	6,500	--	--	92.2	99.4	--	--	65.8	66.7	11	10
3	385	7,210	--	--	105	106	--	--	71.4	72.3	--	--
4	930	16,100	250	5,530	104	106	--	--	75.6	76.6	--	--
5	991	15,800	--	--	111	116	22	22	81.0	81.5	--	--
6	743	16,400	--	--	118	119	--	--	85.5	87.9	--	--
7	634	9,940	--	--	123	125	--	--	90.3	90.6	--	--
8	638	8,230	--	--	125	127	--	--	95.3	95.6	--	--
9	907	6,970	--	--	133	136	--	--	97.0	99.7	--	--
10	889	6,440	235	1,970	141	142	30	30	103	106	20	20
11	670	896	169	232	144	149	--	--	104	103	--	--
12	88.9	97.1	--	--	156	160	34	34	103	102	--	--
13	68.5	69.6	12	12	156	160	--	--	110	117	--	--
14	51.3	55.7	--	--	153	161	--	--	112	121	20	23
15	43.4	--	--	--	165	166	--	--	121	121	--	--
16	40.7	--	--	--	173	184	--	--	107	107	--	--
17	38.4	--	--	--	210	216	--	--	97.5	97.8	--	--
18	37.0	--	5.5	--	400	669	102	179	103	109	--	--
19	37.0	--	--	--	681	1,200	180	332	93.9	93.9	--	--
20	38.3	--	--	--	982	2,160	268	620	90.3	90.9	--	--
21	37.2	37.3	4.5	5.0	79.4	100	16	22	90.3	150	16	31
22	37.3	38.6	--	--	41.5	--	--	--	127	177	--	--
23	38.9	39.4	--	--	27.6	--	--	--	352	1,270	88	350
24	41.7	41.9	--	--	20.7	--	3.0	--	342	9,190	--	--
25	47.0	48.0	--	--	26.9	--	--	--	722	14,300	193	4,830
26	48.9	49.3	--	--	27.3	--	--	--	834	14,400	--	--
27	54.8	54.8	--	--	31.1	--	--	--	1,440	17,300	402	5,920
28	59.8	60.9	--	--	34.0	--	--	--	1,620	16,600	--	--
29	66.9	70.0	--	--	37.5	39.0	--	--	1,990	15,600	--	--
30	71.1	74.5	12	12	47.4	48.2	--	--	1,550	15,000	--	--
31	--	--	--	--	--	50.3	--	--	--	--	--	--

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 1954 to September 1955--Continued

Day	July				August				September			
	Conductance		Chloride		Conductance		Chloride		Conductance.		Chloride	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
1	1,380	12,900	--	--	61.9	62.8	--	--	512	997	--	--
2	1,300	15,000	355	5,030	62.1	63.4	--	--	492	1,360	122	382
3	1,230	15,500	--	--	61.5	60.6	12	--	457	896	--	--
4	1,210	15,900	--	--	54.3	53.2	--	--	337	745	--	--
5	1,160	13,500	--	--	53.3	52.9	--	--	246	429	--	--
6	1,040	13,300	--	--	44.5	41.5	--	--	175	270	38	64
7	1,070	17,700	--	--	37.8	30.2	--	--	191	266	--	--
8	978	19,200	255	6,640	25.3	25.5	5.5	--	187	371	--	--
9	1,300	17,000	--	--	25.3	25.5	--	--	164	407	--	--
10	595	18,300	154	6,460	26.8	26.8	--	--	335	473	--	--
11	600	18,300	--	--	26.9	26.1	--	--	269	593	--	--
12	1,090	18,200	--	--	26.5	26.3	--	--	145	247	30	59
13	969	18,700	--	--	28.6	29.5	6.0	--	419	1,660	108	482
14	1,070	18,200	--	--	29.7	30.6	--	--	609	8,170	--	--
15	556	2,190	139	615	24.1	32.9	--	--	599	6,320	--	--
16	210	274	--	--	36.0	36.2	--	--	673	10,400	--	--
17	65.1	73.4	--	--	38.0	40.5	--	--	813	14,300	222	4,740
18	52.4	54.9	8.5	--	45.4	42.3	--	--	877	17,200	--	--
19	53.8	54.8	--	--	45.3	44.0	9.5	--	1,320	19,100	370	6,760
20	53.8	54.4	--	--	48.9	49.6	--	--	1,540	18,800	--	--
21	57.2	58.2	--	--	51.9	57.2	--	--	1,290	19,100	--	--
22	56.7	58.7	--	--	61.6	59.1	--	--	1,370	18,700	--	--
23	67.2	53.7	13	10	56.1	64.4	--	--	1,580	17,500	--	--
24	59.1	57.6	--	--	58.1	69.1	--	--	1,370	15,800	--	--
25	55.9	56.6	--	--	69.0	73.9	--	--	898	15,100	238	5,180
26	52.5	52.7	--	--	66.1	80.3	--	--	696	15,700	--	--
27	52.5	55.7	--	--	86.5	908	18	260	891	15,400	--	--
28	53.3	54.8	--	--	1,270	16,200	375	5,700	872	13,700	--	--
29	56.1	59.7	--	--	1,790	11,000	515	3,650	654	11,100	--	--
30	61.2	63.6	--	--	994	7,900	--	2,500	668	14,500	173	4,960
31	61.4	62.2	--	--	698	2,120	--	605	--	--	--	--

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, usually at 8 a.m.)

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

MISCELLANEOUS ANALYSES OF STREAMS IN CALCASIEU RIVER BASIN IN LOUISIANA

Chemical analyses, in parts per million, September 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH	Color
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate					
BUNDICK CREEK NEAR DE RIDDER																							
Sept. 3, 1954.....	11.0	22	0.01	2.4	0.9	7.2	1.4	22	1.2	5.8		0.2		a55	0.07		10	0	58	1.0	58.8	6.2	20
Sept. 20.....	15.8	22	.26	2.4	.9	7.2	1.2	20	1.7	6.0		.2		a56	.08		10	0	58	1.0	55.1	6.5	25
Oct. 20.....	13.2	22	.21	2.4	.6	6.1	1.3	16	2.5	5.5		.2		49	.07		8	0	57	.9	53.2	6.3	25
BECKWITH CREEK NEAR DE QUINCY																							
Sept. 28, 1955....	b223	6.2	0.26	1.1	0.8	2.8	1.0	6	1.2	5.0		0.5		22	0.03		6	1	45	0.5	33.2	5.7	70
HICKORY BRANCH NEAR KERNAN																							
Sept. 27, 1955....	b16	7.4	0.38	2.1	1.2	5.1	1.2	12	1.5	8.2		0.2		33	0.04		10	0	49	0.7	49.1	6.5	100

a Residue on evaporation at 180°C.
b Daily mean discharge.

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 1955.
Water temperatures: February 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 823 ppm Oct. 16-25; minimum, 119 ppm Oct. 31, Nov. 1-8, 12-15.
Hardness: Maximum, 94 ppm Oct. 16-25; minimum, 32 ppm Sept. 3-4, 7-13.
Specific conductance: Maximum daily, 1,850 micromhos Oct. 25; minimum daily, 154 micromhos Nov. 4.
Water temperatures: Maximum, 90°F July 7-11; minimum, 45°F Mar. 26-28.
EXTREMES, 1952-55.--Dissolved solids: Maximum, 823 ppm Oct. 16-25, 1954; 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 micromhos Oct. 25, 1954; minimum daily, 123 micromhos May 10-11, 1953.
Water temperatures: Maximum, 95°F July 7, 13, 1954; minimum, 45°F on several days during winter months.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-15, 1954...	27.3	12		22	7.1	174		121	7.9	252		0.8		a536	0.73	39.5	84	0	82	8.3	1,020	7.7
Oct. 16-25.....	80.0	7.8		24	8.4	262		69	20	415		1.0		823	1.12	178	94	38	86	12	1,510	7.8
Oct. 26-30.....	916	8.8		17	5.7	124		26	30	199		2.8		446	.61	1,100	66	44	80	6.6	787	6.8
Oct. 31, Nov. 1-8, 12-15	3,200	11		13	2.1	25		37	15	33		2.0		a119	.16	1,030	40	10	57	1.7	211	7.2
Nov. 9-11, 16-26..	2,057	13		14	3.4	54		28	24	84		1.2		231	.31	1,280	50	27	70	3.3	381	7.3
Nov. 27-30	408	16		18	4.8	77		31	29	124		3.0		294	.40	324	65	40	72	4.2	523	7.3
Dec. 1-10	250	20		25	5.2	122		28	38	202		2.0		461	.63	311	83	60	76	5.8	603	6.7
Dec. 11-12, 15-20, 25-31	802	18		18	4.5	81		17	36	133		1.5		326	.44	706	63	49	74	4.5	553	6.4
Dec. 13-14, 21-24.	841	16		20	4.9	105		16	37	175		.8		399	.54	906	70	57	77	5.5	686	6.4
Jan. 1-3, 8-11, 1955	527	20		17	7.1	97		18	43	158		1.2		388	.52	549	72	58	75	5.0	658	6.9
Jan. 4-7, 12-20...	992	18		15	6.8	84		16	41	136		1.2		342	.47	916	66	58	73	4.5	582	6.8
Jan. 21-31.....	1,398	17		16	6.2	71		18	44	112		1.2		304	.41	1,150	65	50	70	3.8	509	7.0
Feb. 1-8	2,168	16		13	4.5	53		15	28	87		1.0		236	.32	1,380	50	38	70	3.3	387	6.7
Feb. 9-19	3,193	14		15	4.0	36		31	29	53		2.5		a168	.23	1,450	55	30	58	2.1	302	7.0
Feb. 20-28	2,422	16		14	4.7	49		15	32	81		1.0		228	.31	1,490	54	42	66	2.9	375	6.7
Mar. 1-9.....	1,308	17		17	5.5	56		30	37	87		2.0		255	.35	901	65	40	65	3.0	426	7.3
Mar. 10-19.....	637	20		18	6.9	87		22	42	141		1.8		352	.48	605	73	55	72	4.4	608	7.1
Mar. 20-31.....	4,723	10		9.5	3.0	35		15	19	55		1.8		178	.24	2,270	38	24	68	2.5	263	7.0

a Sum of determined constituents.

Apr. 1-10, 1955...	3,339	15		15	4.4	46	35	31	67		1.0		229	.31	2,060	56	27	64	2.7	343	7.3
Apr. 11-20.....	4,845	15		12	3.9	35	23	26	52		1.0		187	.25	2,450	45	26	63	2.2	272	7.0
Apr. 21-29.....	4,053	16		14	4.1	31	43	21	44		1.5		187	.25	2,050	53	18	56	1.9	271	7.2
Apr. 30, May 1-10	626	22		18	6.5	68	36	31	111		2.0		302	.41	510	71	42	68	3.5	515	7.4
May 11-22.....	464	20		17	6.7	90	35	28	147		1.5		352	.48	441	71	42	73	4.6	607	7.1
May 23-27.....	2,618	12		9.1	3.0	31	19	17	48		1.5		157	.21	1,110	35	19	66	2.3	235	7.0
May 28-31.....	1,298	16		16	5.3	74	31	25	119		2.0		307	.42	1,080	61	36	72	4.1	511	7.1
June 1-7.....	558	22		17	5.2	49	47	24	75		2.8		238	.32	359	64	26	63	2.7	390	7.5
June 8-16.....	282	22		19	6.6	98	46	28	157		1.5		374	.51	285	75	38	74	4.9	650	7.5
June 17-23.....	258	19		17	5.2	72	48	20	112		1.8		290	.39	202	64	25	71	3.9	503	7.4
June 24-30.....	188	17		21	7.1	134	51	19	220		1.0		475	.65	241	81	39	78	6.5	858	7.3
July 1-10.....	93.2	18		18	5.6	98	59	16	153		1.0		340	.46	85.6	68	20	76	5.2	643	7.9
July 11-18.....	229	15		16	5.3	118	42	15	189		1.2		389	.53	241	62	28	80	6.5	730	7.1
July 19-31.....	377	15		13	4.5	74	32	18	117		1.2		274	.37	279	50	24	76	4.6	487	7.1
Aug. 1-13.....	452	13		14	3.4	75	28	16	121		1.8		274	.37	334	48	25	77	4.7	499	7.1
Aug. 14-16, 23-26.	235	14		20	7.0	181	38	21	298		1.8		580	.79	368	80	49	83	8.8	1,110	7.5
Aug. 17-22, 27-31.	214	16		13	4.9	73	39	19	112		1.2		264	.36	153	53	21	75	4.3	493	7.3
Sept. 1-2, 5-6....	1,028	13		14	3.8	192	27	20	145		2.0		332	.45	922	50	28	80	5.6	575	7.0
Sept. 3-4, 7-13...	670	14		8.9	2.4	37	27	13	53		2.5		a144	.20	260	32	10	72	2.8	254	7.3
Sept. 14-16, 26-30.	601	12		11	3.4	58	28	14	90		2.0		229	.31	372	41	18	75	3.9	380	7.1
Sept. 17-25.....	171	13		15	4.3	89	38	16	141		1.5		322	.44	149	55	24	78	5.2	571	7.4
Weighted average	1,291	14		14	4.1	51	29	26	79		1.6		226	0.31	788	52	28	68	3.1	370	--

a Sum of determined constituents.

SABINE RIVER BASIN--Continued

SABINE RIVER NEAR TATUM, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

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 1946, October 1947 to September 1955.
Water temperatures: October 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 318 ppm Dec. 21-22; minimum, 37 ppm Aug. 5-13.
Hardness: Maximum, 64 ppm Dec. 21, 22; minimum, 10 ppm May 22.
Specific conductance: Maximum daily, 612 micromhos Dec. 22; minimum daily, 50.4 micromhos Aug. 9.
Water temperatures: Maximum, 88°F July 11, 12, 24; minimum, 42°F Jan. 31, Feb. 13.
EXTREMES, 1945-46, 1947-55.--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 (1947-54): Maximum, 95°F Aug. 12, 1953; minimum, 34°F Jan. 28, 1948.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	333	21		7.7	2.8	33		47	6.2	40		1.0		142	0.19	128	30	0	70	2.6	223	6.9
Oct. 11-20.....	391	21		7.2	2.6	32		43	5.3	40		1.0		142	.19	150	28	0	71	2.6	222	7.2
Oct. 21-31.....	446	19		7.3	2.4	35		40	6.5	45		1.0		148	.20	178	28	0	73	2.9	231	7.1
Nov. 1-6.....	690	18		7.2	3.6	40		40	9.8	55		.8		158	.21	294	33	0	73	3.1	270	7.3
Nov. 7-12	2,910	13		11	4.3	84		28	20	129		2.0		294	.40	2,310	45	22	80	5.4	520	7.1
Nov. 13-20	4,220	11		10	3.5	22		32	17	31		1.2		a112	.15	1,276	40	14	55	1.5	197	7.0
Nov. 21-30.....	2,931	12		11	3.6	31		32	19	45		1.2		a139	.19	1,100	42	16	62	2.1	249	6.9
Dec. 1-10.....	1,452	16		14	2.6	43		28	22	66		1.2		206	.28	808	46	23	67	2.8	318	7.3
Dec. 11-20.....	1,278	17		13	2.6	43		27	19	66		1.5		194	.26	669	43	21	68	2.8	311	7.4
Dec. 21-22.....	2,940	19		19	4.0	80		32	30	128		1.0		318	.43	2,520	65	39	73	4.3	534	7.4
Dec. 23-31.....	2,070	14		10	2.6	43		18	18	68		1.5		191	.26	1,070	36	22	72	3.1	305	6.5
Jan. 1-7, 1955....	1,570	17		7.4	3.8	35		20	19	52		1.0		159	.22	674	34	18	69	2.6	261	7.0
Jan. 8-11	2,040	16		8.4	4.1	52		17	22	80		1.8		209	.28	1,150	38	24	75	3.7	351	7.0
Jan. 12-20, 22, 29-31	3,830	14		6.4	2.9	33		14	16	50		1.0		148	.20	1,530	28	16	72	2.7	232	6.6
Jan. 21, 23-28 ...	6,370	14		8.8	4.1	46		12	23	74		1.8		207	.28	3,560	39	29	72	3.2	334	6.5
Feb. 1-6, 16-23 27-28.....	8,300	11		6.6	3.1	30		14	21	42		1.5		148	.20	3,320	29	18	69	2.4	218	6.9
Feb. 7-11, 24-26 .	17,420	7.4		4.0	1.5	14		11	10	19		1.2		a62	.08	2,920	16	7	66	1.6	109	6.5
Feb. 12-15.....	16,420	9.0		5.0	1.8	18		10	14	26		1.0		a80	.11	3,550	20	12	67	1.8	144	6.8

a Sum of determined constituents.

SABINE RIVER BASIN--Continued

SABINE RIVER NEAR RULIFF, TEX.--Continued

Chemical analyaes, in parts per million, water year October 1954 to September 1955--Continued

Date of collectiou	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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Mar. 1-8, 1955..	8,260	14		9.2	2.9	24		15	21	36		1.8		a116	0.16	2,590	35	22	.60	1.8	201	6.7
Mar. 9-17.....	3,710	17		11	4.0	35		24	27	51		1.0		a158	.21	1,580	44	24	63	2.3	271	7.0
Mar. 18-26	3,330	19		13	3.9	37		30	24	56		1.5		a169	.23	1,520	49	24	62	2.3	292	7.1
Mar. 27-31, Apr. 1-12	10,520	10		8.8	2.2	22		18	16	33		1.8		a103	.14	2,930	31	16	61	1.7	188	6.7
Apr. 13-22.....	23,880	8.8		4.6	1.6	12		13	9.3	16		1.5		a60	.08	3,870	18	7	59	1.2	107	6.8
Apr. 23-30.....	13,610	13		7.8	2.6	23		24	17	29		2.2		a107	.15	3,930	30	10	62	1.8	178	6.5
May 1-10.....	5,980	15		12	3.7	26		36	18	36		1.2		156	.21	2,520	44	14	56	1.7	231	7.0
May 11-20, 23-25.	5,560	16		11	3.5	31		34	17	44		1.5		154	.21	2,310	42	14	61	2.1	247	6.7
May 22.....	9,600	--		--	--	--		7	--	10		--		--	--	--	10	4	--	--	59.1	6.7
May 21, 26-31....	9,630	9.0		5.6	1.9	20		17	9.6	29		1.0		a84	.11	2,180	22	8	67	1.9	151	6.6
June 1-6	9,080	12		6.6	2.3	16		21	12	22		1.5		a82	.11	2,010	26	9	58	1.4	145	6.8
June 7-14	3,430	17		9.2	3.2	24		28	13	36		1.2		139	.19	1,290	36	13	59	1.8	206	6.9
June 15-30	1,740	22		11	3.9	34		42	14	48		1.0		167	.23	785	44	10	63	2.2	268	7.3
July 1-10	1,450	18		10	3.7	35		40	13	49		1.0		162	.22	634	40	7	66	2.4	267	7.0
July 11-17	1,500	17		10	3.5	46		37	9.6	69		1.5		184	.25	745	40	10	71	3.1	316	7.4
July 18-23, 30-31.	3,090	9.0		4.2	1.8	17		20	5.9	22		.8		a71	.10	592	18	2	67	1.7	127	6.7
July 24-29	3,390	11		7.0	2.6	35		26	8.9	51		.8		a129	.18	1,180	28	6	73	2.9	238	6.7
Aug. 1-3.....	3,010	12		7.8	2.5	28		31	5.6	42		.8		a114	.16	926	30	4	67	2.2	206	7.5
Aug. 4, 14-20, 30-31	8,300	11		4.8	1.5	12		19	5.2	16		1.0		a60	.08	1,340	18	2	60	1.2	101	6.8
Aug. 5-13.....	22,280	6.2		3.2	.7	5.7	2.0	10	3.2	10		1.0		a37	.05	2,230	11	3	48	.8	57.2	6.5
Aug. 21-29.....	2,610	16		7.0	2.6	22		30	7.3	30		1.5		112	.15	789	28	4	63	1.8	168	6.9
Sept. 1-9	5,220	12		4.2	1.3	14		20	3.9	18		1.2		a65	.09	916	16	0	66	1.6	106	6.4
Sept. 10-11, 13-14, 21-22.....	2,180	18		8.2	2.6	34		35	7.7	48		.8		a136	.18	800	31	2	70	2.6	240	7.3
Sept. 12, 15-20...	2,120	15		11	3.3	52		30	12	82		1.5		208	.28	1,190	41	16	73	3.5	356	6.6
Sept. 23-30	2,350	14		5.6	1.4	20		22	5.5	28		1.5		a87	.12	552	20	2	69	2.0	141	6.7
Weighted average	5,574	11		6.9	2.3	22		19	13	32		1.4		104	0.14	1,570	26	11	64	1.9	174	--

a Sum of determined constituents.

SABINE RIVER BASIN--Continued

SABINE RIVER NEAR RULIFF, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually at 8 a.m./

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

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 September 1955.
Water temperatures: March 1952 to September 1954.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 917 ppm Nov. 18-22; minimum, 30 ppm Feb. 8-19.
Hardness: Maximum, 158 ppm Dec. 17-31; minimum, 8 ppm Nov. 15-17, Jan. 14-24.
Specific conductance: Maximum daily, 1,800 micromhos Nov. 23; minimum daily, 34.5 micromhos Sept. 15.
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.--Values reported for dissolved solids are sums of 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 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-4, 1954	a0.05	32		31	16	144		96	17	255		1.2		543	0.73	0.07	144	65	69	5.2	1,040	7.4
Oct. 5-11	.29	11		5.9	3.2	31		10	6.2	57		1.5		121	.16	.09	28	20	71	2.6	226	6.6
Oct. 12-22, 27-31	a.14	19		12	6.4	59		35	10	103		1.5		228	.31	.09	56	28	70	3.4	430	7.1
Oct. 23-26	1.03	10		2.7	1.0	14		10	4.4	19		1.2		57	.08	.16	11	3	73	1.8	83.8	6.4
Nov. 1-10	.18	8.8		8.7	4.2	54		14	6.0	98		1.0		188	.26	.09	39	28	75	3.8	367	6.7
Nov. 11-14	.10	9.4		12	4.6	62		14	8.4	113		3.8		220	.30	.06	48	37	74	3.9	423	7.0
Nov. 15-17	10.3	2.6		1.9	.8	9.6	1.4	6	3.0	16		1.0		39	.05	1.08	8	3	68	1.5	72.0	6.2
Nov. 18-22	1.06	6.4		33	12	304		9	4.7	552		1.0		917	1.25	2.62	132	124	83	11	1,780	6.3
Nov. 23-30	.11	12		35	15	288		26	8.1	528		1.2		900	1.22	.27	149	128	81	10	1,730	7.2
Dec. 1-8	.11	20		36	16	240		60	15	435		.8		793	1.08	.24	156	107	77	8.4	1,510	7.7
Dec. 9-16	.11	19		33	15	204		58	15	372		.2		687	.93	.20	144	96	75	7.4	1,320	7.3
Dec. 17-31	.17	13		37	16	268		28	9.0	502		.2		859	1.17	.39	158	136	79	9.2	1,660	7.2
Jan. 1-6, 1955	.28	5.2		37	15	286		8	4.9	542		.8		895	1.22	.68	154	148	80	10	1,770	6.1
Jan. 7-13	36.4	4.8		3.7	1.9	36		7	4.4	60		1.2		115	.16	11.3	17	11	82	3.8	235	6.0
Jan. 14-24	164	5.3		1.1	1.3	6.5	1.4	8	5.6	8.2		.5		34	.05	15.1	8	1	59	1.0	63.1	6.5
Jan. 25-31	46	8.3		2.2	1.6	8.9	1.4	9	8.5	12		.8		48	.07	5.96	12	5	58	1.1	82.8	6.6
Feb. 1-7	284	6.1		2.4	1.7	6.4	.9	b0	15	12		.5		c99	.13	75.9	13	13	43	.8	65.9	4.1
Feb. 8-19	385	5.6		2.2	1.2	4.7	.7	7	3.6	8.0		.8		30	.04	31.2	10	5	47	.6	49.1	6.3
Feb. 20-28	176	6.6		2.4	1.3	5.4	.7	8	3.1	9.5		.8		34	.05	16.2	11	5	49	.7	54.3	6.1
Mar. 1-15	24.5	9.5		2.7	1.3	6.1	1.2	8	2.3	12		1.2		40	.05	2.65	12	6	49	.8	63.1	6.5
Mar. 16-31, Apr. 1-8	.52	15		12	4.5	42		32	6.9	75		1.8		173	.24	.24	49	23	65	2.6	319	7.3
Apr. 9-25	447	8.6		3.2	1.7	10		10	1.9	18		2.2		51	.07	61.5	15	7	60	1.2	88.4	6.5
Apr. 26-30	3.52	16		14	6.8	56		41	7.6	100		2.0		222	.30	2.11	62	28	66	3.1	419	7.3

a Includes days of less than 0.05 second-foot flow.
b Free acid as H_2SO_4, 4 parts per million.
c Residue on evaporation at 180°C.

June 10-25, 1955 ..	6.14	7.2		8.4	3.9	58		20	4.4	100		1.2		193	.26	3.20	37	21	77	4.1	383	6.4
June 26-30, July 1-6	.39	7.2		9.0	3.8	58		20	4.2	101		1.2		194	.26	.20	38	22	77	4.1	393	6.5
July 7-17	.25	17		19	8.9	92		55	9.9	160		1.2		335	.46	.23	83	38	71	4.4	645	7.2
July 18-31, Aug. 1-2	.83	8.8		59	2.0	37		16	7.2	58		1.0		128	.17	.28	23	10	78	3.3	236	7.2
Aug. 3-9	71.4	5.6		2.7	1.5	15		10	2.6	24		1.2		58	.08	11.2	13	5	72	1.8	103	6.6
Aug. 10-15.....	19.5	7.8		2.9	1.4	5.9	1.5	10	2.8	10		1.5		39	.05	2.05	13	5	46	.7	59.9	6.6
Aug. 16-27.....	.98	9.6		7.7	3.1	39		17	4.2	70		1.0		143	.19	.38	32	18	73	3.0	273	6.6
Aug. 28-31.....	.52	5.0		3.8	1.6	31		8	2.2	52		1.0		101	.14	.14	16	9	81	3.4	188	6.3
Sept. 1-15	116	7.3		3.0	1.1	5.5	1.6	11	1.9	9.2		1.5		36	.05	11.3	12	3	46	.7	53.8	6.1
Sept. 16-28	1.99	5.6		11	3.2	91		11	2.4	161		1.0		280	.38	1.50	41	32	83	6.2	567	6.3
Sept. 29-30	.45	6.1		4.4	1.2	25		15	2.8	38		1.5		86	.12	.10	16	4	77	2.7	158	6.5
Weighted average	d66.0	7.0		2.7	1.5	9.2		8	4.1	15		1.3		50	0.07	8.91	13	6	61	1.1	76.3	--

d Represents 96 percent of flow for water year October 1954 to September 1955.

NECHES RIVER BASIN

ANGELINA RIVER NEAR LUFKIN, TEX.

LOCATION.--At gaging station at bridge on U. S. Highway 59, 400 feet upstream from Procella Creek, half a mile downstream from Little Loco Bayou, 1.5 miles upstream from Texas and New Orleans Railroad bridge, and 8 miles north of Lufkin, Angelina County.
DRAINAGE AREA.--1,630 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955.
Water temperatures: October 1954 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 412 ppm Nov. 4-18, 26-30; minimum, 53 ppm May 24-29.
Hardness: Maximum, 76 ppm Nov. 4-18, 26-30; minimum, 18 ppm May 24-29.
Specific conductance: Maximum daily, 895 micromhos Nov. 10; minimum daily, 51.4 micromhos May 25.
Water temperatures: Maximum, 86°F Oct. 11; minimum, 40°F Jan. 24.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	4.68	11	0.03	10	6.2	51		52	13	74		1.0		206	0.28	2.60	50	8	69	3.1	368	7.1
Oct. 11-23	4.28	10	.06	9.4	6.1	51		50	13	74		1.2		203	.28	2.35	49	8	70	3.2	358	7.1
Oct. 24 31	36.6	9.8	.16	7.2	4.6	37		39	12	51		1.0		159	.22	15.7	37	5	69	2.6	264	7.1
Nov. 1-3	130	13	--	7.0	4.0	22		20	34	21		1.2		130	.18	45.6	34	18	59	1.7	184	7.2
Nov. 4-18, 26-30	259	18	--	18	7.5	109		4	52	180		.5		412	.56	288	76	72	76	5.4	710	5.5
Nov. 19-22	266	17	--	14	5.9	81		4	49	127		.8		316	.43	227	59	56	75	4.6	316	5.6
Nov. 23-25	316	16	--	10	4.6	62		5	36	98		.2		251	.34	214	45	41	75	4.0	416	6.1
Dec. 1-10	137	18	.04	15	4.4	79		4	42	128		.8		a289	.39	107	56	53	75	4.6	534	6.0
Dec. 11-18	228	18	.06	15	4.4	79		6	35	132		.2		314	.43	193	56	51	75	4.6	534	6.2
Dec. 19-31	733	14	.12	9.3	3.1	44		5	29	69		.5		a171	.23	338	36	32	73	3.2	312	6.1
Jan. 1-10, 1955	395	18	.08	11	5.0	60		7	31	100		.8		255	.35	272	49	43	73	3.7	430	6.4
Jan. 11-20	509	17	.06	9.8	5.2	62		8	31	100		.5		252	.34	346	46	39	74	4.0	425	6.5
Jan. 21-31	1,265	14	.09	4.9	4.8	36		5	25	57		.5		160	.22	546	32	28	71	2.8	264	6.1
Feb. 1-6	1,081	14	.04	8.1	4.1	34		6	30	53		.5		169	.23	493	37	32	67	2.4	270	6.0
Feb. 7-14	1,514	13	.12	4.3	3.2	23		5	22	32		1.2		111	.15	454	24	20	67	2.0	161	6.0
Feb. 15-28	1,706	12	.04	7.1	3.7	27		6	26	42		.8		130	.18	599	33	28	64	2.0	211	6.3
Mar. 1-10	1,501	12	.09	8.8	4.9	32		8	33	49		.8		161	.22	652	42	35	62	2.1	263	6.6
Mar. 11-21	629	15	.19	12	5.7	46		14	36	74		.8		218	.30	370	54	43	65	2.7	360	6.6
Mar. 22-31	1,327	14	.41	8.0	4.4	29		12	26	45		.8		160	.22	573	38	28	62	1.3	239	6.7

a Sum of determined constituents.

Apr. 1-12, 22, 1955	1,705	16	.17	7.4	4.5	30	14	24	46		1.0		162	.22	746	37	26	64	2.1	243	7.2
Apr. 13-21	2,314	16	.31	4.6	3.3	14	16	15	18		1.0		a 80	.11	500	25	12	54	1.2	127	6.9
Apr. 23-29	2,894	17	.58	6.8	3.9	18	25	13	26		1.5		a 99	.13	774	33	12	54	1.4	171	6.9
Apr. 30, May 1-10	602	19	.36	11	5.7	37	28	20	61		1.5		195	.27	317	50	27	62	2.3	309	6.6
May 11-20	290	20	.17	10	5.1	43	22	18	72		3.0		207	.28	162	47	29	67	2.7	332	6.5
May 24-29	2,843	14	.44	3.1	2.5	7.2	16	9.3	6.8		1.5		a 53	.07	407	18	5	46	.7	80.2	6.3
May 21-23, 30-31, June 1-4	1,849	16	.43	6.4	3.4	17	19	12	27		1.2		a 92	.13	459	30	14	55	1.4	155	6.6
June 5-10	793	18	.29	9.7	4.8	38	27	15	62		1.2		185	.25	396	44	22	65	2.5	288	6.5
June 11-20	310	20	.38	11	5.0	49	29	14	81		1.2		218	.30	182	48	24	69	3.0	351	6.9
June 21-30	199	20	.35	11	4.6	49	29	13	81		1.2		217	.30	117	46	22	70	3.1	349	6.9
July 1-10	83.8	21	.48	8.5	4.8	36	37	12	53		1.5		187	.25	42.3	41	11	65	2.4	276	7.3
July 11-20	47	21	.38	9.8	5.5	44	38	12	69		1.5		207	.28	26.3	47	16	67	2.8	333	7.1
July 21-31	456	15	.14	9.7	4.8	53	14	21	88		1.0		232	.32	286	44	33	72	3.4	380	6.7
Aug. 1-9	243	17	.16	12	5.1	74	15	20	126		.5		298	.41	196	51	39	76	4.5	491	6.4
Aug. 10-16	478	14	.24	6.8	3.2	41	17	11	66		1.2		175	.24	226	30	16	75	3.3	289	6.8
Aug. 17-31	107	17	.29	9.9	4.7	59	28	13	96		1.0		234	.32	67.6	44	21	75	3.9	409	6.9
Sept. 1-10	97.5	16	.16	12	5.2	81	32	8.9	136		.5		287	.39	75.6	52	26	77	4.9	536	6.8
Sept. 11-20	49.8	17	.20	11	4.7	73	35	9.1	118		1.0		263	.36	35.4	47	18	77	4.6	476	7.1
Sept. 21-30	43.3	15	.20	12	4.8	77	30	10	129		.2		277	.38	32.4	50	25	77	4.7	503	6.8
Weighted average.	693	15	0.24	7.6	4.2	32	14	22	50		1.0		153	0.21	286	36	25	66	2.3	249	--

a Sum of determined constituents.

NECHES RIVER BASIN--Continued

ANGELINA RIVER NEAR LUFKIN, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, usually between 8 a.m. and 9 a.m.)

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

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.
DRAINAGE AREA.--7,908 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1955.
Water temperatures: October 1947 to September 1955. Thermograph installed October 1954.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 203 ppm Oct. 1-10; minimum, 62 ppm Apr. 13-19, 21-26.
Hardness: Maximum, 56 ppm Oct. 1-10; minimum, 21 ppm Feb. 6-18, 21-22, 24, Apr. 13-19, 21-26.
Specific conductance: Maximum daily, 408 micromhos Oct. 26; minimum daily, 83.3 micromhos Apr. 19.
Water temperatures: Maximum, 90°F July 12, minimum, 49°F Dec. 20, 21, Jan. 24-26, 30, Feb. 12, 13.
EXTREMES, 1947-55.--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 micromhos Nov. 29, 1952; minimum daily, 49.3 micromhos May 9, 1953.
Water temperatures: Maximum, 94°F June 29, 1953; minimum, 37°F Jan. 30, 31, 1948, Jan. 31, 1949.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. No temperature record from Oct. 16-22, Oct. 29 to Nov. 14 as the capilliary tube of thermograph was not completely submerged. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 160°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	191	26		14	5.2	46		86	9.7	52	0.4	2.8		203	0.28	105	56	0	64	2.7	330	7.6
Oct. 11-20	157	26		13	4.5	40		81	7.2	43	.3	2.8		196	.27	83.1	51	0	63	2.4	300	7.5
Oct. 21-31	161	24		13	4.5	39		75	7.6	45	.3	2.0		196	.27	85.2	51	0	62	2.4	290	7.6
Nov. 1-10	101	25		12	3.6	32		71	7.1	32	.3	2.2		152	.21	41.5	45	0	60	2.0	236	7.6
Nov. 11-20	196	22		11	2.8	26		54	9.4	28	.2	2.5		138	.19	73.0	39	0	59	1.8	205	7.5
Nov. 21-30	542	16		11	2.8	42		47	19	49	.3	2.2		194	.26	284	39	0	70	2.9	287	7.5
Dec. 1-10	445	17		12	2.2	35		32	25	43	.6	1.5		a152	.21	183	39	13	66	2.4	264	7.2
Dec. 11-20	610	16		12	2.2	29		26	25	37	.6	1.0		a136	.18	224	39	18	62	2.0	229	7.2
Dec. 21-31	1,604	18		10	2.2	31		21	28	38	.7	.8		a139	.19	602	35	18	66	2.3	229	7.0
Jan. 1-10, 1955	1,788	16		7.0	4.0	37		20	29	46	.5	.8		165	.22	788	34	18	70	2.7	258	6.8
Jan. 11-20	2,142	17		6.4	3.9	35		16	24	48	.5	.8		160	.22	925	32	19	70	2.7	247	6.9
Jan. 21-31	3,406	16		7.0	3.5	32		17	23	44	.5	1.0		154	.21	1,420	32	18	69	2.5	236	6.8
Feb. 1-5	3,520	16		11	2.8	27		18	24	40	.5	1.0		162	.22	1,540	40	26	59	1.8	230	6.7
Feb. 6-18, 21-22, 24	11,480	11		5.8	1.6	14		10	14	19	.4	.8		a72	.10	2,230	21	13	59	1.3	116	6.3
Feb. 19-20, 23, 25-28	7,154	13		6.8	2.7	18		13	20	24	.5	.8		a92	.13	1,780	28	18	59	1.5	155	6.6
Mar. 1-10	5,029	15		7.8	3.3	25		14	26	33	.4	1.0		123	.17	1,670	33	22	62	1.9	202	7.0
Mar. 11-20	3,528	15		9.0	3.7	26		16	28	36	.4	1.2		131	.18	1,250	38	24	61	1.9	220	7.0
Mar. 21-31	3,873	13		11	4.0	28		21	29	40	.2	1.0		161	.22	1,680	44	27	58	1.8	235	7.3

a Sum of determined constituents.

NECHES RIVER BASIN--Continued

NECHES RIVER AT EVADALE, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-12, 1955...	5,424	11		9.8	3.7	24		26	24	31	0.4	0.8		a118	0.16	1,730	40	18	57	1.7	208	7.1
Apr. 13-19, 21-26.	1,903	8.6		5.0	2.0	12		16	11	14	.5	.5		a62	.08	319	21	8	55	1.1	101	6.8
Apr. 20, 27-30....	10,500	12		10	2.8	19		40	16	18	1.0	1.0		100	.14	2,840	36	4	54	1.4	158	6.9
May 1-10	4,656	15		9.6	3.6	23		32	17	30	.2	1.8		144	.20	1,810	39	13	56	1.6	194	6.8
May 11-20	1,751	14		12	3.7	22		38	15	30	.3	2.0		144	.20	681	44	13	52	1.4	203	7.5
May 21-31	3,475	10		11	4.0	24		41	16	32	.2	1.5		140	.19	1,310	45	12	53	1.5	210	7.0
June 1-10.....	5,746	15		8.4	3.4	19		27	17	24	.4	1.2		a101	.14	1,570	35	13	54	1.4	171	7.0
June 11-20.....	2,324	16		8.2	3.3	18		26	15	24	.4	1.0		a99	.13	621	34	12	53	1.3	169	7.0
June 21-30.....	997	16		11	3.8	20		36	15	28	.4	.8		a113	.15	304	42	12	51	1.4	193	7.2
July 1-10	1,324	17		10	4.0	26		38	15	35	.3	1.5		136	.18	486	42	11	57	1.7	207	7.0
July 11-20	865	18		12	4.1	26		44	14	36	.3	1.5		140	.19	327	46	10	56	1.7	219	7.0
July 21-31	441	19		12	4.3	27		50	12	37	.3	1.2		139	.19	166	48	7	55	1.7	227	7.1
Aug. 1-10.....	757	17		11	3.3	26		41	13	34	.3	1.8		143	.19	292	40	6	59	1.8	203	7.7
Aug. 11-20.....	1,699	16		11	3.6	30		45	11	41	.3	1.0		159	.22	729	43	6	60	2.0	238	7.6
Aug. 21-31.....	1,852	14		10	3.3	31		39	13	41	.3	1.8		159	.22	795	39	7	63	2.1	239	7.6
Sept. 1-9	982	14		9.6	2.4	24		36	10	32	.4	1.2		131	.18	347	34	4	61	1.8	194	7.0
Sept. 10-20	655	15		11	3.4	32		44	13	42	.4	1.0		152	.21	269	41	5	63	2.2	242	7.6
Sept. 21-30	614	16		10	3.0	32		43	11	42	.3	.8		151	.21	250	38	3	64	2.2	235	7.1
Weighted average.	3,149	13		7.8	2.8	21		22	17	27	0.4	1.0		107	0.15	910	31	13	59	1.6	169	--

a Sum of determined constituents.

NECHES RIVER AT EVADALE, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/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	min
1	86	82	--	--	61	59	55	54	53	51	62	60	61	59	79	77	80	79	85	85	89	86	81	80
2	88	82	--	--	62	61	57	55	53	52	62	62	61	60	80	78	80	79	85	85	88	86	83	80
3	88	82	--	--	63	61	57	57	54	54	63	62	63	61	79	78	80	80	85	84	86	83	83	80
4	87	82	--	--	64	62	58	58	55	54	65	63	64	62	78	77	80	80	84	83	83	82	83	81
5	86	83	--	--	65	63	60	59	55	55	65	64	66	64	79	78	80	80	84	82	83	82	82	81
6	86	81	--	--	63	60	60	60	55	54	65	65	67	66	79	78	80	79	86	84	84	82	82	80
7	84	82	--	--	60	57	60	59	54	53	65	63	67	66	79	78	81	80	88	86	86	83	83	80
8	85	79	--	--	60	58	58	57	54	52	63	62	67	66	79	78	81	81	88	86	88	85	85	82
9	85	80	--	--	60	58	57	57	54	53	63	63	66	64	80	78	82	81	88	87	88	85	85	84
10	83	81	--	--	58	55	57	57	56	54	65	63	64	64	80	78	82	79	88	86	85	83	85	84
11	82	80	--	--	58	57	57	56	56	51	67	65	64	63	80	79	79	78	88	87	88	84	86	83
12	84	80	--	--	58	56	56	56	50	49	70	67	64	63	79	79	79	77	90	87	88	86	84	82
13	84	80	--	--	56	55	56	55	50	49	70	69	65	64	80	78	80	78	89	88	88	87	83	81
14	86	81	--	--	55	52	55	54	52	50	71	69	66	65	81	80	82	80	88	85	87	86	83	81
15	78	74	66	64	54	52	55	55	53	52	72	71	67	65	82	81	82	81	85	83	87	86	83	81
16	--	--	65	64	54	51	55	55	54	53	72	72	67	66	82	81	82	82	84	82	87	86	84	82
17	--	--	66	63	54	52	55	54	55	54	72	71	68	67	81	80	82	80	84	83	87	85	85	82
18	--	--	67	64	53	50	54	54	56	55	72	72	70	68	81	80	82	80	84	83	87	86	86	82
19	--	--	65	62	53	50	54	53	57	56	72	72	70	70	79	78	83	81	84	82	87	86	85	82
20	--	--	63	60	52	49	52	51	57	54	72	72	71	70	79	77	85	82	85	82	86	85	85	83
21	--	--	62	59	52	49	52	51	54	52	73	71	73	71	79	78	86	83	87	84	86	85	85	83
22	--	--	62	60	54	51	52	50	51	50	71	68	74	73	80	78	87	83	87	85	88	86	85	83
23	67	66	60	58	53	52	50	50	51	50	67	65	74	73	80	79	87	84	86	84	89	87	83	82
24	67	66	59	57	53	53	50	49	53	51	67	65	74	73	81	80	87	84	85	83	88	87	83	82
25	71	67	58	55	53	53	50	49	54	53	68	66	74	73	82	81	87	85	86	83	89	87	84	82
26	75	71	58	55	55	53	50	49	56	54	66	61	75	74	82	80	88	86	88	84	88	87	85	82
27	74	72	59	57	58	55	51	50	58	56	61	59	76	74	81	80	88	86	88	86	87	87	84	83
28	72	69	62	59	58	58	51	51	60	58	59	57	77	75	82	81	88	87	87	84	87	84	84	82
29	--	--	61	59	58	56	51	50	--	--	58	56	78	76	82	80	87	86	88	84	84	83	85	82
30	--	--	59	58	56	54	50	49	--	--	58	56	78	77	80	79	86	85	88	86	82	82	85	82
31	--	--	--	--	54	54	51	50	--	--	59	58	--	--	80	79	--	--	89	85	82	81	--	--
Average	--	--	--	--	57	55	54	54	54	53	66	65	69	68	80	79	83	82	86	84	86	85	84	82

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TRINITY RIVER BASIN

CLEAR FORK TRINITY RIVER AT FORT WORTH, TEX.

LOCATION.--Temperature recorder at gaging station, at bridge on Vickery Boulevard, Fort Worth, Tarrant County, 100 feet upstream from East-West Expressway bridge, 310 feet downstream from Texas and Pacific Railway bridge, 3 miles upstream from mouth, 5 miles downstream from Marys Creek, and 10 miles downstream from Benbrook Dam.
DRAINAGE AREA.--526 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1948 to September 1952.
Water temperatures: October 1948 to September 1953, October 1954 to September 1955.
EXTREMES, 1954-55: Water temperatures: Maximum, 93°F Sept. 10; minimum, 42°F Feb. 14.
EXTREMES, 1948-53, 1954-55.--Maximum, 97°F Aug. 6, 1952; minimum, freezing point on several days in January 1949.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Temperature (°F) of water, water year October 1954 to September 1955
/No flow on most days of no reading/

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	77	76	--	--	--	--	51	47	52	49	62	59	56	54	--	--	--	--	--	--	--	--	--	--
2	80	76	--	--	--	--	50	47	51	49	62	59	60	54	--	--	--	--	88	85	--	--	--	--
3	80	78	57	55	--	--	53	50	50	49	65	61	61	58	--	--	--	--	88	85	--	--	--	--
4	80	78	56	54	--	--	--	--	49	49	68	65	71	61	--	--	78	73	88	85	--	--	--	--
5	--	--	56	53	--	--	61	55	48	47	69	65	72	66	79	73	78	76	--	--	--	--	--	--
6	--	--	56	53	--	--	57	53	52	48	65	59	71	61	78	75	82	75	--	--	--	--	--	--
7	--	--	--	--	--	--	--	--	50	47	61	56	62	59	--	--	79	77	--	--	--	--	--	--
8	--	--	--	--	--	--	50	50	50	46	58	56	63	58	--	--	78	76	--	--	--	--	--	--
9	--	--	--	--	--	--	50	48	50	49	62	59	62	59	--	--	75	71	--	--	89	83	--	--
10	--	--	--	--	--	--	48	47	50	47	66	62	62	59	76	74	--	--	--	--	87	85	93	71
11	--	--	--	--	53	51	47	46	47	44	--	--	64	60	75	72	75	69	--	--	85	83	82	76
12	80	76	--	--	51	50	48	47	47	44	72	68	65	63	71	68	77	70	--	--	86	81	--	--
13	80	77	--	--	50	47	46	45	48	45	70	64	63	62	77	69	78	73	--	--	85	81	--	--
14	--	--	61	60	50	47	46	45	50	42	70	66	70	60	79	74	81	75	--	--	--	--	--	--
15	--	--	60	60	49	47	48	46	52	49	73	70	69	65	79	75	83	78	--	--	84	78	--	--
16	--	--	60	58	51	48	49	48	57	52	71	65	70	67	77	72	80	76	80	77	84	78	--	--
17	--	--	--	--	49	47	50	48	57	53	65	62	73	71	77	71	80	76	80	77	84	78	81	78
18	--	--	--	--	49	48	50	47	56	55	64	60	75	71	74	71	80	71	79	75	82	78	82	78
19	--	--	--	--	50	46	46	45	56	49	61	59	73	72	71	69	78	77	79	76	--	--	--	--
20	--	--	--	--	50	46	45	45	49	47	62	59	73	71	71	70	80	77	79	76	--	--	--	--
21	--	--	--	--	51	47	47	44	47	46	62	55	80	71	72	70	85	78	82	76	--	--	--	--
22	--	--	--	--	--	--	46	43	49	45	55	52	78	75	75	70	85	80	86	77	--	--	--	--
23	--	--	--	--	49	47	45	43	47	45	57	53	78	76	77	72	85	80	--	--	86	82	80	79
24	--	--	--	--	50	47	47	43	50	45	61	55	78	74	82	76	85	80	--	--	87	82	78	77
25	--	--	--	--	51	50	47	44	50	48	60	51	75	72	82	78	86	81	--	--	87	83	79	76
26	72	70	--	--	53	51	48	45	52	50	50	48	--	--	81	77	--	--	--	--	--	--	80	77
27	69	64	--	--	57	53	48	46	55	52	52	46	--	--	81	78	--	--	--	--	--	--	82	77
28	66	63	--	--	57	50	48	45	59	55	52	47	--	--	83	79	--	--	--	--	--	--	82	80
29	64	58	--	--	49	47	47	44	--	--	50	48	--	--	83	76	--	--	--	--	--	--	82	80
30	63	56	--	--	47	46	47	44	--	--	54	49	--	--	79	75	--	--	--	--	--	--	83	80
31	61	55	--	--	47	46	49	47	--	--	57	53	--	--	--	--	--	--	--	--	83	80	--	--
Average	--	--	--	--	--	--	49	46	51	47	62	57	70	66	--	--	--	--	--	--	--	--	--	--

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 Trinity River, and at mile 451.
DRAINAGE AREA.--8,162 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1954 to September 1955.
Water temperatures: October 1954 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,020 ppm Dec. 11-20, 21-31; minimum, 320 ppm Apr. 12-15.
Hardness: Maximum, 198 ppm Oct. 1-2, 4-5, 10; minimum, 120 ppm Sept. 20-21, 26-27, 29.
Specific conductance: Maximum daily, 1,980 micromhos Dec. 26; minimum daily, 385 micromhos May 21.
Water temperatures: Maximum 97°F July 1; minimum 50°F Nov. 4.
REMARKS.--Values reported for dissolved solids concentrations are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-2, 4-5, 10, 1954	543	16		64	9.5	192		142	160	215		36		783	1.06	1,150	198	82	68	5.9	1,300	7.7
Oct. 3, 6-9	298	14		48	6.7	112		116	108	117		24		507	.69	408	148	52	62	4.0	846	7.8
Oct. 11-20	130	26		56	7.6	242		136	243	188		82		935	1.27	328	170	59	75	8.0	1,490	6.9
Oct. 21-31	319	20		63	8.8	222		122	223	202		72		907	1.23	781	193	93	71	6.9	1,490	7.8
Nov. 1-5, 10-12, 17-22	207	18		55	5.3	167		170	143	135		54		675	.92	377	160	20	69	5.7	1,100	8.0
Nov. 6-9, 16	308	14		59	4.0	102		139	118	86		35		516	.70	429	164	50	58	3.5	818	7.3
Nov. 13-15, 23-30	140	22		58	6.5	233		188	199	180		80		899	1.22	340	172	18	75	7.7	1,450	7.7
Dec. 1-10	129	26		58	8.3	259		154	237	208		94		a966	1.31	336	178	52	76	8.4	1,590	7.5
Dec. 11-20	159	26		58	8.8	273		132	254	218		118		a1,020	1.39	438	180	72	77	8.8	1,660	7.2
Dec. 21-31	148	25		56	9.0	269		92	290	200		125		a1,020	1.39	408	176	101	77	8.8	1,700	7.0
Jan. 1-10, 1955	158	26		54	9.0	246		98	261	175		134		991	1.35	423	172	91	76	8.2	1,480	7.1
Jan. 11-12, 16-20	245	24		57	8.5	238		76	286	175		108		981	1.33	649	177	114	74	7.8	1,500	6.8
Jan. 13-15	264	14		49	5.0	147		128	146	110		62		615	.84	438	142	37	69	5.4	975	7.7
Jan. 21-31	167	20		54	6.9	189		116	193	141		97		792	1.08	357	163	68	72	6.4	1,220	7.2
Feb. 1-10	381	19		55	6.4	180		105	207	126		95		775	1.05	797	164	78	71	6.1	1,200	7.0
Feb. 11-19	179	19		58	7.1	181		83	235	117		112		a770	1.05	372	174	106	69	6.0	1,190	7.0
Feb. 20-21, 24-28	321	18		56	6.6	183		119	221	119		85		778	1.06	674	166	69	70	6.2	1,200	7.2
Feb. 22-23	556	19		52	3.6	96		172	94	67		23		466	.63	700	144	3	59	3.5	742	8.1
Mar. 1-10	168	17		56	5.8	162		146	168	114		74		727	.99	330	164	44	68	5.5	1,110	7.8
Mar. 11-22	288	18		57	6.2	214		110	236	147		112		911	1.24	708	168	78	74	7.2	1,380	7.8
Mar. 23-31	405	14		53	4.9	106		160	102	75		48		498	.68	545	152	21	60	3.7	783	7.6
Apr. 1-11	274	12		58	5.5	154		184	147	106		60		657	.89	486	167	0	67	5.2	1,040	7.5
Apr. 12-15	1,755	12		52	2.7	55		144	69	37		21		320	.44	1,520	140	22	46	2.0	535	7.8
Apr. 16-30, May 1-12	195	15		62	5.4	140		170	143	106		54		664	.90	350	176	37	63	4.6	1,020	7.5

a Sum of determined constituents.

TRINITY RIVER BASIN--Continued

TRINITY RIVER NEAR ROSSER, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 13-25, 1955...	1,515	9.6		56	3.4	49		157	64	36		16		322	0.44	1,320	154	25	41	1.7	516	7.7
May 26-31	363	13		65	4.4	94		182	109	74		22		497	.68	487	180	31	53	3.0	801	7.4
June 1-10	354	21		66	5.9	174		134	198	133		78		a742	1.01	709	189	79	67	5.5	1,160	7.9
June 11-13, 19-25..	976	15		54	4.0	58		146	70	52		15		352	.48	928	151	32	46	2.1	579	8.0
June 14-18, 26-30..	267	16		60	4.8	126		175	122	106		28		560	.76	404	169	26	62	4.2	955	8.0
July 1-10	162	16		63	5.9	191		211	166	160		32		770	1.05	337	182	9	70	6.2	1,240	7.7
July 11-18	220	19		61	6.8	235		207	188	210		39		891	1.21	529	181	12	74	7.6	1,440	7.7
July 19-22	244	18		52	5.3	155		166	133	136		29		635	.86	418	152	16	69	5.5	1,030	7.8
July 23-31	154	22		58	6.8	248		197	227	197		44		a900	1.22	374	172	11	76	8.2	1,510	6.9
Aug. 1-10.....	159	26		54	6.1	218		215	159	195		20		819	1.11	352	160	0	75	7.5	1,330	8.0
Aug. 11-20.....	259	24		55	6.4	230		199	196	193		30		880	1.20	615	164	0	75	7.8	1,410	7.9
Aug. 21-30.....	145	19		52	6.2	216		178	180	190		27		829	1.13	325	155	9	75	7.5	1,320	7.7
Aug. 31, Sept. 1-10	180	21		52	6.2	192		192	137	178		27		746	1.01	363	156	0	73	6.7	1,210	7.7
Sept. 11-19.....	205	24		56	7.1	250		196	195	218		51		917	1.25	508	168	8	76	8.4	1,460	7.6
Sept. 20-21, 26-27, 29	251	16		41	4.3	148		120	126	125		45		585	.80	396	120	22	73	5.9	976	6.9
Sept. 22-25, 28, 30	232	20		59	7.1	246		49	291	198		109		985	1.34	617	176	136	75	8.1	1,570	6.6
Weighted average	312	16		57	5.5	143		150	145	113		49		625	0.85	526	164	42	65	4.8	999	--

a Sum of determined constituents.

TRINITY RIVER BASIN--Continued

TRINITY RIVER NEAR ROSSER, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, usually between 7 a.m. and 9 a.m.)

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

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 down from Big Creek, and at mile 94.
DRAINAGE AREA.--17,192 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1945 to November 1949, February 1950 to September 1951, April 1953 to September 1955.
Water temperatures: February 1950 to September 1951, April 1953 to September 1954.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,680 ppm Oct. 17-19; minimum, 83 ppm Apr. 11-14.
Hardness: Maximum, 254 ppm Oct. 17-19; minimum, 36 ppm Apr. 11-14.
Specific conductance: Maximum daily, 3,020 micromhos Oct. 18; minimum daily, 114 micromhos Apr. 14.
Water temperatures: Maximum, 92°F July 12; minimum, 47°F Jan. 23.
EXTREMES, 1945-50, 1953-55.--Dissolved solids: Maximum, 1,900 ppm Nov. 7, 1953; minimum, 82 ppm July 31, 1954.
Hardness: Maximum, 254 ppm Oct. 17-19, 1954; minimum, 32 ppm Nov. 1-3, 1953.
Specific conductance: Maximum daily, 3,170 micromhos Nov. 7, 1953; minimum daily, 103 micromhos Nov. 9, 1946.
Water temperatures (1953-55): Maximum, 98°F July 18, 27, 1953; minimum, 40°F Dec. 27, 1953, Jan. 1, 1954.
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 sums of 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 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 25-26, 28, 1954	1,770	20		60	6.2	187		195	63	250		4.2		a686	0.93	3,280	175	15	70	6.1	1,190	8.1
Oct. 7-16, 20-24	600	19		73	9.3	376		232	128	505		3.0		1,230	1.67	1,990	220	30	79	11	2,140	8.2
Oct. 17-19	310	15		84	11	534		239	183	728		2.5		1,680	2.28	1,410	254	58	82	15	2,790	8.1
Oct. 27, 29-30	8,420	12		28	3.2	73		78	36	97		4.2		322	.44	7,320	83	19	66	3.5	507	7.5
Oct. 31, Nov. 1-8, 14-15, 28-30	4,040	13		29	3.9	62		78	39	82		4.8		301	.41	3,280	89	25	60	2.9	503	7.7
Nov. 9-13, 22-27	3,020	13		35	4.4	102		85	44	147		6.8		426	.58	3,470	106	36	68	4.3	727	7.2
Nov. 16-21	5,938	8.4		17	1.6	22		44	19	27		2.8		a120	.16	1,920	49	13	49	1.4	212	7.2
Dec. 1-10	858	17		36	3.4	56		107	34	71		4.2		288	.39	667	104	16	54	2.4	492	7.8
Dec. 11-20	1,520	17		37	4.0	83		97	44	115		4.0		368	.50	1,510	110	30	62	3.6	639	7.7
Dec. 21, 24-31	1,066	16		26	8.5	89		92	48	115		6.6		366	.50	1,050	100	24	66	3.9	639	7.6
Dec. 22-23	1,180	23		44	7.1	224		100	62	335		8.2		767	1.04	2,440	139	57	78	8.3	1,370	7.8
Jan. 1-12, 1955	904	22		38	6.0	122		102	56	168		7.5		492	.67	1,200	120	36	69	4.8	831	7.7
Jan. 13-18, 26-28	1,810	20		41	6.0	170		98	64	240		14		631	.86	3,080	127	46	74	6.6	1,080	7.6
Jan. 19-25, 29-31	4,430	14		25	3.3	83		64	41	110		7.0		348	.47	4,162	76	24	70	4.1	567	7.3
Feb. 1-4	1,390	17		29	4.4	60		77	35	85		3.8		300	.41	1,130	91	28	59	2.8	492	7.5
Feb. 5-10	21,730	10		16	1.7	21		41	17	28		3.8		166	.23	9,740	48	14	49	1.3	207	7.5
Feb. 11-13	8,940	15		28	2.3	72		69	31	101		6.6		318	.43	7,680	80	24	66	3.5	529	7.4

a Sum of determined constituents.

Feb. 14-21,25,1955	3,355	16		29	2.8	45	73	43	51		8.3		262	.36	2,370	85	25	54	2.1	396	7.7
Feb. 22-24, 26-28	4,980	17		34	3.2	66	76	46	88		7.3		334	.45	4,490	98	36	59	2.9	535	7.6
Mar. 1-23	1,620	15		39	5.3	93	101	57	123		7.3		406	.55	1,780	119	36	63	3.7	704	7.7
Mar. 24-31	6,480	11		30	3.5	41	86	38	46		6.3		247	.34	4,320	90	20	50	1.9	388	7.2
Apr. 1-9	2,028	15		33	4.3	48	92	42	57		5.0		283	.38	1,550	100	24	51	2.1	443	7.7
Apr. 10, 15-17	17,800	13		18	1.8	23	51	17	30		2.0		a130	.18	6,250	53	11	49	1.4	229	7.2
Apr. 11-14	31,600	9.0		12	1.2	13	36	15	12		2.5		a83	.11	7,080	36	6	44	.9	130	7.5
Apr. 18-30	5,860	18		36	4.2	43	108	36	49		4.5		268	.36	4,240	106	18	47	1.8	415	7.4
May 1-4, 20	2,000	17		28	3.1	40	86	31	46		3.0		230	.31	1,240	82	12	52	1.9	345	7.3
May 5-14	760	15		44	6.3	74	117	56	98		5.0		376	.51	771	136	40	54	2.8	633	7.7
May 15-19, 21-22, 24, 26	2,750	13		44	5.8	87	118	52	119		5.0		400	.54	2,970	134	38	58	3.3	702	7.6
May 23, 27-31	6,300	13		39	3.2	48	109	40	55		8.0		274	.37	4,660	110	21	49	2.0	452	7.5
May 25	5,600	20		60	8.0	344	155	79	505		12		1,100	1.50	16,630	182	55	80	11	1,980	7.9
June 1-12	1,940	19		38	3.9	53	107	33	72		4.2		293	.40	1,530	111	24	51	2.2	488	7.9
June 13-20, 27-30	1,490	16		45	4.7	76	125	49	99		6.1		374	.51	1,500	133	30	55	2.9	636	7.8
June 21-26	1,830	8.4		60	6.4	164	149	86	222		8.7		a628	.85	3,100	175	53	67	5.4	1,130	7.9
July 1-10	722	17		51	4.9	75	146	58	88		9.0		397	.54	774	148	28	52	2.7	670	8.0
July 11-24	386	15		48	5.1	71	142	38	98		1.0		363	.49	378	141	24	52	2.6	639	7.8
July 25-31	521	14		56	6.3	172	154	41	262		1.0		648	.88	912	165	39	69	5.8	1,180	7.7
Aug. 1-10	395	16		57	5.8	145	172	53	200		4.3		576	.78	614	166	25	66	4.9	1,020	8.0
Aug. 11-20	443	17		60	6.6	246	186	87	332		1.0		a841	1.14	1,010	176	24	75	8.1	1,500	8.0
Aug. 21-31	541	15		56	6.5	224	176	82	300		1.2		a772	1.04	1,130	166	22	75	7.6	1,380	7.9
Sept. 1-10	601	18		63	7.2	316	194	88	440		1.8		1,030	1.40	1,670	186	27	79	10.1	1,840	7.9
Sept. 11-18	488	18		53	6.3	219	164	72	300		2.2		a752	1.02	991	158	24	75	7.6	1,360	8.1
Sept. 19-21, 25-30	425	16		45	5.0	130	152	64	157		2.0		504	.69	578	132	8	68	4.9	880	7.9
Sept. 22-24	406	16		66	7.3	294	191	99	405		3.8		a985	1.34	1,080	194	38	77	9.2	1,750	7.6
Weighted average	2,935	14		29	3.4	64	81	36	83		4.9		296	0.40	2,350	86	20	62	3.0	487	--

a Sum of determined constituents.

TRINITY RIVER BASIN--Continued

TRINITY RIVER AT ROMAYOR, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually between 7 a.m. and 9 a.m./

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

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 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 883 ppm Dec. 23-27; minimum, 144 ppm Apr. 9-13.
Hardness: Maximum, 173 ppm Aug. 1-17; minimum, 40 ppm Apr. 9-13.
Specific conductance: Maximum daily, 2,030 micromhos Aug. 23, 24; minimum daily, 145 micromhos Apr. 13.
EXTREMES, 1949-55.--Dissolved solids: Maximum, 3,640 ppm Aug. 26-27, 1952; minimum, 110 ppm Oct. 4-10, 1949.
Hardness: Maximum, 782 ppm Aug. 26-27, 1952; minimum, 40 ppm Apr. 9-13, 1955.
Specific conductance: Maximum daily, 7,630 micromhos Aug. 27, 1952; minimum daily, 127 micromhos Oct. 7, 1949.
REMARKS.--Values reported for dissolved solids concentrations are residues on evaporation unless otherwise noted. 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, November 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Nov. 1-6, 15-21, 1954		10		21	1.8	33		63	22	40		2.5		196	0.27		61	9	54	1.8	291	7.3
Nov. 7-11		13		29	3.3	74		82	45	92		4.2		316	.43		87	20	65	3.4	543	7.5
Nov. 12-14		12		49	5.6	151		90	69	225		13		587	.80		145	72	69	5.5	1,040	7.6
Nov. 22-30		13		37	4.5	112		93	40	165		5.8		445	.61		112	36	68	4.6	789	7.6
Dec. 1-19		18		33	4.4	71		114	36	84		5.0		312	.42		100	6	61	3.1	543	7.6
Dec. 20-22		16		43	5.4	126		96	62	182		7.0		495	.67		130	52	68	4.8	888	7.9
Dec. 23-27		17		50	8.3	254		96	61	398		9.3		883	1.2		159	80	78	8.7	1,590	7.6
Dec. 28-31		17		38	5.1	85		110	44	113		6.5		372	.51		116	26	61	3.4	647	7.7
Jan. 1-10, 1955		20		40	5.4	107		104	54	147		6.0		458	.62		121	36	66	4.2	769	7.7
Jan. 11-19		19		35	4.8	92		96	42	127		4.8		386	.52		106	28	65	3.9	655	7.7
Jan. 20-28		14		23	2.9	70		52	44	89		9.9		330	.45		69	26	69	3.7	496	7.3
Jan. 29-31		26		47	6.7	171		142	52	241		7.5		633	.86		144	28	72	6.2	1,100	7.8
Feb. 1-4		14		28	4.0	86		80	31	120		6.1		354	.48		86	20	68	4.0	612	7.4
Feb. 5-8, 15-16		8.8		19	2.0	27		56	19	33		2.2		189	.26		55	9	52	1.6	246	7.3
Feb. 9-14, 17-19		11		21	2.9	46		63	26	58		5.5		238	.32		65	13	61	2.5	374	7.2
Feb. 20-28		13		26	3.8	46		62	37	60		6.5		257	.35		80	29	55	2.2	395	7.7
Mar. 1-10		18		37	4.7	58		101	40	77		6.6		311	.42		112	29	53	2.4	517	7.7
Mar. 11-20		18		45	5.9	77		123	55	100		5.8		381	.52		136	35	55	2.9	648	7.8
Mar. 21-28		14		47	6.1	87		129	62	113		4.2		414	.56		143	38	57	3.2	711	7.7
Mar. 29-31, Apr. 1-8		13		35	4.1	46		106	37	53		6.0		259	.35		104	17	49	2.0	436	7.0
Apr. 9-13		9.6		15	.6	15		39	9.0	20		3.8		144	.20		40	8	45	1.0	159	6.5
Apr. 14-30		14		28	2.5	36		86	24	42		5.0		241	.33		80	10	50	1.8	345	7.2
May 1-10		20		41	4.9	50		117	36	68		2.0		293	.40		122	26	47	2.0	488	7.3

TRINITY RIVER BASIN--Continued

TRINITY RIVER NEAR MOSS BLUFF, TEX.--Continued

Chemical analyses, in parts per million, November 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 11-20, 1955		12		48	5.7	70		135	43	98		2.0		364	0.50		143	32	52	2.5	634	7.4
May 21-26, 28-31		12		38	3.9	69		100	41	94		3.0		331	.45		110	28	58	2.9	569	7.3
May 27		20		41	4.9	203		125	89	256		11		a686	.93		123	20	78	8.0	1,230	7.8
June 1-15		15		44	3.9	66		123	38	90		2.8		332	.45		126	25	53	2.6	569	7.8
June 16-30		12		47	4.7	91		136	42	126		3.0		406	.55		138	26	59	3.4	723	7.6
July 1-16		17		56	5.1	82		166	59	97		5.0		428	.58		161	25	52	2.8	727	7.7
July 17-31		13		54	5.4	72		167	34	98		1.0		374	.51		156	19	50	2.5	659	7.6
Aug. 1-17		17		60	6.0	136		175	37	202		2.2		a546	.74		173	30	63	4.5	1,020	7.7
Aug. 18-28		--		--	--	--		--	--	434		--		--	--		--	--	--	--	1,850	--
Aug. 29-31		13		40	4.3	112		135	42	145		1.0		a423	.58		117	6	67	4.5	780	7.6
Sept. 1-16		22		55	6.2	198		175	72	265		1.0		706	.96		162	18	73	6.8	1,230	7.9
Sept. 17-30		14		49	5.1	162		163	50	220		1.2		590	.80		144	10	71	5.9	1,050	7.7

a Sum of determined constituents.

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 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 5,680 ppm Oct. 8, 14; minimum, 183 ppm Jan. 15-26.
Hardness: Maximum, 1,320 ppm Oct. 8, 14; minimum, 55 ppm Jan. 15-26.
Specific conductance: Maximum daily, 10,000 micromhos Oct. 14; minimum daily, 260 micromhos Jan. 20, 22, 24.
EXTREMES, 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, 14,900 micromhos Aug. 31, 1954; 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 sums of determined constituents unless otherwise noted. 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 1954 to September 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: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1, 3-5, 11-12, 15-21, 1954		17		160	111	1,030		199	272	1,870		3.0		3,560	4.8		856	692	72	15	6,290	7.9
Oct. 2, 6-7, 9-10, 13, 25		20		108	54	551		208	142	970		2.2		1,950	2.7		492	321	71	11	3,560	8.1
Oct. 8, 14		22		221	187	1,660		176	426	3,080		--		5,680	7.7		1,320	1,180	73	20	9,510	8.0
Oct. 22-24, 26-31		10		43	12	135		70	77	222		.5		571	.78		157	100	65	4.7	986	7.2
Nov. 1-3		11		46	16	163		105	78	260		2.8		656	.89		181	95	66	5.3	1,170	7.5
Nov. 4-10		14		82	33	332		125	109	600		.5		1,230	1.7		340	238	68	7.8	2,360	7.6
Nov. 11-18		14		54	23	247		107	84	418		2.8		a896	1.2		229	142	70	7.1	1,660	7.6
Nov. 19-30		14		46	14	148		112	60	240		2.0		a579	.79		172	80	65	4.9	1,070	7.4
Dec. 1-10		13		54	17	192		120	65	322		1.8		768	1.0		204	106	66	5.8	1,330	7.7
Dec. 11-20		14		56	16	186		136	60	308		1.5		749	1.0		206	94	66	5.6	1,340	8.1
Dec. 21-31		14		53	13	161		136	54	260		2.0		645	.88		186	74	65	5.1	1,160	7.9
Jan. 1-6, 1955		17		50	13	151		145	52	235		2.5		617	.84		179	60	65	4.9	1,100	7.8
Jan. 7-14		14		19	3.7	41		50	24	60		2.5		210	.29		63	22	59	2.3	343	7.7
Jan. 15-26		13		16	3.4	36		62	17	45		.5		183	.25		55	4	58	2.1	290	7.2
Jan. 27-31		14		25	4.8	53		82	26	73		1.0		252	.34		83	16	58	2.5	419	7.7
Feb. 1-10		12		22	3.7	43		72	17	61		2.0		224	.30		71	12	57	2.2	360	7.3
Feb. 11-19		10		21	4.1	46		69	17	66		1.2		228	.31		69	12	59	2.4	377	7.3
Feb. 20-28		12		23	3.9	41		80	16	57		1.5		224	.30		74	8	55	2.1	351	7.5
Mar 1-10		12		25	4.5	44		93	16	59		1.0		250	.34		82	6	54	2.1	383	7.7
Mar. 11-20		12		33	5.6	51		113	17	74		1.5		282	.38		105	12	51	2.2	466	7.6
Mar. 21-31		12		44	8.8	96		125	37	149		2.2		432	.59		145	42	59	3.5	760	7.6

a Sum of determined constituents.

TRINITY RIVER BASIN--Continued

OLD RIVER NEAR COVE, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 15-19 1955		15		39	6.5	75		104	45	108		4.0		375	0.51		124	39	57	2.9	617	7.5
Apr. 11-14, 20		14		24	3.2	39		65	28	53		2.0		a195	.27		74	21	53	2.0	347	6.9
Apr. 21-30		13		26	3.5	38		83	23	49		3.0		a196	.27		80	12	51	1.9	344	7.4
May 1-8		17		34	5.2	48		110	27	64		1.8		266	.36		106	16	50	2.0	449	7.5
May 9-20		15		42	7.7	92		133	40	131		1.2		403	.55		137	28	59	3.4	716	7.6
May 21-31		14		43	6.8	84		128	45	116		2.0		392	.53		135	30	57	3.1	676	7.9
June 1-16		--		--	--	--		--	--	95		--		--	--		--	--	--	--	613	--
June 17-20		17		53	12	158		147	50	250		1.2		a613	.83		182	62	65	5.1	1,120	8.0
June 21-26, 29-30		14		54	12	171		169	58	252		1.5		672	.91		183	44	67	5.5	1,180	8.0
June 27-28, July 9-14		16		51	6.0	101		157	60	126		5.2		463	.63		152	24	59	3.6	797	8.0
July 1-8		15		50	12	163		168	63	228		6.1		a620	.84		174	37	67	5.4	1,150	7.5
July 15-20		16		60	6.8	207		159	78	292		6.3		a744	1.0		178	47	72	6.8	1,360	7.4
July 21-31		17		54	6.0	108		178	49	138		3.0		a463	.63		159	13	60	3.7	843	8.2
Aug. 1-15		15		51	5.8	84		170	27	116		1.0		a384	.52		150	10	55	3.0	698	7.9
Aug. 16-31		15		51	6.6	112		169	32	160		1.0		a461	.63		155	16	61	3.9	849	7.9
Sept. 1-14		16		43	6.2	96		154	23	135		.5		396	.54		133	7	61	3.6	726	8.2
Sept. 15-30		16		57	5.5	138		173	34	204		.8		545	.74		165	23	65	4.7	991	8.0

a Sum of determined constituents.

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 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 17,800 ppm Oct. 3-6; minimum, 140 ppm Apr. 12-19.
Hardness: Maximum, 3,460 ppm Oct. 3-6; minimum, 45 ppm Apr. 12-19.
Specific conductance: Maximum daily, 30,000 micromhos Oct. 4; minimum daily, 199 micromhos Apr. 15.
EXTREMES, 1949-55.--Dissolved solids: Maximum, 18,000 ppm Sept. 11-20, 1954; 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, 30,200 micromhos Sept. 17, 18, 1954; 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 sums of determined constituents unless otherwise noted. 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 1954 to September 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: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
Oct. 1-2, 7-11, 16, 19-23, 1954		14		165	320	2,880		194	718	5,020		--		9,210	12.5		1,730	1,570	78	30	15,000	7.9
Oct. 3-6		13		283	669	5,520		166	1,380	9,850		--		17,800	24.2		3,460	3,320	78	41	26,700	7.7
Oct. 12-15, 17-18, 24-27		16		142	136	1,510		225	398	2,550		--		4,860	6.61		914	729	78	22	8,260	8.0
Oct. 28		21		--	--	408		206	138	570		2.0		a1,370	1.86		232	63	79	12	2,410	8.2
Oct. 29-31		14		42	8.7	172		106	77	242		6.9		648	.88		141	54	73	6.3	1,130	7.8
Nov. 1-8		12		26	5.4	86		65	35	129		2.8		344	.47		87	34	68	4.0	620	7.3
Nov. 9-16, 28-29		14		41	14	197		85	75	310		5.0		b698	.95		160	90	73	6.8	1,300	7.4
Nov. 17-19		10		21	1.3	37		50	25	49		2.2		b170	.23		57	16	59	2.1	300	7.4
Nov. 20-27		10		39	5.4	121		94	53	175		3.5		509	.69		120	42	69	4.8	831	7.4
Nov. 30		23		77	98	914		107	249	1,580		8.5		3,000	4.08		595	558	77	16	5,150	7.9
Dec. 1-6, 14-17, 27-31		14		56	26	336		104	105	552		5.9		1,150	1.56		246	162	75	9.3	2,140	7.9
Dec. 7-10, 12-13		13		68	76	734		102	206	1,260		3.5		2,410	3.28		482	398	77	15	4,370	7.6
Dec. 11		17		129	252	2,150		116	565	3,790		--		6,960	9.47		1,360	1,260	77	25	11,500	8.2
Dec. 18-26		13		44	9.7	145		95	70	220		5.0		560	.76		150	72	68	5.1	1,030	7.4
Jan. 1-9, 15, 1955		15		60	36	411		113	128	680		7.3		1,390	1.89		298	205	75	10	2,530	7.5
Jan. 10-13, 16-17		16		53	19	252		103	86	410		6.6		922	1.25		210	126	72	7.6	1,620	7.5
Jan. 14, 18-31		12		35	5.9	112		75	58	161		5.9		450	.61		111	50	69	4.6	783	7.4
Feb. 1-3		14		41	7.1	170		95	67	245		8.5		608	.83		131	53	74	6.4	1,090	7.6
Feb. 4-5, 10-11		9.4		17	2.5	39		52	21	50		2.2		b167	.23		53	10	61	2.3	299	7.3
Feb. 6-9, 12-17, 19		7.0		26	6.9	86		63	46	127		1.8		358	.49		93	42	67	3.9	624	7.3
Feb. 18, 20-28		10		20	4.2	55		50	30	80		2.5		279	.38		68	27	64	2.9	434	7.3

a Residue on evaporation at 180°C.
b Sum of determined constituents.

TRINITY RIVER BASIN--Continued

TRINITY RIVER AT ANAHUAC, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Mar. 1-15, 1955		15		32	6.1		86	84	44	122		6.1		370	0.50		106	37	64	3.6	644	7.8
Mar. 16-17, 19, 21-26		15		49	15		197	116	80	305		5.8		744	1.01		184	89	70	6.3	1,330	7.6
Mar. 18		22		56	22		273	121	93	440		7.2		a1,010	1.37		229	130	72	7.8	1,720	7.9
Mar. 20		17		69	61		618	129	168	1,050		7.5		2,050	2.79		424	318	76	13	3,630	7.9
Mar. 27-31		12		32	4.1		79	102	37	100		8.2		344	.47		97	14	64	3.5	582	7.6
Apr. 1-3, 20-27		16		33	3.6		55	98	34	70		4.0		294	.40		98	18	55	2.4	467	7.5
Apr. 4-8, 11, 28-30		20		39	4.3		95	101	49	129		6.5		417	.57		114	31	64	3.9	699	7.9
Apr. 9-10		18		45	18		225	98	78	362		4.0		854	1.16		186	106	72	7.2	1,480	7.7
Apr. 12-19		13		16	1.3		30	46	17	37		2.5		b140	.19		45	8	59	1.9	248	7.4
May 2-4, 9		18		38	4.4		68	105	35	96		1.5		336	.46		112	26	57	2.8	561	7.6
May 5-8, 10-15		16		40	6.9		139	98	49	212		2.0		536	.73		129	48	70	5.3	947	7.5
May 16, 20-22, 26		11		50	10		248	117	74	375		3.0		863	1.17		166	70	76	8.4	1,560	7.6
May 17-19		13		56	37		475	120	121	780		1.5		1,540	2.09		292	194	78	12	2,830	7.6
May 23-25, 27-31		11		45	4.9		127	115	57	178		5.0		498	.68		132	38	68	4.8	894	7.4
June 1-8		18		45	4.6		136	115	53	195		5.5		520	.71		132	38	69	5.2	920	7.8
June 22-25		13		62	14		344	134	86	538		2.0		1,120	1.52		212	102	78	10	2,060	7.9
July 2-14		14		75	79		799	125	231	1,350		4.0		2,610	3.55		512	410	77	15	4,970	7.8
July 15-20, 22-28		14		104	145		1,390	138	359	2,400		4.0		4,480	6.09		856	742	78	21	7,820	7.7
Aug. 10-15, 17-19, 21		17		102	127		1,270	164	307	2,180		--		4,080	5.55		776	642	78	20	7,110	7.8
Aug. 20, 22-25, 30		18		77	58		651	161	153	1,100		4.0		2,140	2.91		430	298	77	14	3,870	7.6
Sept. 20-23		14		120	185		1,940	156	457	3,320		--		6,110	8.31		1,060	932	80	26	10,300	7.6
Sept. 24-30		14		74	43		672	160	160	1,080		1.5		2,120	2.88		362	230	80	15	3,790	7.7

a Residue on evaporation at 180°C.
b Sum of determined constituents.

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 1955

Specific conductance, micromhos at 25°C, and chloride, in parts per million, water year October 1954 to September 1955

Date of collection	Station 2		Station 3		Station 6		Station 7	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
Oct. 1, 1954	21,100	7,300	21,500	7,600	24,000	8,680	24,900	8,730
Oct. 8	28,300	10,500	30,900	11,600	31,800	12,000	32,000	12,100
Oct. 15	8,730	2,650	8,800	2,750	32,600	12,500	32,100	12,300
Oct. 22	31,800	12,000	32,800	12,400	33,300	12,700	33,500	12,800
Oct. 29	1,030	195	1,030	195	23,100	8,180	22,600	8,040
Nov. 5	604	124	593	122	651	136	582	118
Nov. 12	4,580	1,400	7,360	2,200	26,400	9,850	26,100	9,650
Nov. 19	394	70	298	48	351	58	361	59
Nov. 26	873	200	874	192	859	190	890	194
Dec. 3	2,010	535	8,040	2,600	21,600	7,940	22,200	7,940
Dec. 10	6,420	1,960	9,380	3,040	11,400	3,790	11,600	3,840
Dec. 17	1,490	348	1,390	318	1,320	300	1,340	295
Dec. 24	962	215	5,090	1,580	19,600	7,010	19,600	6,960
Dec. 31	19,300	6,590	20,500	7,010	24,700	8,820	24,900	8,770
Jan. 7, 1955	2,240	558	2,120	535	2,290	582	2,280	585
Jan. 14	15,300	5,230	17,900	6,090	23,000	8,090	22,900	8,040
Jan. 21	877	178	804	158	836	168	814	161
Jan. 28	698	139	612	121	640	129	619	125
Feb. 4	542	107	498	93	515	97	523	96
Feb. 11	257	43	266	43	255	41	298	45
Feb. 18	494	89	464	80	498	85	474	78
Feb. 25	--	--	527	97	531	98	535	100
Mar. 4	--	--	883	188	908	185	908	186
Mar. 11	--	--	2,650	730	9,630	3,120	9,230	2,900
Mar. 18	1,320	298	1,950	492	9,820	3,220	10,200	3,270
Mar. 25	877	161	905	174	5,420	1,640	5,540	1,630

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 1954 to September 1955--Continued

Date of collection	Station 2		Station 3		Station 6		Station 7	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
Apr. 1, 1955	457	58	514	60	496	60	490	65
Apr. 4	607	100	1,610	390	1,490	352	1,520	348
Apr. 6	701	120	913	186	15,400	5,380	15,900	5,350
Apr. 8	12,600	4,090	13,900	4,610	16,600	5,650	16,600	5,620
Apr. 11	834	165	820	162	5,240	1,590	5,370	1,580
Apr. 13	253	39	237	38	971	244	889	211
Apr. 15	211	29	220	29	207	29	229	29
Apr. 18	230	32	232	34	227	32	226	33
Apr. 20	353	60	368	62	364	61	368	61
Apr. 22	474	57	456	57	490	59	506	60
Apr. 25	406	78	511	78	5,810	1,800	6,300	1,900
Apr. 27	548	92	540	92	540	92	537	90
Apr. 29	723	147	631	116	613	102	588	103
May 2	457	63	457	63	517	79	533	62
May 4	657	124	787	157	2,210	600	2,330	610
May 6	1,060	232	1,070	242	1,640	420	1,660	415
May 9	841	175	1,640	420	2,020	530	2,120	550
May 11	2,570	670	3,060	850	2,130	540	2,310	610
May 13	892	191	1,190	282	1,270	295	1,260	300
May 16	1,560	388	1,630	413	1,640	422	1,650	422
May 18	4,680	1,390	4,480	1,310	4,280	1,250	4,270	1,240
May 20	2,150	570	2,820	760	5,740	1,730	5,840	1,760
May 23	1,190	255	4,050	1,180	4,520	1,320	--	--
May 25	1,030	215	2,470	640	3,990	1,140	4,670	1,360
May 27	902	188	876	185	7,630	2,410	7,840	2,430
May 30	728	116	713	115	682	114	696	116
June 1	770	132	764	131	758	131	779	133
June 3	824	155	816	155	2,160	575	2,210	570
June 6	1,080	240	1,320	322	7,670	2,400	7,950	2,500
June 8	1,050	228	1,220	290	4,600	1,370	4,630	1,360
June 10	1,280	280	1,240	295	1,950	570	1,990	522
June 13	1,240	288	1,480	362	3,470	990	3,540	1,000
June 15	2,070	528	3,610	1,030	5,310	1,600	5,370	1,590
June 17	5,360	1,600	6,060	1,840	8,680	2,800	8,700	2,750
June 20	5,150	1,520	8,560	2,770	10,900	3,570	11,000	3,540
June 22	4,840	1,400	4,930	1,430	9,140	2,900	11,100	3,570

June 24, 1955	3,870	1,080	5,850	1,750	11,300	3,720	11,300	3,650
June 27	1,080	225	1,150	250	8,010	2,520	8,190	2,550
June 29	1,400	278	1,350	262	3,110	820	3,090	850
July 1	2,380	570	6,380	1,900	13,100	4,340	13,400	4,340
July 4	9,970	3,100	12,400	4,040	13,500	4,440	13,600	4,440
July 6	11,700	3,740	12,100	3,920	13,100	4,310	12,900	4,190
July 8	9,080	2,820	10,400	3,300	13,200	4,340	13,300	4,340
July 11	6,770	2,030	7,890	2,410	13,900	4,640	14,100	4,660
July 13	12,600	4,040	9,580	3,000	10,500	3,320	10,500	3,340
July 15	8,660	2,700	11,800	3,820	15,400	5,180	15,500	5,130
July 18	14,300	4,740	15,100	5,030	15,700	5,230	15,700	5,200
July 20	15,300	5,100	15,800	5,280	15,600	5,180	15,600	5,200
July 22	13,200	4,280	14,400	4,740	16,400	5,500	16,400	5,530
July 25	10,600	3,340	12,500	4,070	16,400	5,550	16,500	5,530
July 27	10,100	3,200	12,400	4,070	16,900	5,720	17,000	5,720
July 29	8,580	2,680	9,800	3,120	16,800	5,770	16,900	5,720
Aug. 1	8,090	2,480	9,830	3,120	13,900	4,560	13,800	4,590
Aug. 3	15,800	5,230	15,700	5,250	15,800	5,200	15,300	5,180
Aug. 5	11,600	3,790	13,900	4,660	15,900	5,400	15,900	5,380
Aug. 8	5,510	1,640	6,580	2,010	15,700	5,430	15,700	5,400
Aug. 10	12,400	4,110	13,200	4,440	14,300	4,860	14,400	4,880
Aug. 12	12,400	4,110	14,100	4,760	16,100	5,530	16,100	5,550
Aug. 15	15,800	5,450	16,500	5,750	16,500	5,700	16,400	5,700
Aug. 17	16,700	5,700	19,600	6,860	21,400	7,650	21,700	7,700
Aug. 19	9,490	3,020	10,800	3,440	17,400	6,040	17,500	6,070
Aug. 22	7,320	2,280	11,200	3,870	18,400	6,510	18,500	6,510
Aug. 24	11,400	3,720	13,500	4,460	17,600	6,140	17,900	6,220
Aug. 26	17,400	6,020	18,100	6,320	18,700	6,510	18,700	6,460
Aug. 29	7,570	2,350	8,870	2,820	16,700	5,820	17,100	5,870
Aug. 31	10,700	3,420	13,400	4,460	17,300	6,000	17,700	6,090
Sept. 2	7,170	2,170	10,000	3,250	12,500	4,190	12,500	4,140
Sept. 5	12,100	3,990	14,300	4,830	20,600	7,300	20,600	7,250
Sept. 7	13,100	4,310	17,100	5,950	21,800	7,850	22,200	7,890
Sept. 9	18,400	6,370	19,300	6,810	23,800	8,680	23,900	8,680
Sept. 12	12,700	4,210	14,200	4,790	19,300	6,810	19,200	6,760
Sept. 14	9,180	2,900	12,700	4,240	23,300	8,430	23,500	8,480

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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 1954 to September 1955--Continued

Date of collection	Station 2		Station 3		Station 6		Station 7	
	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride	Conductance	Chloride
Sept. 16, 1955	16,200	5,500	20,200	7,160	23,500	8,430	23,500	8,430
Sept. 19	17,400	6,020	20,000	7,160	22,600	8,040	22,600	8,090
Sept. 21	18,400	6,270	22,500	8,180	24,200	8,820	24,200	8,730
Sept. 23	18,000	6,370	20,200	7,160	23,000	8,430	23,000	8,380
Sept. 26	17,500	6,090	20,100	7,200	22,000	7,750	22,000	7,750
Sept. 28	16,300	5,600	18,200	6,460	23,000	8,380	22,900	8,380
Sept. 30	7,850	2,480	12,700	4,290	20,300	7,250	20,200	7,250

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 northwest of Breckenridge, Stephens County, 7 miles upstream from Gonzales Creek, and 8 miles upstream from Clear Fork Brazos River.
DRAINAGE AREA.--1,087 square miles.
RECORDS AVAILABLE.--Chemical analyses: April to September 1955.
Water temperatures: April to September 1955.
EXTREMES, April to September 1955.--Dissolved solids: Maximum, 1,930 ppm Apr. 24-28; minimum, 153 ppm Sept. 25-30.
Hardness: Maximum, 616 ppm July 18; minimum, 92 ppm Sept. 25-30.
Specific conductance: Maximum daily, 5,200 micromhos Apr. 24; minimum daily, 174 micromhos Sept. 25.
Water temperatures: Maximum, 84°F July 29, 31, Aug. 24; minimum, 64°F June 10.
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 sums of determined constituents unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for period April to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, April to September 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			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 15-16, 1955..	1.25	6.2		53	7.9	95		129	15	176	0.1	1.2		458	0.62	1.55	164	59	56	3.2	812	7.8
Apr. 23.....	538	16		43	4.6	34		116	12	62	.2	5.4		297	.40	431	125	30	37	1.3	420	8.0
Apr. 24-28.....	15.5	11		169	46	497		86	34	1,120	.0	8.0		1,930	2.62	80.8	610	540	64	8.8	3,660	7.4
May 11-18.....	106	9.4		72	12	147		112	16	310	--	5.0		a 626	.85	179	229	137	58	4.2	1,240	7.6
May 19-22.....	2,859	11		35	3.3	20		106	9.2	31	.3	4.5		171	.23	1,320	102	15	29	.8	301	7.9
May 23-28.....	164	11		43	5.0	34		106	18	66	.3	4.0		259	.35	115	128	41	37	1.3	438	7.6
May 29-31, June 1-8, 10.....	29.9	9.6		50	7.3	62		108	16	129	.3	2.0		370	.50	29.9	155	66	46	2.2	641	7.5
June 9, 11-14.....	168	12		40	4.7	26		116	13	46	.3	2.8		a 202	.27	91.6	120	25	32	1.0	392	7.4
June 15-24.....	758	10		36	3.9	22		109	9.6	36	.3	2.5		181	.25	370	105	16	31	.9	308	7.8
June 25-30, July 1-4.....	2.66	13		43	4.9	30		131	17	46	.4	1.5		224	.30	1.61	127	20	34	1.2	403	8.1
July 18.....	64	13		196	31	316		118	18	840	.4	2.5		1,470	2.00	254	616	520	53	5.5	2,800	8.2
July 19-20.....	198	9.8		46	6.1	36		140	20	57	.4	1.8		252	.34	135	140	25	36	1.3	456	8.1
July 21-31, Aug. 1	19.4	8.6		38	4.9	33		106	13	58	.5	2.0		221	.30	11.6	114	27	38	1.3	398	7.9
Aug. 4-20.....	262	14		38	3.9	21		113	9.8	34	.5	3.2		196	.27	139	110	17	29	.8	321	7.9
Aug. 21-30.....	10.6	11		40	4.6	25		116	9.0	46	.5	2.5		210	.29	6.01	118	23	32	1.0	361	7.8
Sept. 11-13.....	48	7.8		47	6.2	77		84	15	158	.3	3.5		396	.54	51.3	144	75	54	2.8	695	7.6
Sept. 14-18.....	7.26	11		42	4.5	35		127	9.7	58	.4	1.8		234	.32	4.59	123	19	38	1.4	414	8.1
Sept. 23-24.....	378	9.6		41	4.7	34		121	9.5	59	.4	3.2		236	.32	241	122	23	38	1.3	414	8.1
Sept. 25-30.....	2,212	9.4		33	2.6	17		107	7.5	22	.4	3.0		153	.21	914	92	4	29	.8	254	8.2
Weighted average	b 249	11		37	3.7	25		109	9 5	41	0.4	3.4		192	0.26	129	106	18	34	1.1	331	--

a Sum of determined constituents.
b Represents 100 percent of flow Apr. 15 to Sept. 30. No flow on many days.

BRAZOS RIVER BASIN--Continued

HUBBARD CREEK NEAR BRECKENRIDGE, TEX.--Continued

Temperature (°F) of water, April to September 1955
/Once-daily measurement, usually between 6 a.m. and 10 a.m./

Day	Apr.	May	June	July	Aug.	Sept.
1	--	--	--	81	--	79
2	--	--	78	--	82	--
3	--	--	--	80	--	74
4	--	--	75	--	83	--
5	--	--	--	80	77	74
6	--	--	75	--	79	--
7	--	--	--	81	--	74
8	--	--	78	--	83	--
9	--	--	72	82	--	75
10	--	--	64	--	83	--
11	--	--	--	82	--	75
12	--	--	70	--	--	--
13	--	--	--	83	82	76
14	--	--	77	--	80	--
15	72	--	76	82	--	78
16	--	--	74	--	78	--
17	--	76	76	79	--	--
18	77	73	--	80	--	--
19	--	70	74	80	--	78
20	--	67	--	--	77	--
21	--	78	75	80	--	79
22	--	74	--	--	80	--
23	65	71	79	83	--	78
24	69	74	--	--	84	77
25	76	78	79	83	--	74
26	73	76	--	--	81	74
27	--	74	80	83	--	75
28	--	78	--	--	81	78
29	--	76	80	84	--	--
30	--	--	--	--	78	79
31	--	77	--	84	--	--
Average	--	--	--	--	--	--

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 Graford, 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 1955.
Water temperatures: October 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,550 ppm May 1-31; minimum, 1,130 ppm Sept. 26-30.
Hardness: Maximum, 460 ppm May 1-31; minimum, 376 ppm Sept. 26-30.
Specific conductance: Maximum daily, 2,940 micromhos May 23; minimum daily, 1,560 micromhos Sept. 30.
Water temperatures: Maximum, 74°F on several days in August; minimum 47°F on several days during February and March.
EXTREMES, 1942-55.--Dissolved solids: Maximum, 2,130 ppm Feb. 2-9, 1942; minimum, 829 ppm Sept. 1-10, 1942.
Hardness: Maximum, 661 ppm Feb. 2-9, 1942; minimum, 318 ppm Dec. 21-31, 1942.
Specific conductance: Maximum daily, 3,750 micromhos Feb. 11, 1942; minimum daily, 1,100 micromhos June 20, 1942.
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 are sums of 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 1954 to September 1955 given in WSP 1392. No appreciable inflow between dam and gaging station except during periods of heavy local rains.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954...	116	12		133	21	295		116	296	465		0.8		1,280	1.74	401	418	324	60	6.3	2,170	7.5
Nov. 1-30.....	47.7	13		130	19	312		117	288	485		1.2		1,310	1.78	169	402	306	63	6.8	2,220	7.4
Dec. 1-31.....	29.5	12		130	19	307		113	291	478		1.2		1,290	1.75	103	402	310	62	6.7	2,160	7.7
Jan. 1-31, 1955...	217	8.6		132	20	300		111	289	475		1.2		1,280	1.74	750	412	320	61	6.4	2,180	7.5
Feb. 1-28.....	72.6	12		131	21	304		114	291	480		.8		1,300	1.77	255	414	320	61	6.5	2,150	7.6
Mar. 1-31.....	64.2	8.2		135	20	323		116	295	510		.8		1,350	1.84	234	419	324	63	6.9	2,320	7.4
Apr. 1-30.....	89.2	9.4		144	21	383		116	324	600		1.5		1,540	2.09	371	446	351	65	7.9	2,620	7.5
May 1-31	699	14		148	22	379		118	333	595		1.0		1,550	2.11	2,930	460	364	64	7.7	2,620	7.6
June 1-30	3,376	9.6		142	21	327		110	315	520		1.2		1,390	1.89	12,670	441	351	62	6.8	2,430	7.5
July 1-31	821	14		143	22	342		117	319	540		1.0		1,440	1.96	3,190	448	352	62	7.0	2,410	7.5
Aug. 1-31.....	598	11		138	20	312		120	319	478		.8		1,340	1.82	2,160	426	328	61	6.6	2,250	7.9
Sept. 1-25.....	637	16		140	18	295		120	317	450		1.0		1,300	1.77	2,240	424	325	60	6.2	2,140	7.6
Sept. 26-30.....	41,280	15		124	16	253		115	288	378		1.0		1,130	1.54	125,900	376	282	59	5.7	1,850	7.5
Weighted average	1,120	13		133	18	291		114	301	448		1.0		1,260	1.71	3,810	406	312	61	6.3	2,120	--

BRAZOS RIVER BASIN--Continued

BRAZOS RIVER AT POSSUM KINGDOM DAM, NEAR GRAFORD, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually between 8 a.m. and 9 a.m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	--	60	52	49	47	50	57	58	67	69	73
2	70	66	60	52	51	49	50	57	58	67	69	73
3	70	64	60	52	51	49	50	57	58	67	69	73
4	70	64	60	52	--	49	50	53	58	67	71	73
5	70	64	60	54	51	49	50	53	58	67	71	73
6	70	64	60	54	51	49	55	53	58	64	71	73
7	70	64	60	54	51	49	55	53	58	64	71	72
8	70	64	58	54	51	49	55	53	61	64	71	72
9	70	64	58	54	50	49	55	53	61	64	71	72
10	70	64	58	54	50	49	55	53	61	64	72	72
11	70	64	58	54	50	49	55	53	61	64	72	72
12	70	64	58	52	50	49	55	52	61	64	72	72
13	70	64	58	52	50	49	52	52	61	69	72	72
14	70	64	58	52	50	49	52	52	61	69	72	72
15	70	64	56	52	50	50	52	52	65	69	72	70
16	70	64	56	52	50	50	52	52	65	69	72	70
17	--	64	56	52	49	50	52	52	65	69	73	70
18	--	64	56	52	49	50	52	55	65	69	73	70
19	--	64	56	51	49	50	52	55	65	65	73	70
20	67	64	56	54	49	50	58	55	65	65	73	70
21	67	64	56	51	49	50	58	55	65	65	73	72
22	67	64	55	51	49	50	58	55	65	65	74	72
23	67	64	55	51	47	49	58	55	65	65	73	72
24	67	64	55	51	47	49	58	55	65	69	74	72
25	67	64	55	51	47	49	58	56	65	69	74	72
26	67	64	55	49	47	49	58	56	65	69	74	72
27	66	61	55	49	47	49	57	56	65	69	74	72
28	66	64	55	49	47	49	57	56	65	69	74	72
29	66	61	52	49	--	49	57	56	67	69	74	72
30	66	61	52	49	--	49	57	56	67	69	74	72
31	66	--	56	49	--	50	--	56	--	69	73	--
Average	69	64	57	52	49	49	54	54	63	67	72	72

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 1955.
Water temperatures: October 1947 to May 1948, October 1948 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,200 ppm Dec. 1-10, Feb. 1-28, Apr. 1-30; minimum, 850 ppm June 17-30.
Hardness: Maximum, 386 ppm Jan. 1-31; minimum, 277 ppm June 17-30.
Specific conductance: Maximum daily, 2,140 micromhos May 15; minimum daily, 988 micromhos June 21.
Water temperatures: Maximum, 90°F July 24, Aug. 7, 29; minimum, 38°F Feb. 11.
EXTREMES, 1947-55.--Dissolved solids: Maximum, 1,560 ppm Oct. 1, 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 daily, 2,660 micromhos Oct. 1, 1948; minimum daily, 203 micromhos May 23, 1952.
Water temperatures: Maximum, 90°F July 24, Aug. 7, 29, 1955; minimum, freezing point Jan. 28-29, 1948.
REMARKS.--Values reported for dissolved solids are sums of 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 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954...	332	17		114	20	274		127	223	442		2.2		1,150	1.56	1,030	366	262	62	6.2	1,980	7.9
Oct. 11-20	218	14		116	20	281		124	232	452		1.8		1,180	1.60	695	372	270	62	6.3	2,040	7.9
Oct. 21-31	427	15		116	22	279		124	236	452		1.0		1,180	1.60	1,360	380	278	61	6.2	2,040	7.9
Nov. 1-10	103	12		116	20	284		123	239	452		1.0		1,180	1.60	328	372	270	62	6.4	2,040	7.8
Nov. 11-20	52.8	11		117	20	285		122	242	455		1.0		1,190	1.62	170	374	274	62	6.4	2,040	7.9
Nov. 21-30	34.5	11		117	20	287		124	237	460		.8		1,190	1.62	111	374	272	62	6.4	2,050	7.8
Dec. 1-10	40.5	10		118	19	290		125	240	460		1.8		1,200	1.63	131	372	270	63	6.6	2,050	7.9
Dec. 11-20	30.1	11		119	19	284		125	237	455		1.2		1,190	1.62	97	375	272	62	6.4	2,040	7.9
Dec. 21-31	33.9	9.2		118	19	287		126	240	455		1.2		1,190	1.62	109	372	270	63	6.5	2,050	8.1
Jan. 1-31, 1955 ..	31.7	13		122	20	282		129	231	462		1.5		1,190	1.62	102	386	281	61	6.2	2,050	7.8
Feb. 1-28	47.1	8.8		120	20	285		127	241	458		1.0		1,200	1.63	153	382	278	62	6.4	2,070	7.8
Mar. 1-31.....	62.9	7.2		120	19	286		128	228	465		1.2		1,190	1.62	202	378	272	62	6.4	2,080	7.5
Apr. 1-30.....	78.3	8.0		120	18	289		130	248	450		2.8		1,200	1.63	254	374	267	63	6.5	2,080	7.7
May 1-31.....	2,298	9.2		120	18	286		130	243	450		1.0		1,190	1.62	7,380	374	267	62	6.4	2,040	7.7
June 1-16	3,471	10		102	17	238		120	205	375		2.0		1,010	1.37	9,470	324	226	61	5.7	1,800	7.9
June 17-30.....	4,408	9.0		88	14	190		115	168	298		2.0		a850	1.16	10,120	277	183	60	5.0	1,470	7.8
July 1-31.....	971	11		98	14	218		120	192	338		2.2		932	1.27	2,440	302	204	61	5.2	1,640	7.4
Aug. 1-31	671	12		100	15	229		128	193	355		1.8		a1,000	1.36	1,810	311	206	62	5.6	1,680	7.8
Sept. 1-30.....	3,486	10		104	16	233		127	202	365		2.2		a1,040	1.41	9,790	326	222	61	5.6	1,720	7.6
Weighted average	997	10		104	16	238		124	205	374		1.8		1,030	1.40	2,770	326	224	61	5.7	1,760	--

a Residue on evaporation at 180°C.

BRAZOS RIVER BASIN--Continued

BRAZOS RIVER NEAR WHITNEY, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/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	min
1	80	77	70	63	60	57	53	51	58	55	57	47	64	62	74	66	76	74	80	79	86	84	84	82
2	81	78	69	64	60	58	53	52	58	54	55	49	66	60	76	71	76	74	80	78	85	83	83	79
3	82	79	64	52	58	56	61	55	54	50	62	55	70	64	73	67	76	71	86	79	86	82	82	78
4	81	79	57	52	61	57	65	61	50	50	70	62	72	68	76	70	76	76	82	80	84	81	82	78
5	81	79	60	56	61	59	65	63	50	48	68	62	76	70	80	71	76	76	82	80	83	80	82	79
6	82	79	62	58	59	54	63	55	48	47	62	54	72	61	79	74	77	76	82	79	88	80	82	79
7	81	79	64	60	55	53	55	52	48	46	57	52	63	58	82	73	78	77	84	80	90	85	82	79
8	81	79	64	62	55	53	52	52	50	46	59	53	65	62	81	76	77	76	82	80	82	81	81	79
9	81	79	67	64	55	53	53	52	53	49	65	57	62	61	78	74	77	76	86	80	82	81	84	79
10	80	78	68	65	55	52	53	51	53	45	68	63	66	62	74	70	77	77	86	83	83	81	85	81
11	81	79	67	64	55	53	51	50	45	38	71	66	74	66	71	70	77	76	85	80	83	81	85	81
12	83	78	66	63	55	51	53	50	44	40	72	67	73	71	75	68	77	77	84	82	85	82	84	82
13	83	79	65	62	51	48	53	51	48	44	71	66	71	67	75	66	78	76	84	82	84	81	86	81
14	79	73	65	61	49	48	52	51	53	48	68	63	69	66	84	75	77	75	83	82	85	82	84	80
15	76	71	63	61	51	49	52	52	53	51	69	66	74	68	80	75	81	76	82	81	87	83	82	80
16	74	71	65	62	51	50	54	52	55	52	69	57	73	68	80	77	79	76	83	80	85	81	83	79
17	74	71	66	64	51	50	54	53	55	52	61	57	76	70	83	73	77	76	88	81	83	81	83	79
18	75	68	66	64	50	49	53	51	55	54	62	58	78	72	81	66	77	75	87	81	83	78	85	81
19	77	72	64	59	50	49	51	46	55	46	59	56	74	69	77	68	78	76	87	81	82	80	85	80
20	76	72	61	58	51	50	46	45	46	42	62	59	69	66	72	70	78	77	89	82	86	80	84	80
21	77	73	62	59	51	50	50	46	44	43	62	51	74	66	73	72	78	77	84	82	84	81	83	80
22	75	72	62	59	52	50	50	50	47	43	55	50	77	72	72	70	78	78	83	82	88	81	84	79
23	72	71	59	56	52	51	50	48	47	45	60	53	75	69	71	68	78	78	86	81	89	81	80	79
24	74	71	58	57	53	51	50	47	49	46	62	58	71	67	73	71	78	78	90	81	84	81	80	80
25	75	72	58	55	56	52	51	48	50	48	60	54	75	69	73	72	78	78	82	81	86	82	80	80
26	75	72	60	57	59	56	52	50	54	50	54	46	74	69	74	72	78	78	84	80	85	82	80	80
27	74	68	60	58	63	59	52	50	56	54	52	47	70	65	75	74	79	78	84	81	86	82	80	80
28	73	68	60	57	62	50	52	50	58	55	57	51	76	67	77	75	81	79	83	81	85	84	80	80
29	71	68	57	54	50	46	50	47	--	--	58	55	75	67	78	76	81	79	83	81	90	84	80	80
30	70	68	57	54	46	44	52	49	--	--	62	56	74	69	78	76	81	79	89	81	84	82	81	81
31	69	66	--	--	51	46	56	52	--	--	65	60	--	--	76	75	--	--	86	83	84	82	--	--
Average	77	74	63	59	54	52	53	51	51	48	62	56	72	66	76	72	78	76	84	81	85	82	83	80

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.--44,050 square miles, approximately, of which 9,240 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1955.
Water temperatures: November 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,050 ppm May 29-31, June 1, 9-11; minimum, 161 ppm Apr. 14-21.
Hardness: Maximum, 324 ppm May 29-31, June 1,9-11; minimum, 82 ppm Apr. 22-30.
Specific conductance: Maximum daily, 1,870 micromhos May 31; minimum daily, 217 micromhos Apr. 23.
Water temperatures: Maximum, 86°F Aug. 9, 13, 15; minimum, 45°F Feb. 11-12.
EXTREMES, 1945-55.--Dissolved solids: Maximum, 1,400 ppm Sept. 1-10, 1951; minimum, 133 ppm Aug. 27-31, 1947.
Hardness: Maximum, 446 ppm Sept. 1-10, 1948; minimum, 74 ppm Jan. 13-14, 18-20, 1950.
Specific conductance: Maximum daily, 2,540 micromhos Sept. 4, 1951; minimum daily, 187 micromhos Aug. 31, 1947.
Water temperatures (1950-55): Maximum, 91°F Aug. 5, 1951; minimum, 40°F Dec. 24, 1953.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	685	18		86	23	209	6.6	160	172	335	0.1	2.0	0.28	959	1.30	1,770	309	178	59	5.2	1,620	8.0
Oct. 11-19	582	17		92	20	212	6.3	162	175	332	.1	1.2	.19	973	1.32	1,530	312	179	59	5.2	1,630	8.0
Oct. 20-31	534	17		64	13	86	4.0	196	72	123	.2	1.2	.26	486	.66	701	213	52	46	2.6	825	8.0
Nov. 1-7, 22-23	1,084	17		73	16	124	4.8	199	118	172	.2	1.5	.21	654	.89	1,910	248	85	51	3.4	1,100	8.0
Nov. 8-21	712	15		92	17	186	5.7	189	156	285	.1	1.5	.16	872	1.19	1,680	300	144	57	4.7	1,480	8.1
Nov. 24-30	894	15		42	8.4	54	4.0	141	40	75	.3	3.0	.15	322	.44	777	140	24	45	2.0	554	8.0
Dec. 1-6	468	15		58	11	74	3.8	178	47	112	.3	2.0	.12	422	.57	533	190	44	45	2.3	726	8.1
Dec. 7-16	390	15		73	16	127	4.3	225	52	202	.3	1.5	.17	606	.82	638	248	64	52	3.5	1,070	8.2
Dec. 17-27	490	16		72	16	96	4.1	240	62	135	.3	1.2	.13	522	.71	691	246	49	45	2.7	912	8.2
Dec. 28-31	696	12		45	7.3	54	3.5	156	33	74	.4	2.8	--	312	.42	586	143	15	44	2.0	549	8.1
Jan. 1-10, 1955	381	17		63	13	114	4.2	211	47	168	.2	1.2	.22	548	.75	564	210	38	53	3.4	941	8.2
Jan. 11-19	423	16		55	16	113	4.0	190	68	158	.2	1.5	.22	530	.72	605	203	48	54	3.4	911	8.0
Jan. 20-21, 29-31	791	16		48	8.8	63	3.5	160	47	84	.2	2.2	.16	359	.49	767	156	25	46	2.2	610	8.2
Jan. 22-28	925	15		62	13	94	4.2	205	71	127	.3	2.0	.20	505	.69	1,260	208	40	49	2.8	845	8.2
Feb. 1-7	3,562	13		50	8.1	70	3.7	159	52	92	.5	3.5	.16	385	.52	3,700	158	28	48	2.4	661	7.8
Feb. 8-18	7,281	11		31	3.4	23	3.3	104	21	25	.5	3.5	.09	192	.26	3,770	91	6	34	1.0	303	7.6
Feb. 19-28	1,587	13		38	5.4	67	4.3	111	29	104	.4	1.2	.15	335	.46	1,440	117	26	54	2.7	587	7.5
Mar. 1-3, 8-10	1,134	17		55	7.0	88	4.3	143	57	128	.3	3.5	.26	a430	.58	1,320	167	50	53	3.0	756	7.8
Mar. 4-7	1,122	14		42	6.0	52	3.7	125	37	70	.2	2.5	.14	308	.42	933	129	26	48	2.0	512	7.9
Mar. 11-20	550	16		57	9.1	86	4.4	173	39	128	.3	1.8	.20	a427	.58	634	179	37	50	2.8	764	8.0
Mar. 21-31	1,175	16		64	9.3	76	4.2	178	64	105	.3	2.8	18	a430	.58	1,360	197	51	45	2.4	736	7.9

a Sum of dstermined constituents.

BRAZOS RIVER BASIN--Continued

BRAZOS RIVER AT RICHMOND, TEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1, 6-12, 1955	1,669	14		48	7.0	72	4.5	147	42	101	0.5	2.8	0.18	a364	0.50	1,640	149	28	50	2.6	656	8.0
Apr. 2-5, 13	4,033	14		45	5.6	38	3.6	130	48	44	.5	3.0	.10	270	.37	2,940	136	29	37	1.4	466	7.6
Apr. 14-21	9,624	12		31	4.5	16	4.2	105	18	18	.6	2.5	.12	161	.22	4,180	95	9	26	.7	267	7.6
Apr. 22-30	2,736	14		28	3.0	22	5.2	96	17	28	.6	.8	.12	190	.26	1,400	82	4	35	1.1	286	7.5
May 1-10	645	15		48	7.2	50	5.3	151	46	68	.4	1.5	.20	329	.45	573	150	26	41	1.8	546	8.0
May 11-19, 22	1,246	14		57	8.5	62	--	175	53	84	.4	1.5	.14	382	.52	1,290	178	34	43	2.0	643	7.8
May 20-21, 23-28	9,879	10		48	5.0	23	--	142	29	30	.4	4.5	.12	232	.32	6,190	140	24	26	.8	389	7.8
May 29-31, June 1, 9-11	9,837	12		105	15	225	6.9	124	200	370	.4	2.2	.16	1,050	1.43	27,890	324	222	60	5.4	1,740	7.9
June 2-8	3,994	15		77	10	149	5.6	120	127	238	.3	3.0	.13	711	.97	7,670	238	134	57	4.2	1,230	7.9
June 12-22, 29-30	6,121	13		72	10	140	5.5	115	123	215	.2	2.8	.19	667	.91	11,020	220	126	57	4.1	1,140	7.8
June 23-28	6,068	14		68	9.4	114	5.3	124	106	170	.2	2.5	.12	573	.78	9,390	208	106	54	3.4	997	7.9
July 1-13	2,420	12		87	12	169	5.8	125	149	275	.5	1.8	.14	818	1.11	5,340	267	164	57	4.5	1,360	7.6
July 14-27	1,136	13		86	13	166	5.6	132	150	270	.4	1.5	.12	815	1.11	2,500	267	159	57	4.4	1,360	7.8
July 28-31	1,340	10		64	12	107	5.0	147	91	159	.6	1.2	--	556	.76	2,010	208	88	52	3.2	931	7.6
Aug. 1-3	1,085	18		59	10	96	5.2	143	79	141	.0	3.0	.08	512	.70	1,500	189	72	52	3.0	867	7.8
Aug. 4-16, 18-20	1,081	18		86	14	176	5.8	145	155	268	.1	1.5	.14	814	1.11	2,380	272	153	58	4.7	1,400	8.0
Aug. 17, 21-31	1,419	13		58	8.2	86	4.6	132	83	125	.2	2.5	.10	a446	.61	1,710	179	71	50	2.8	781	7.8
Sept. 1-8	817	17		77	11	130	5.1	163	112	195	.2	1.5	.13	637	.87	1,410	237	104	54	3.7	1,100	8.1
Sept. 9-22	934	15		84	15	180	5.8	146	157	275	.1	2.0	.10	817	1.11	2,060	271	152	58	4.8	1,410	7.7
Sept. 23-30	922	13		78	13	150	5.2	166	130	220	.1	1.2	.11	728	.99	1,810	248	112	56	4.1	1,230	7.7
Weighted average	2,168	13		60	8.9	95	4.9	132	83	145	0.4	2.6	0.14	498	0.68	2,920	186	78	52	3.0	842	--

a Sum of determined constituents.

BRAZOS RIVER BASIN--Continued

BRAZOS RIVER AT RICHMOND, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

BRAZOS RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN BRAZOS RIVER BASIN IN TEXAS

Chemical analyses, in parts per million, water year October 1954 to September 1955

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)	Boron (B)	Dissolved solids (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
WHITE RIVER AT COUNTY ROAD CROSSING 4½ MILES EAST OF CROSBYTON																						
Jan. 18, 1955....	1.98	48			43				64	23		1.0									812	
WHITE RIVER AT U. S. HIGHWAY 82, 4½ MILES EAST OF CROSBYTON																						
Jan. 18, 1955....	2.22	44			43				44	24		0.5									780	
LAKE MINERAL WELLS NEAR MINERAL WELLS																						
Sept. 15, 1955 ...		3.1	0.00	64	9.9	93		122	86	150	0.3	0.0		503	0.09		199	99	50	2.9	845	7.6
LAKE LEON NEAR EASTLAND																						
Apr. 15, 1955....		0.7	0.01	50	6.6	12	8.6	186	7.2	20	0.4	1.5	0.06	205	0.28		152	0	14	0.4	364	7.6
LAKE BELTON NEAR BELTON																						
Sept 9, 1955		6.4	0.01	44	4.4	16		159	9.2	15	0.2	0.5		196	0.27		128	0	21	0.6	319	7.3

MORGAN CREEK NEAR WESTBROOK, TEX.

LOCATION.--Temperature recorder at gaging station at highway bridge, 1.1 miles upstream from Graze Creek, and 2.7 miles north of Westbrook, Mitchell County.
DRAINAGE AREA.--249 square miles of which 21 square miles is probably noncontributing.
RECORDS AVAILABLE.--Water temperatures: October 1954 to September 1955.
REMARKS.--No flow during most of year. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Temperature (°F) of water, water year October 1954 to September 1955
/Continuous water-stage recorder with thermograph. Temperature reported only on days of flow/

Date	Max	Min	Date	Max	Min	Date	Max	Min	Date	Max	Min
May 11	70	66	May 23	66	52	July 15	80	76	Aug. 21	77	75
12	74	68	24	77	66	18	75	70	22	81	76
13	73	68	25	75	70	19	76	74	23	85	77
16	75	69	26	72	63	28	79	74			
20	70	65	June 17	79	72	29	83	76			
21	70	65	18	78	76	30	86	79			

GRAZE CREEK NEAR WESTBROOK, TEX.

LOCATION.--Temperature recorder at gaging station on right bank, 1.2 miles upstream from mouth and 4.2 miles north of Westbrook, Mitchell County.
DRAINAGE AREA.--21.2 square miles.
RECORDS AVAILABLE.--Water temperatures: October 1954 to September 1955.
REMARKS.--No flow during most of year. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Temperature (°F) of water, water year October 1954 to September 1955
/Continuous water-stage recorder with thermograph. Temperature reported only on days of flow/

Date	Max	Min	Date	Max	Min	Date	Max	Min	Date	Max	Min
Dec. 11	49	44	May 12	81	62	May 23	72	50	June 18	88	74
Mar. 20	57	53	13	88	66	24	84	65	Aug. 21	76	74
May 5	78	58	18	82	65	25	88	68	22	87	73
10	64	57	19	82	65	June 16	73	71	Sept. 11	78	70
11	67	59	22	61	45	17	88	71	25	82	72

COLORADO RIVER BASIN--Continued

LAKE COLORADO CITY NEAR COLORADO CITY, TEX.

LOCATION.--Temperature recorder at gaging station at municipal water-intake structure, 1.7 miles upstream from Lake Colorado City Dam on Morgan Creek, 2.2 miles downstream from Texas and Pacific Railway bridge, 2.5 miles upstream from mouth and 4.0 miles southwest of Colorado City, Mitchell County.
DRAINAGE AREA.--267 square miles.
RECORDS AVAILABLE.--Water temperatures: July 1954 to September 1955.
EXTREMES, July 1954 to September 1955.--Water temperaturea: Maximum, 84°F July 21-25, 1954; minimum, 45°F Jan. 24-28, 1955
REMARKS.--Records of reservoir contents for water years October 1953 to September 1955 given in WSP 1342, and WSP 1392.

Temperature (°F) of water, July to September 1954
/Continuous water-stage recorder with thermograph/

Day	July		August		September		Day	July		August		September		Day	July		August		September	
	max	min	max	min	max	min		max	min	max	min	max	min		max	min	max	min	max	min
1	--	--	83	83	81	81	11	--	--	82	82	80	80	21	84	84	82	81	78	77
2	--	--	83	83	81	81	12	--	--	82	82	80	80	22	84	84	81	81	77	77
3	--	--	83	83	81	81	13	--	--	82	82	80	80	23	84	84	81	80	77	77
4	--	--	83	83	81	81	14	--	--	82	82	80	80	24	84	84	81	80	77	76
5	--	--	83	83	81	81	15	--	--	82	82	80	80	25	84	84	81	81	77	76
6	--	--	83	83	81	81	16	--	--	82	82	80	80	26	83	83	81	81	77	77
7	--	--	83	82	81	81	17	--	--	82	82	80	80	27	83	83	81	81	77	77
8	--	--	82	82	81	81	18	--	--	82	82	80	80	28	83	83	81	81	77	77
9	--	--	82	82	81	81	19	--	--	82	82	80	80	29	83	83	81	81	77	77
10	--	--	82	82	81	80	20	--	--	82	82	79	79	30	83	83	81	81	77	77
														31	83	83	81	81	--	--
Average															--	--	82	82	79	79

LAKE COLORADO CITY NEAR COLORADO CITY, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
[Continuous water-stage recorder with thermograph]

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	77	76	64	63	58	58	49	49	49	48	52	52	55	55	70	70	73	73	81	81	81	81	81	81
2	77	76	63	61	58	58	49	49	49	49	54	52	55	55	70	70	73	73	81	81	81	81	81	81
3	77	77	61	60	58	57	50	49	49	49	55	54	56	55	70	70	73	72	81	81	81	81	81	81
4	77	77	60	58	57	56	52	51	49	49	57	55	56	56	72	70	74	73	81	81	82	81	81	81
5	77	77	58	58	56	56	52	52	49	49	57	54	56	56	72	72	74	74	81	81	82	82	81	80
6	77	77	58	57	56	56	52	52	50	49	54	54	56	56	74	72	74	74	81	81	82	82	80	80
7	77	76	57	57	56	56	52	51	50	50	54	54	56	56	74	73	--	--	81	81	83	82	80	80
8	76	76	59	58	56	54	51	50	50	50	55	54	56	56	74	73	--	--	81	81	83	83	80	80
9	75	75	59	59	54	54	49	48	50	50	55	55	57	56	74	74	--	--	81	81	83	83	80	80
10	75	75	59	59	54	54	48	48	50	50	55	55	60	57	74	73	--	--	81	81	83	83	80	80
11	75	75	59	59	54	54	48	47	50	50	56	55	60	60	73	73	--	--	81	81	83	83	80	80
12	75	75	59	59	54	54	47	47	50	50	56	56	60	60	73	73	--	--	81	81	83	83	80	80
13	75	74	59	59	54	53	47	47	50	49	57	56	60	60	73	73	--	--	81	81	83	83	80	80
14	74	73	59	59	53	52	47	47	50	49	59	57	60	60	73	73	--	--	81	81	83	82	80	80
15	73	72	59	59	52	52	47	47	50	50	59	59	61	60	75	73	--	--	81	81	82	82	80	80
16	72	70	60	59	52	52	47	47	50	50	59	59	61	61	76	75	--	--	81	81	82	82	80	80
17	70	70	60	60	52	51	47	47	50	50	59	59	63	61	76	76	78	78	81	81	82	82	80	80
18	70	70	60	60	51	49	47	47	50	50	59	59	64	63	76	75	78	78	81	81	82	82	80	80
19	70	70	60	59	49	49	47	47	50	50	59	58	65	64	75	75	78	78	81	81	82	82	80	80
20	70	69	59	59	49	49	47	47	50	50	58	58	65	65	75	75	78	78	81	81	82	82	80	80
21	69	68	59	59	49	49	47	47	50	50	58	58	66	65	75	74	78	78	81	81	82	81	80	80
22	68	68	59	58	49	49	47	46	50	50	58	58	67	66	74	74	78	78	81	81	81	81	80	79
23	68	68	58	58	49	49	46	46	50	50	58	56	67	67	74	74	78	78	81	81	82	81	79	79
24	68	67	58	58	49	49	46	45	50	50	56	56	67	67	74	74	80	78	81	81	82	82	79	79
25	67	67	58	58	50	49	45	45	50	50	56	56	67	67	74	74	80	80	81	81	82	82	79	79
26	68	67	58	58	51	50	45	45	50	50	56	55	67	67	74	74	81	80	81	81	82	82	79	79
27	68	67	58	58	52	51	45	45	50	50	55	54	67	67	74	74	81	81	81	81	82	82	78	78
28	67	66	58	58	50	48	46	45	52	50	54	54	68	67	74	74	81	81	81	81	83	83	78	78
29	66	65	58	58	50	49	47	46	--	--	54	54	68	68	74	73	81	81	81	81	83	83	78	78
30	65	64	58	58	50	50	47	46	--	--	55	55	69	68	73	73	81	81	81	81	83	81	78	78
31	64	64	--	--	50	50	48	47	--	--	55	55	--	--	73	73	--	--	81	81	81	81	--	--
Average	72	71	59	59	53	52	48	48	50	50	56	56	62	61	74	73	--	--	81	81	82	82	80	80

COLORADO RIVER BASIN--Continued

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, San Saba County, and at mile 474.
DRAINAGE AREA.--30,600 square miles, approximately, of which 11,900 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: September 1947 to September 1955.
Water temperatures: September 1947 to September 1955.
Sediment records: December 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,190 ppm Oct. 2-4; minimum, 102 ppm Sept. 23-25.
Hardness: Maximum, 434 ppm Oct. 2-4; minimum, 78 ppm Sept. 23-25.
Specific conductance: Maximum daily, 2,530 micromhos Oct. 2; minimum daily, 170 micromhos Sept. 24.
Water temperatures: Maximum, 89°F Aug. 27; minimum, 34°F Dec. 14.
Sediment concentrations: Maximum daily, 10,000 ppm May 18; minimum, 32 ppm Dec. 1-11.
Sediment loads: Maximum daily, 535,000 tons May 19; minimum daily, 0.2 tons May 1-9.
EXTREMES, 1947-55.--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, 93°F June 14, 1953; minimum, freezing point Jan. 29, 1948, Jan. 30, 1951.
Sediment concentrations (1950-55): Maximum daily, 100,200 ppm May 24, 1951; minimum, no flow Aug. 27-31, 1954.
Sediment loads (1950-55): Maximum daily, 535,000 tons May 19, 1955; minimum, 0 tons Aug. 27-31, 1954.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1, 5-10, 28, 1954	259	14		70	28	147		208	98	238		2.5		736	1.00	515	290	119	53	3.8	1,270	8.1
Oct. 2-4	198	15		108	40	264		188	233	432		2.2		a1,190	1.62	636	434	280	57	5.5	2,060	7.9
Oct. 11-27	15.1	16		48	22	61		237	25	86		2.2		a 377	.52	15.4	210	16	39	1.8	672	8.1
Oct. 29-31	273	11		32	8.4	40		128	11	58		3.8		238	.32	175	114	10	43	1.6	424	7.7
Nov. 1-13	63.7	11		34	11	21		146	10	31		2.5		195	.27	58.5	130	10	26	.8	357	7.7
Nov. 14-23	768	9.6		32	6.4	13		113	8.6	22		3.0		156	.21	323	108	14	21	.6	278	7.6
Nov. 24-30	42	12		51	14	45		196	17	73		2.2		313	.43	35.5	184	24	35	1.5	566	7.8
Dec. 1-10	33.6	13		61	21	52		273	15	78		1.8		a 376	.51	34.1	238	15	32	1.4	682	8.0
Dec. 11-20	30.0	12		66	25	51		313	17	73		1.5		a 400	.54	32.4	268	11	29	1.3	718	8.0
Dec. 21-31	31.7	13		67	29	44		334	13	67		1.0		a 398	.54	34.1	286	12	25	1.1	723	7.9
Jan. 1-10, 1955	37.0	11		60	23	49		277	18	74		1.0		380	.52	38.0	244	17	30	1.4	669	8.0
Jan. 11-20	49.8	14		62	24	44		289	16	67		1.2		376	.51	50.6	253	16	28	1.2	660	7.9
Jan. 21-31	38.0	12		63	26	44		297	19	67		1.2		390	.53	40.0	264	20	26	1.2	679	7.8

a Sum of determined constituents.

Feb. 1-10, 1955...	464	10		47	17	60	204	27	87		2.0		356	.48	446	188	22	41	1.9	635	7.9
Feb. 11-19.....	112	9.6		46	12	47	176	32	61		3.0		304	.41	91.9	164	20	38	1.6	516	7.7
Feb. 20-28.....	52.4	12		65	10	43	228	24	58		2.5		331	.45	46.8	203	16	31	1.3	566	7.9
Mar. 1-10	28.7	7.8		56	22	43	261	22	61		1.0		348	.47	27.0	230	16	29	1.2	618	7.7
Mar. 11-20	11.6	7.8		55	25	48	274	22	68		.8		a362	.49	11.3	240	16	30	1.3	654	7.8
Mar. 21-22, 27-31.	60.3	10		62	22	65	255	32	101		1.0		429	.58	69.8	245	36	37	1.8	769	8.0
Mar. 23-26	91.2	10		47	12	50	178	26	73		1.8		314	.43	77.3	168	122	39	1.7	566	7.8
Apr. 1-10.....	139	9.6		62	23	68	257	31	108		1.0		a429	.58	161	249	38	37	1.9	795	7.8
Apr. 11-15, 26-30.	217	11		45	11	34	180	17	46		2.2		a255	.35	149	158	10	32	1.2	470	7.8
Apr. 16-25.....	63.5	9.6		40	7.8	21	152	13	26		3.5		a196	.27	33.6	132	7	26	.8	357	7.7
May 1-10	5.53	11		48	17	36	220	14	51		1.8		294	.40	4.37	190	10	29	1.1	523	8.1
May 11-13, 15.....	5,490	23		48	6.6	27	154	30	33		2.0		248	.34	3,680	146	20	29	1.0	418	7.5
May 14, 16-18.....	6,230	15		64	9.3	126	158	67	192		1.8		587	.80	9,870	198	68	58	3.9	1,040	7.7
May 19-27.....	21,920	16		42	4.6	11	138	12	14		3.2		185	.25	10,950	123	10	17	.4	300	8.0
May 28-31, June 1-4	1,086	16		54	9.2	69	160	39	105		4.5		395	.54	1,160	173	42	46	2.3	683	8.1
June 5-13.....	1,091	16		41	3.6	12	135	10	14		2.8		a165	.22	486	116	5	19	.5	280	7.8
June 14-20.....	4,059	15		47	5.1	17	147	16	25		3.8		209	.28	2,290	138	18	21	.6	356	7.9
June 21-30.....	601	15		50	7.6	25	166	17	37		5.1		256	.35	415	156	20	26	.9	423	8.2
July 1-10	816	18		48	8.1	20	168	18	26		4.3		240	.33	529	154	10	22	.7	389	8.0
July 11-20	5,432	17		47	8.6	21	164	17	31		2.5		240	.33	3,520	152	18	23	.7	398	8.2
July 21-31	2,249	16		44	6.9	19	153	17	25		3.0		222	.30	1,350	139	14	23	.7	372	8.0
Aug. 1-10.....	434	10		56	11	40	188	32	59		3.0		337	.46	395	185	31	32	1.3	552	8.0
Aug. 11-20.....	473	13		49	10	30	176	22	42		4.0		259	.35	331	164	20	29	1.0	462	8.0
Aug. 21-31.....	7,908	13		44	7.7	21	150	21	29		3.5		214	.29	4,570	142	19	25	.8	377	7.7
Sept. 1-10	259	13		46	9.2	26	163	20	36		3.5		242	.33	169	152	18	27	.9	417	7.9
Sept. 11-22, 26-27.	913	14		50	12	33	188	22	47		2.2		285	.39	703	174	20	29	1.1	486	7.8
Sept. 23-25	22,030	8.8		26	3.2	6.0	94	4.0	5.5		2.5		a102	.14	6,070	78	1	14	.3	174	7.6
Sept. 28-30	2,443	10		37	4.3	15	125	9.5	20		3.0		166	.23	1,090	111	9	22	.6	276	7.6
Weighted average.	1,660	15		43	5.9	21	142	16	30		2.9		214	0.29	959	132	15	26	0.8	361	--

a Sum of determined constituents.

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COLORADO RIVER BASIN--Continued

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually between 7 a. m. and 10 a. m./

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

COLORADO RIVER BASIN--Continued

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	22	46	s9.2	89	250	60	38		
2	403	370	403	67	110	20	36		
3	121	133	43	50	100	14	36		
4	71	100	19	42	79	9.0	36		
5	56	86	13	41	100	11	35		
6	48	100	13	107	100	29	31	32	2.9
7	282	185	141	78	200	42	31		
8	165	160	71	65	220	39	33		
9	94	105	27	69	300	56	31		
10	87	100	a23	61	260	43	29		
11	46	96	12	59	160	25	31		
12	38	86	8.8	54	150	22	35		
13	31	50	4.2	46	100	12	48		
14	23	76	4.7	4,540	4,310	s82,400	38		
15	18	93	4.5	1,770	3,250	15,500	31		
16	13	78	2.7	436	1,650	1,940	27	82	6.5
17	11	82	2.4	276	1,500	1,120	23		
18	8.6	80	1.9	203	1,350	740	21		
19	6.2	84	1.4	146	950	374	21		
20	6.2	103	1.7	102	550	151	25		
21	5.6	90	1.4	78	350	74	25		
22	3.6	76	.7	67	170	31	27	--	a3.6
23	2.9	70	.5	59	150	24	27		
24	2.0	58	.3	50	130	18	25		
25	1.8	58	.3	48	100	13	27	35	2.6
26	2.0	60	.3	44	100	a12	27		
27	38	110	11	40	100	11	27		
28	1,320	--	b6,000	38	90	9.2	29		
29	519	1,450	2,030	36	80	7.8	33		
30	190	550	282	38	40	4.1	50	--	e4.8
31	110	420	125	--	--	--	52		
Total	3,744.9	--	9,258.0	8,799	--	102,811.1	985	--	128.3

	January			February			March		
1	48			31	66	5.7	38		
2	42	--	e4.0	33			38		
3	38			36	--	a6.4	40		
4	40			330	352	s432	35		
5	38			1,520	1,150	4,720	29		
6	33			1,250	1,250	4,220	23	75	5.8
7	29			557	420	632	21		
8	29			329	320	284	23		
9	31	47	4.7	306	280	231	21		
10	42			251	250	169	19		
11	42			184	350	174	14		
12	44			140	300	113	12		
13	44			123	150	50	9.6		
14	42			107	150	43	8.6		
15	46			99	125	33	11		
16	54			89	125	30	13	70	2.2
17	54			89	150	36	9.6		
18	63			89	150	36	11		
19	59	44	5.9	85	175	40	13		
20	50			71			14		
21	42			63			71	100	a19
22	40			63			190	110	a56
23	42			59			174	90	a42
24	46			46	97	14	94		
25	44			44			61		
26	40			44			36		
27	38	66	6.3	42			35	80	9.5
28	35			40			42		
29	33			--	--	--	36		
30	29			--	--	--	29		
31	29			--	--	--	19		
Total	1,286	--	166.1	6,120	--	11,386.8	1,189.8	--	273.0

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

COLORADO RIVER BASIN--Continued

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Suspended sedimnet, water year October 1954 to September 1955--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.....	8.6			1.8			698	480	905
2.....	5.6			1.3			513	250	346
3.....	4.5			1.4			370	170	170
4.....	6.2			1.1			360	200	194
5.....	5.6	--	e 1	.8	70	0.2	5,410	5,910	s 147,000
6.....	4.5			.6			24,200	6,210	s 390,000
7.....	3.2			.5			14,400	4,350	169,000
8.....	3.2			.4			20,900	5,200	293,000
9.....	7.0			.4			13,000	5,500	s 170,000
10.....	1,340	1,330	s 5,460	47	200	s 25	13,100	6,000	212,000
11.....	378	750	765	2,720	4,040	s 66,800	4,260	4,700	54,100
12.....	196	350	185	8,510	7,790	s 182,000	1,770	4,680	22,400
13.....	927	815	c 3,100	7,490	6,040	s 126,000	1,110	2,250	6,740
14.....	470	680	c 860	4,670	9,470	s 125,000	773	750	1,570
15.....	152	300	123	3,240	7,450	s 67,700	579	270	422
16.....	89	270	65	1,920	6,150	31,900	7,080	4,910	s 113,000
17.....	63	250	43	1,630	2,870	s 14,200	6,780	3,300	60,400
18.....	48	300	39	16,700	10,000	s 358,000	6,250	3,160	s 54,800
19.....	33	230	20	50,200	3,950	535,000	4,780	2,250	29,000
20.....	56	270	41	51,100	3,600	497,000	2,170	1,600	9,370
21.....	112	250	76	44,600	3,100	373,000	1,420	950	3,640
22.....	107	200	58	35,900	1,740	169,000	1,080	550	1,600
23.....	56	179	27	4,940	5,620	s 59,100	752	350	711
24.....	38	142	15	1,920	2,880	14,900	546		
25.....	33	116	10	1,320	1,300	4,630	410		
26.....	23	127	7.9	2,200	1,950	s 17,600	306	119	101
27.....	13	137	4.8	5,090	6,310	s 91,900	239		
28.....	7.7			2,670	4,000	28,800	196		
29.....	4.5	84	1.1	1,770	3,550	17,000	187		
30.....	2.6			1,370	4,600	17,000	878	888	c 8,140
31.....	--	--	--	938	1,600	4,050	--	--	--
Total.	4,197.2	--	10,912.0	250,953.3	--	2,800,606.8	134,517	--	1,749,114

Day	July			August			September		
1.....	3,000	4,000	s 33,700	180			815		
2.....	1,310	1,050	3,710	170			579		
3.....	1,340	1,590	s 6,390	180			338		
4.....	1,010	1,250	3,410	155			213		
5.....	496	520	a 700	196	70	c 31	158	194	147
6.....	329	220	195	152			129		
7.....	236	190	121	118			107		
8.....	177	140	67	1,220	--	b 1,800	94		
9.....	137	112	41	874	--	b 900	85		
10.....	123			1,090	--	b 1,200	76		
11.....	112			518			76		
12.....	105			338			74		
13.....	99	72	20	452			135	54	14
14.....	94			276			123		
15.....	105			458	214	189	107		
16.....	99			264			94		
17.....	1,410	2,610	c 35,000	177			71		
18.....	13,100	5,550	s 190,000	137			67		
19.....	18,000	3,100	151,000	428	600	693	61		
20.....	21,200	2,150	123,000	1,680	1,620	s 7,330	56	77	12
21.....	13,500	2,200	80,200	1,420	500	1,920	54		
22.....	3,590	2,650	25,700	1,690	1,100	5,020	48		
23.....	2,120	1,400	8,010	1,370	1,200	4,440	10,100	3,450	s 165,000
24.....	1,520	850	3,490	874	810	1,890	28,300	2,850	218,000
25.....	1,100	550	1,630	745	400	805	27,700	1,360	102,000
26.....	874	350	826	452			6,620	3,050	s 48,600
27.....	731	230	454	306			5,200	3,500	49,100
28.....	491	200	265	232	180	c 150	4,060	2,950	32,300
29.....	338	170	155	187			2,020	1,200	6,540
30.....	259	110	77	353			1,250	800	2,700
31.....	217	110	64	1,070	--	b 2,600	--	--	--
Total.	67,222	--	668,345	17,762	--	31,077	88,810	--	625,735

Total discharge for year (cfs-days) 605,586.2
Total load for year (tons) 6,009,813.1

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.
c Partly estimated.

COLORADO RIVER NEAR SAN SABA, TEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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)

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. 29, 1954	8:00 a.m.	590	60	1,620	935	73	91	97	99	99	100	--	--				BWC
Nov. 14	2:00 p.m.	11,800	69	7,940	1,940	--	55	79	81	92	98	99	100				SPWC
Nov. 14	2:00 p.m.	11,800	69	7,940	1,950	--	24	66	81	92	97	99	100				SPN
Apr. 10, 1955	6:00 p.m.	1,220	65	1,700	1,280	79	88	96	99	99	100	--	--				BWC
May 12	7:00 a.m.	8,940	68	7,240	4,380	--	73	81	93	99	99	100	--				SPWC
May 14	8:00 a.m.	3,940	75	7,840	5,070	29	48	71	90	99	100	--	--				BWC
May 18	8:00 a.m.	5,860	73	11,900	3,790	--	69	81	93	97	99	100	--				SPWC
May 18	3:35 p.m.	17,800	73	8,840	4,020	--	64	76	88	96	98	99	100				SPWC
May 19	6:45 a.m.	49,700	68	3,680	3,460	--	77	90	97	98	99	100	--				SPWC
May 19	7:20 p.m.	54,900	68	4,600	2,160	--	72	83	91	96	100	--	--				SPWC
May 19	7:20 p.m.	54,900	68	4,600	2,300	8	43	79	93	94	99	99	100				SPN
May 20	9:30 a.m.	52,000	--	3,770	3,580	--	72	89	93	97	100	--	--				SPWC
May 22	12:10 a.m.	43,900	72	2,380	2,220	--	81	94	95	97	100	--	--				SPWC
May 27	9:00 a.m.	5,990	81	7,420	2,400	--	71	74	92	98	100	--	--				SPWC
May 27	9:00 a.m.	5,990	81	7,420	2,810	6	35	62	84	95	100	--	--				SPN
June 6	12:35 p.m.	27,600	67	4,890	3,000	--	72	85	91	99	99	100	--				SPWC
June 6	11:30 p.m.	22,600	72	3,920	3,380	--	64	86	96	98	99	100	--				SPWC
June 10	12:30 p.m.	14,200	71	5,640	3,960	--	65	74	85	92	96	100	--				SPWC
June 17	6:00 p.m.	6,250	80	2,500	1,420	49	64	70	87	98	100	--	--				BWC
July 18	10:05 p.m.	13,700	80	3,910	3,140	--	69	80	81	96	99	100	--				SPWC
July 20	8:00 a.m.	21,700	80	2,540	1,820	53	62	74	87	92	99	100	--				BWC
Sept. 24	9:30 a.m.	28,200	76	2,830	2,490	--	80	88	96	99	100	--	--				SPWC
Sept. 24	6:00 p.m.	30,100	76	2,280	1,820	58	73	85	90	96	99	100	--				BWC
Sept. 27	9:00 a.m.	4,900	79	3,060	2,490	--	70	85	94	96	100	--	--				SPWC

COLORADO RIVER BASIN--Continued

COLORADO RIVER AT AUSTIN, TEX.

LOCATION (revised).--At raw-water intake at Austin City Water Plant, just downstream from bridge on U. S. Highway 290 in Austin, Travis County, half a mile downstream from Barton Creek and 4.5 miles upstream from gaging station at Montopolis bridge on U. S. Highway 283.
DRAINAGE AREA.--38,400 square miles, approximately, above gaging station, of which 11,900 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: October 1947 to September 1955.
Water temperatures: October 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 262 ppm Jan. 1-31; minimum 232 ppm July 1-31.
Hardness: Maximum, 168 ppm Dec. 1-31; minimum, 147 ppm Aug. 1-31.
Specific conductance: Maximum daily, 503 micromhos Mar. 28; minimum daily, 410 micromhos Oct. 5.
Water temperatures: Maximum, 82°F Aug. 27-29; minimum, 52°F Dec. 30, Feb. 11-12.
EXTREMES, 1947-55.--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, 144 ppm June 1-30, 1953.
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.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. 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 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954..	288	10		43	12	26		178	18	34	0.3	0.8		238	0.32	185	157	11	27	0.9	426	7.7
Nov. 1-30.....	309	11		45	13	27		184	20	36	.2	.8		252	.34	210	166	15	26	.9	432	7.8
Dec. 1-31.....	271	9.6		44	14	26		183	21	36	.2	.8		248	.34	181	168	18	25	.9	440	8.1
Jan. 1-31, 1955 .	287	9.4	0.01	45	13	30		180	22	42	.3	1.2		262	.36	203	167	20	28	1.0	444	7.9
Feb. 1-28.....	530	9.4		42	15	31		185	24	40	.3	1.0		254	.35	363	167	16	29	1.1	457	7.9
Mar. 1-31	457	7.8		54	6.7	31		180	23	40	.3	.8		260	.35	321	163	16	29	1.0	451	8.2
Apr. 1-30.....	960	8.4		42	13	31		174	22	41	.3	.8		a244	.33	632	158	16	30	1.1	441	8.2
May 1-31	1,811	7.6		42	12	31		174	22	39	.3	.8		244	.33	1,190	154	12	30	1.1	427	8.2
June 1-30	4,203	9.0		41	12	31		164	22	42	.3	1.0		241	.33	2,730	152	18	30	1.1	429	8.2
July 1-31	2,805	7.2		42	11	29		162	21	40	.3	1.0		a232	.32	1,760	149	16	30	1.0	428	8.2
Aug. 1-31.....	2,234	8.8		41	11	32		160	21	43	.3	1.5		252	.34	1,520	147	16	32	1.1	428	8.1
Sept. 1-30	1,689	9.6		43	9.7	32		162	23	43	.2	.8		240	.33	1,090	148	16	32	1.2	430	8.2
Weighted average	1,322	8.6		42	12	31		167	22	41	0.3	1.0		243	0.33	867	154	18	30	1.1	431	--

a Sum of determined constituents.

COLORADO RIVER BASIN--Continued

COLORADO RIVER AT AUSTIN, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, usually between 7 a. m. and 10 a. m.)

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

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 at Austin, Travis County, and 2.1 miles upstream from Colorado River.
DRAINAGE AREA.--4.13 square miles.
RECORDS AVAILABLE.--Water temperatures: March to September 1955.
EXTREMES, March to September 1955.--Water temperatures: Maximum, 93°F June 28; minimum, 58°F Mar. 27-28.
REMARKS.--Records of discharge for March to September 1955 given in WSP 1512.

Temperature (°F) of water, March to September 1955

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											79	71	73	64	--	--	82	79	89	84	90	85	87	82
2											80	70	78	65	--	--	82	79	88	84	88	84	87	84
3											79	71	79	68	--	--	81	79	89	85	87	84	85	82
4											79	72	83	71	--	--	80	78	88	85	87	83	85	81
5											78	70	87	76	81	76	80	76	90	86	88	82	85	81
6											70	63	83	71	83	76	81	75	90	86	90	83	85	82
7											65	62	73	67	82	77	84	81	90	85	90	85	86	81
8											72	59	71	66	82	77	84	79	89	85	91	85	87	82
9											76	67	70	66	82	78	79	77	87	85	92	86	87	84
10											82	70	74	65	79	78	78	72	88	85	91	87	87	85
11											83	71	81	71	80	72	77	74	89	85	90	84	85	83
12											83	72	78	72	81	72	78	75	90	85	88	85	85	83
13											79	74	77	68	87	77	80	77	89	85	88	85	85	83
14											80	74	80	68	87	83	82	79	88	83	88	85	85	85
15											79	73	82	71	85	80	84	81	88	83	89	83	87	85
16											76	69	80	72	86	79	84	83	88	83	89	84	87	86
17											76	68	83	74	84	74	86	83	88	84	89	83	87	85
18											80	70	84	75	82	70	86	82	88	84	87	82	87	84
19											70	68	82	74	79	73	84	82	89	85	84	81	87	85
20											79	68	84	75	79	76	83	81	89	85	86	80	87	84
21											--	--	86	76	79	76	--	--	89	85	87	84	85	83
22											--	--	86	77	79	76	--	--	90	84	89	83	87	84
23											78	63	83	75	80	76	--	--	88	84	89	85	85	84
24											80	69	79	73	83	80	--	--	88	84	89	84	84	83
25											81	64	82	73	85	83	--	--	88	84	89	84	85	82
26											64	59	81	73	85	83	--	--	88	85	88	83	86	82
27											63	58	77	74	84	82	--	--	90	85	88	83	86	82
28											68	58	84	76	84	82	93	88	89	85	87	85	88	83
29											69	61	82	77	83	75	91	87	89	83	88	84	86	83
30											76	64	80	76	78	76	90	86	90	83	88	86	86	83
31											78	66	--	--	80	78	--	--	89	84	86	84	--	--
Average											--	--	80	72	--	--	--	--	89	a84	88	84	86	83

a Includes estimate of 83° minimum for July 15.

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 miles upstream from Jones Creek, and at mile 67.
DRAINAGE AREA.--41,380 square miles, approximately, of which 11,900 square miles is probably noncontributing.
RECORDS AVAILABLE.--Chemical analyses: April 1944 to September 1955.
Water temperatures: October 1945 to September 1948, March 1950 to September 1952, October 1953 to September 1955.
EXTREMES, 1954-55: Dissolved solids: Maximum, 310 ppm Mar. 1-31; minimum, 182 ppm Feb. 6-15.
Hardness: Maximum, 196 ppm Dec. 1-31; minimum, 104 ppm Feb. 6-15.
Specific conductance: Maximum daily, 621 micromhos Mar. 21; minimum daily, 207 micromhos Feb. 6.
Water temperatures: Maximum, 93°F July 6, 27, 30, 31; minimum, 42°F Jan. 24.
EXTREMES, 1944-55.--Dissolved solids: Maximum, 386 ppm Apr. 1-10, 1948; minimum, 144 ppm Feb. 24-28, 1949
Hardness: Maximum, 231 ppm Feb. 1-10, 1947; minimum, 87 ppm Feb. 24-28, 1949.
Specific conductance: Maximum daily, 721 micromhos Oct. 3, 1952; minimum daily, 179 micromhos Oct. 30, 1953.
Water temperatures (1945-48, 1950-52, 1953-55): Maximum, 95°F July 26, 1954; minimum, 42°F Dec. 26, 1953, Jan. 24, 1955.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954 ...	370	16		48	14	29	4.5	204	21	40	0.4	1.0	0.08	276	0.38	276	178	10	26	0.9	485	8.1
Nov. 1-30.....	345	10		51	15	29	4.3	215	23	40	.0	.8	.22	288	.39	268	188	12	25	.9	499	7.8
Dec. 1-31.....	348	7.8		54	15	30	3.9	221	25	42	.3	1.0	.14	289	.39	272	196	15	24	.9	509	8.2
Jan. 1-31, 1955 ...	403	9.5		52	14	35	4.1	208	28	48	.3	1.2	.14	298	.41	324	187	16	28	1.1	529	8.1
Feb. 1-5, 16-28...	509	12		50	11	29	4.7	188	29	37	.4	3.0	.11	270	.37	371	170	16	26	1.0	472	8.2
Feb. 6-15.....	2,840	16		32	5.9	16	3.7	116	18	20	.5	4.5	.10	182	.25	1,400	104	10	24	.7	298	7.9
Mar. 1-31.....	360	8.6		54	14	36	4.8	223	29	47	.4	1.5	.14	310	.42	301	192	10	28	1.1	539	8.0
Apr. 1-30.....	701	7.6		45	12	29	4.8	182	23	39	.4	1.2	.12	252	.34	477	162	13	27	1.0	454	8.1
May 1-19, 27-31...	1,120	11		46	11	26	--	168	23	38	.3	1.2	.17	248	.34	750	159	22	26	.9	432	8.0
May 20-26	4,250	13		38	5.3	14	--	126	17	18	.3	3.8	.17	185	.25	2,120	117	14	21	.6	307	7.6
June 1-30.....	3,444	12		40	11	26	5.0	155	24	40	.2	2.0	.09	a236	.32	2,190	145	18	27	.9	422	8.1
July 1-31	2,304	10		44	11	28	5.2	164	24	46	.2	1.2	.11	a251	.34	1,560	154	20	28	1.0	448	8.2
Aug. 1-31.....	1,779	12		42	11	29	5.1	164	23	42	.0	2.2	.07	247	.34	1,190	149	14	29	1.0	447	7.6
Sept. 1-30	1,168	13		43	12	31	5.1	170	24	46	.0	1.0	.09	259	.35	817	156	16	29	1.1	459	7.9
Weighted average	1,196	12		43	11	27	4.8	165	23	39	0.2	1.9	0.11	244	0.33	788	152	18	27	0.9	431	--

a Sum of determined constituents.

COLORADO RIVER BASIN--Continued

COLORADO RIVER AT WHARTON, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, usually between 6 a. m. and 7 a. m.)

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

MISCELLANEOUS ANALYSES OF STREAMS IN COLORADO RIVER BASIN IN TEXAS

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
LAKE J. B. THOMAS NEAR SNYDER																						
Mar. 7, 1955.....		2.7	0.00	35	6.6	44		154	52	20	0.7	0.5		242	0.33		114	0	46	1.8	418	7.2
LAKE BUCHANAN NEAR BURNET																						
Feb. 8, 1955.....		4.6	0.02	38	10	37	5.4	141	30	56	0.3	1.0	0.09	260	0.35		136	20	36	1.4	476	8.2
LAKE AUSTIN AT AUSTIN																						
Jan. 18, 1955....		7.0	0.02	38	12	23	4.5	161	19	35	0.2	0.2	0.04	225	0.31		144	12	25	0.8	395	8.1

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 Coleto Creek, and at mile 51.
DRAINAGE AREA.--5,161 square miles.
RECORDS AVAILABLE.--Chemical analyses: October 1945 to September 1946, October 1948 to September 1955.
Water temperatures: November 1950 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 410 ppm Oct. 21-31, Nov. 11-20; minimum, 223 ppm June 11-20.
Hardness: Maximum, 221 ppm Dec. 1-10; minimum, 130 ppm June 11-20.
Specific conductance: Maximum daily, 876 micromhos Oct. 22; minimum daily, 308 micromhos June 14.
Water temperatures: Maximum, 86°F on several days during June, July and August; minimum, 46°F Dec. 23.
EXTREMES, 1945-46, 1948-55.--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, 1,950 micromhos Jan. 11-17, 1946; minimum daily, 201 micromhos Sept. 1, 1953.
Water temperatures (1950-55): Maximum, 90°F Aug. 4, 27, 1952; minimum, 40°F Feb. 1-2, 1951.
REMARKS.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	112	21		48	17	58	3.4	221	29	79	0.4	1.2	0.22	367	0.50	111	190	9	39	1.8	648	8.2
Oct. 11-20.....	102	20		50	18	64	--	220	31	88	.4	1.0	.19	398	.54	110	199	18	41	2.0	692	8.2
Oct. 21-31.....	148	17		50	19	68	3.5	226	34	97	.4	1.5	.18	410	.56	164	203	18	42	2.1	727	8.2
Nov. 1-10	170	23		48	20	69	3.4	224	36	96	.2	1.5	.23	408	.55	187	202	18	42	2.1	704	8.1
Nov. 11-20	238	22		44	21	70	3.5	210	36	102	.2	1.2	.16	410	.56	263	196	24	43	2.2	710	8.1
Nov. 21-30	193	18		48	19	54	3.5	219	33	77	.2	1.8	.21	367	.50	191	198	18	37	1.7	636	8.0
Dec. 1-10.....	211	16		54	21	53	3.4	235	35	78	.4	1.0	.16	380	.52	216	221	28	34	1.6	669	8.2
Dec. 11-20	303	16		51	20	54	3.0	226	35	77	.3	1.2	.28	a 369	.50	302	209	24	36	1.6	651	8.1
Dec. 21-31	213	15		49	21	54	3.1	223	35	76	.3	1.2	.21	a 365	.50	210	209	26	36	1.6	645	8.2
Jan. 1-10, 1955 ..	239	15		45	19	56	3.0	208	32	76	.3	1.0	.18	350	.48	226	190	20	39	1.8	631	8.2
Jan. 11-20.....	242	17		57	19	54	2.9	252	31	70	.3	1.8	.18	380	.52	248	220	14	34	1.6	662	8.2
Jan. 21-31.....	291	16		41	19	53	2.9	207	33	70	.3	1.8	.18	340	.46	267	180	11	38	1.7	601	8.2
Feb. 1-6	1,237	18		41	17	50	2.8	194	31	64	.5	2.2	.16	324	.44	1,080	172	14	38	1.7	573	8.0
Feb. 7-21	1,141	16		41	7.7	26	3.5	151	24	32	.4	3.5	.08	233	.32	718	134	10	29	1.0	396	7.9
Feb. 22-28	296	15		54	13	37	3.3	199	34	49	.4	5.2	.12	312	.42	249	188	25	30	1.2	538	7.8
Mar. 1-10	280	16		56	14	42	3.2	206	33	63	.3	3.2	.24	346	.47	262	196	27	31	1.3	575	8.0
Mar. 11-20.....	259	7.8		47	16	50	3.1	190	36	71	.3	1.8	.26	346	.47	242	184	28	37	1.6	586	7.9
Mar. 21-31	438	16		52	14	44	3.5	203	35	60	.3	2.8	.17	340	.46	402	187	20	33	1.4	563	8.0

a Sum of determined constituents.

Apr. 1-10, 1955..	467	14		54	15	40	3.6	215	28	54	.5	2.5	.17	a318	.43	401	196	20	30	1.2	561	8.2
Apr. 11-20.....	222	15		53	16	45	3.4	216	30	60	.4	2.5	.16	a331	.45	198	198	21	33	1.4	579	8.2
Apr. 21-30	182	15		50	14	45	3.5	202	33	56	.5	2.2	.19	a318	.43	156	182	17	34	1.5	557	8.2
May 1-10	118	19		47	16	49	--	198	32	69	.3	1.2	.22	341	.46	109	183	21	37	1.6	586	7.9
May 11-20	631	20		48	16	48	--	208	29	67	.3	1.0	.28	340	.46	579	187	16	36	1.5	600	8.2
May 21-31	1,492	17		45	6.7	22	--	150	25	26	.5	3.8	.17	231	.31	931	140	17	26	.8	383	7.9
June 1-10.....	1,378	21		47	9.1	23	3.8	176	21	30	.3	3.5	.21	a246	.33	915	155	11	24	.8	417	8.2
June 11-20.....	722	18		41	6.5	24	4.6	136	23	35	.3	3.0	.13	a223	.30	435	130	18	28	.9	378	8.2
June 21-30	292	20		47	9.3	35	4.6	165	24	55	.2	2.5	.12	282	.38	222	156	20	32	1.2	489	8.1
July 1-10	163	21		46	8.8	35	4.9	163	23	52	.3	2.5	.23	a274	.37	121	150	16	33	1.2	471	8.2
July 11-20	152	22		52	12	44	4.4	206	27	61	.2	1.0	.22	a325	.44	133	180	11	34	1.4	559	8.2
July 21-31	317	17		49	16	52	3.8	209	29	71	.2	.8	.23	a342	.47	293	188	17	37	1.6	606	8.2
Aug. 1-10	186	21		40	14	39	3.6	186	21	51	.1	1.0	.03	a282	.38	142	158	6	34	1.4	492	8.2
Aug. 11-20	207	21		43	13	37	3.8	188	21	50	.1	1.0	.13	a282	.38	158	161	7	33	1.3	483	8.1
Aug. 21-31	237	18		40	8.8	33	4.0	163	17	44	.1	1.8	.05	a247	.34	158	135	2	34	1.2	422	8.0
Sept. 1-10	218	18		43	12	36	3.9	189	20	45	.4	1.2	.25	a273	.37	161	157	2	33	1.3	473	8.2
Sept. 11-20.....	142	18		40	8.5	34	4.1	169	17	41	.5	1.2	.23	250	.34	95.8	136	0	34	1.3	431	7.6
Sept. 21-30.....	114	18		47	11	38	3.9	199	21	46	.4	.8	.23	284	.39	87.4	163	0	33	1.3	493	7.6
Weighted average	374	18		46	12	38	3.6	184	27	51	0.3	2.5	0.17	293	0.40	296	164	14	33	1.3	507	--

a Sum of determined constituents.

GUADALUPE RIVER BASIN--Continued

GUADALUPE RIVER AT VICTORIA, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually at 8 a. m./

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

GUADALUPE RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN THE QUADALUPE RIVER BASIN IN TEXAS

Chemical analyses, in parts per million, water year October 1954 to September 1955

Date of collection	Discharge (cfs)	Bicarbonate (HCO_3)	Chloride (Cl)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH
				Calcium, magnesium	Noncarbonate		
GUADALUPE RIVER AT COUNTY ROAD ABOVE U. S. HIGHWAY 281							
Jan. 24, 1955	51.5	268	24	240	20	516	8.2
GUADALUPE RIVER, 500 FEET ABOVE SPRING BRANCH CREEK							
Jan. 24, 1955	49.0	271	24	246	24	516	8.0
SPRING BRANCH CREEK AT MOUTH							
Jan. 24, 1955	1.0	285	15	244	10	489	8.1
GUADALUPE RIVER, 0.9 MILE ABOVE U. S. HIGHWAY 281							
Jan. 24, 1955	46.1	272	25	247	24	516	8.1
GUADALUPE RIVER, 1.0 MILE BELOW U. S. HIGHWAY 281							
Jan. 24, 1955	44.5	276	25	251	25	526	8.1
GUADALUPE RIVER AT GAGING STATION NEAR SPRING BRANCH							
Jan. 24, 1955		278	26	252	24	527	8.2
GUADALUPE RIVER, 1½ MILES BELOW GAGING STATION NEAR SPRING BRANCH							
Jan. 24, 1955	44.3	278	26	252	24	532	8.2
GUADALUPE RIVER AT COUNTY ROAD CROSSING 4.3 MILES BELOW GAGING STATION NEAR SPRING BRANCH							
Jan. 25, 1955	28.0	279	26	251	22	528	8.2
GUADALUPE RIVER 6.8 MILES BELOW GAGING STATION NEAR SPRING BRANCH							
Jan. 25, 1955	22.0	274	26	245	20	517	8.1
GUADALUPE RIVER 1.3 MILES UPSTREAM FROM REBECCA CREEK							
Jan. 25, 1955	13.2	275	26	248	22	525	8.0
GUADALUPE RIVER, 100 FEET BELOW MOUTH OF REBECCA CREEK							
Jan. 25, 1955	11.4	274	26	248	23	517	8.2
GUADALUPE RIVER, 1.6 MILES DOWNSTREAM FROM REBECCA CREEK							
Jan. 26, 1955	9.2	274	26	256	31	525	8.1
GUADALUPE RIVER, 4.2 MILES UPSTREAM FROM COUNTY ROAD CROSSING NEAR CRANES MILL							
Jan. 27, 1955	11.1	274	26	252	27	528	8.0
GUADALUPE RIVER, 2.4 MILES UPSTREAM FROM COUNTY ROAD CROSSING NEAR CRANES MILL							
Jan. 26, 1955	27.1	275	26	254	28	532	8.0
GUADALUPE RIVER, 2.5 MILES BELOW CRANES MILL							
Jan. 27, 1955	31.9	277	24	254	27	531	7.9
GUADALUPE RIVER, 1.5 MILES ABOVE TOM CREEK							
Jan. 27, 1955	35.8	280	24	256	26	529	8.1
GUADALUPE RIVER, 200 FEET ABOVE TOM CREEK							
Jan. 27, 1955	39.1	279	24	254	25	526	8.0

GUADALUPE RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN THE GUADALUPE RIVER BASIN IN TEXAS--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--Continued

Date of collection	Discharge (cfs)	Bicarbonate (HCO_3)	Chloride (Cl)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH
				Calcium, magnesium	Noncarbonate		
GUADALUPE RIVER, 2 MILES BELOW TOM CREEK							
Jan. 28, 1955	41.9	282	24	260	29	527	8.0
GUADALUPE RIVER, 2.5 MILES BELOW TOM CREEK							
Jan. 28, 1955	37.8	280	24	254	24	525	8.0
GUADALUPE RIVER AT KRAUSE RANCH ABOUT 2 MILES ABOVE CANYON DAM SITE							
Jan. 28, 1955	41.8	276	24	248	22	520	8.0
GUADALUPE RIVER, THREE QUARTERS OF A MILE BELOW CANYON DAM SITE							
Jan. 28, 1955	40.8	267	24	240	21	513	8.0
GUADALUPE RIVER, 1¼ MILES BELOW CANYON DAM SITE							
Jan. 29, 1955	37.9	267	24	240	21	513	8.1
GUADALUPE RIVER, ABOUT 1 MILE ABOVE SATTLER							
Jan. 29, 1955	40.8	269	24	246	25	513	8.1
GUADALUPE RIVER, 1 MILE ABOVE LOWER CROSSING AT SATTLER							
Jan. 29, 1955	38.1	265	25	242	25	510	8.1
GUADALUPE RIVER, ABOUT 2 MILES BELOW SATTLER							
Jan. 29, 1955	35.4	265	25	240	23	512	8.1
GUADALUPE RIVER, ABOUT 3 MILES BELOW SATTLER							
Jan. 29, 1955	43.0	262	24	236	21	507	8.1
GUADALUPE RIVER, ABOUT 7 MILES ABOVE HUECO SPRINGS							
Jan. 30, 1955	41.6	262	24	238	23	498	8.1
GUADALUPE RIVER, ABOUT 4.5 MILES ABOVE HUECO SPRINGS							
Jan. 30, 1955	40.7	260	24	238	25	501	8.1
GUADALUPE RIVER, 1 MILE ABOVE HUECO SPRINGS							
Jan. 30, 1955	35.7	253	24	230	23	492	8.1
GUADALUPE RIVER, THREE QUARTERS OF A MILE BELOW HUECO SPRINGS							
Jan. 30, 1955	39.4	253	24	230	23	491	8.1
GUADALUPE RIVER, THREE QUARTERS OF A MILE ABOVE GRUENE							
Jan. 31, 1955	35.9	252	23	230	23	494	8.1
GUADALUPE RIVER, THREE QUARTERS OF A MILE ABOVE GAGING STATION ABOVE COMAL RIVER, AT NEW BRAUNFELS							
Jan. 31, 1955	38.8	259	23	232	29	495	8.1
LITTLE BLANCO RIVER ABOUT 3 MILES ABOVE MOUTH							
Jan. 24, 1955	0.2	344	13	296	14	549	8.0
LITTLE BLANCO RIVER AT MOUTH							
Jan. 24, 1955	0.1	291	13	262	24	523	7.8

GUADALUPE RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN THE GUADALUPE RIVER BASIN IN TEXAS--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--Continued

Date of collection	Discharge (cfs)	Bicarbonate (HCO_3)	Chloride (Cl)	Hardness as $CaCO_3$		Specific conductance (micromhos at 25°C)	pH
				Calcium, magnesium	Noncarbonate		
BLANCO RIVER 4.0 MILES DOWNSTREAM FROM LITTLE BLANCO RIVER							
Jan. 25, 1955	2.68	314	14	310	52	615	7.7
BLANCO RIVER 4.2 MILES DOWNSTREAM FROM LITTLE BLANCO RIVER							
Jan. 25, 1955	0.36	298	15	302	58	584	8.0
BLANCO RIVER 4.6 MILES DOWNSTREAM FROM LITTLE BLANCO RIVER							
Jan. 25, 1955	0.11	244	15	253	52	499	8.1
BLANCO RIVER AT FISHERS STORE ROAD							
Jan. 25, 1955	7.50	302	14	296	48	572	8.0
BLANCO RIVER 1.9 MILES BELOW FISHERS STORE ROAD							
Jan. 26, 1955	7.25	283	15	280	48	545	8.1
BLANCO RIVER AT HUNTING LODGE, 6.7 MILES UPSTREAM FROM CYPRESS CREEK							
Jan. 26, 1955	7.30	260	15	274	61	509	8.1
BLANCO RIVER AT GRAVEL ROAD CROSSING, 3.9 MILES UPSTREAM FROM CYPRESS CREEK							
Jan. 26, 1955	7.13	238	15	250	55	479	8.1
BLANCO RIVER 1.8 MILES UPSTREAM FROM CYPRESS CREEK							
Jan. 26, 1955	7.84	236	15	245	52	479	8.2
CYPRESS CREEK AT BRIDGE ON COUNTY ROAD BELOW JACOBS WELL							
Jan. 26, 1955	2.39	326	14	294	27	563	8.0
CYPRESS CREEK AT MOUTH AT WIMBERLEY							
Jan. 26, 1955	2.55	282	14	247	16	488	8.1
BLANCO RIVER AT FARM TO MARKET ROAD 12, HALF A MILE EAST OF WIMBERLEY							
Jan. 27, 1955	10.5	241	14	247	50	476	8.2
BLANCO RIVER AT BRIDGE ON COUNTY ROAD 3.0 MILES DOWNSTREAM FROM WIMBERLEY							
Jan. 27, 1955	11.0	225	16	231	46	450	8.2
BLANCO RIVER AT BRIDGE ON COUNTY ROAD 5.6 MILES DOWNSTREAM FROM WIMBERLEY							
Jan. 27, 1955	11.1	222	14	222	40	445	8.2
BLANCO RIVER HALF A MILE BELOW SMITH CREEK							
Jan. 27, 1955	10.6	216	16	216	39	436	8.2
BLANCO RIVER, 1.0 MILE ABOVE HALIFAX CREEK							
Jan. 28, 1955	10.6	217	16	219	41	440	8.2
BLANCO RIVER, 0.4 MILE BELOW HALIFAX CREEK							
Jan. 28, 1955	1.36	205	16	212	44	420	8.2
BLANCO RIVER ABOUT 1 MILE BELOW HALIFAX CREEK							
Jan. 28, 1955	0.14	203	14	204	38	420	8.2

GUADALUPE RIVER BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN THE GUADALUPE RIVER BASIN IN TEXAS--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Boron (B)	Dissolved solids			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
ESCONDIDO RESERVOIR NO. 1 NEAR KENEDY																						
Jan. 11, 1955								110	4.9	3.5				125			74	0			241	7.5
June 1						7.5		120	2	3.5				--			89	0			229	7.2
July 13		10		32	1.5	4.5	4.9	114	2.9	2.0	0.4	3.8		123	0.17		86	0	10	0.2	230	7.9

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, which is 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 1955.
Water temperatures: October 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 419 ppm May 1-31; minimum, 297 ppm Sept. 1-30.
Hardness: Maximum, 157 ppm Apr. 1-30; minimum, 120 ppm June 1-30.
Specific conductance: Maximum daily, 817 micromhos May 18; minimum daily, 424 micromhos Sept. 27.
Water temperatures: Maximum, 84°F on several days during summer months; minimum, 51°F Feb. 13.
EXTREMES, 1947-55.--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.--Values reported for dissolved solids are residues on evaporation unless otherwise noted. Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-31, 1954 ..	72.4	27		54	5.4	40	8.6	215	26	38	0.2	3.0	0.34	318	0.43	62.2	156	0	34	1.4	501	7.8
Nov. 1-30	129	26		50	4.9	52	8.1	201	33	45	.2	2.0	.30	330	.45	115	145	0	42	1.9	520	7.9
Dec. 1-31	58.4	24		48	4.8	53	7.7	200	34	42	.5	1.8	.20	318	.43	50.1	140	0	43	1.9	513	8.0
Jan. 1-31, 1955 ..	48.5	25		51	5.4	61	8.0	207	40	58	.3	2.0	.22	360	.49	47.1	149	0	45	2.2	585	8.2
Feb. 1-28	54.4	22		52	4.5	64	7.7	217	39	52	.5	2.0	.25	354	.48	52.0	148	0	47	2.3	573	7.7
Mar. 1-31	69.2	18		51	4.5	73	8.2	228	40	59	.5	2.0	.20	378	.51	70.6	146	0	50	2.6	623	8.0
Apr. 1-30	74.1	23		54	5.5	81	8.2	a244	40	66	.5	2.2	.27	b401	.55	80.2	157	0	51	2.8	669	8.5
May 1-31	281	20		52	4.5	83	8.8	229	46	73	.5	4.0	.31	419	.57	318	148	0	53	3.0	682	7.8
June 1-30.....	255	22		42	3.7	61	7.4	180	39	51	.3	4.2	.19	b320	.44	220	120	0	51	2.4	530	8.2
July 1-31	90.3	24		44	3.9	60	7.0	192	39	48	.4	3.2	.22	b324	.44	79.0	126	0	49	2.3	536	8.2
Aug. 1-31	99.6	24		50	3.2	63	7.0	206	40	48	.2	3.5	.20	347	.47	93.3	137	0	48	2.3	560	8.1
Sept. 1-30	385	23		44	3.0	53	6.5	176	35	42	.2	2.8	.35	b297	.40	309	122	0	47	2.1	484	7.9
Weighted average	135	23		48	4.1	63	7.6	201	38	52	0.3	3.1	0.27	343	0.47	125	137	0	48	2.3	559	--

a Includes equivalent of 10 parts per million of carbonate (CO_3).
b Sum of determined constituents.

NUECES RIVER BASIN--Continued

NUECES RIVER NEAR MATHIS, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, usually between 8 a. m. and 10 a. m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	68	63	57	57	64	63	77	80	83	83	83
2	81	67	64	58	60	66	62	77	80	83	83	83
3	81	67	64	62	61	68	62	77	80	84	83	83
4	81	64	64	64	64	68	64	77	80	84	83	83
5	81	63	64	60	63	68	66	77	80	84	83	82
6	82	63	64	65	62	67	66	77	80	84	83	82
7	82	63	64	64	57	63	66	77	80	84	83	82
8	81	62	--	62	58	62	66	77	81	83	83	80
9	81	63	63	63	61	66	66	77	81	83	83	79
10	81	64	63	--	61	68	66	78	80	83	83	79
11	81	64	63	57	55	68	69	78	79	83	83	78
12	81	65	63	59	52	70	70	77	80	83	83	78
13	81	66	60	59	51	72	72	77	80	83	83	79
14	81	66	58	59	55	72	71	77	82	83	83	79
15	80	67	58	58	57	72	72	77	81	83	83	79
16	79	67	58	58	59	73	73	78	82	83	83	80
17	76	65	58	59	64	73	74	78	83	83	83	80
18	74	65	58	59	62	74	75	79	82	83	83	80
19	73	65	58	56	62	74	74	80	82	83	82	82
20	74	63	56	56	58	73	76	79	82	83	82	81
21	75	63	56	58	56	73	77	79	83	82	82	83
22	75	63	57	57	55	66	77	79	82	82	84	82
23	74	63	--	57	54	66	77	79	82	82	83	83
24	74	63	57	54	54	70	77	79	82	82	84	83
25	74	63	57	53	56	69	77	80	82	82	83	82
26	74	63	56	53	58	59	77	80	82	82	83	83
27	73	63	56	54	58	59	77	80	83	84	83	82
28	73	63	56	55	62	58	77	80	83	83	83	82
29	72	63	55	56	--	58	77	80	83	83	82	82
30	71	63	55	56	--	59	77	80	84	83	84	82
31	70	--	--	57	--	59	--	80	--	83	83	--
Average	77	64	60	58	58	67	71	78	81	83	83	81

RIO GRANDE ABOVE CULEBRA CREEK, NEAR LOBATOS, COLO.

LOCATION.--Half a mile southeast of La Sauses, 7 miles upstream from Culebra Creek, and 15 miles upstream from gaging station near Lobatos, Conejos County.
DRAINAGE AREA.--7,700 square miles, approximately, above gaging station (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).
RECORDS AVAILABLE.--Chemical analyses: October 1946 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 504 ppm July 1-10.
Hardness: Maximum, 210 ppm July 1-10.
Specific conductance: Maximum, 748 micromhos June 30; minimum, 204 micromhos Mar. 3.
EXTREMES, 1946-55.--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, 1,070 micromhos July 26, 1948; minimum, 122 micromhos June 1, 1949.
REMARKS.--Values reported for dissolved solids are residues on evaporation. 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 1954 to September 1955 given in WSP 1392. 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 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	52.0	38	0.08	34	8.1	28	6.5	156	44	8.5	0.6	0.7	0.10	240	0.33	33.7	118	0	32	1.1	353	7.4
Oct. 11-20	45.0	--	--	33	7.1	26	--	--	--	--	--	--	--	247	.34	30.0	112	0	34	1.1	339	--
Oct. 21-Nov. 10	48.9	--	--	35	6.9	25	--	--	--	--	--	--	--	247	.34	32.6	116	--	32	1.0	343	--
Nov. 11-20	57.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	482	--
Nov. 21-30	68.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	484	--
Dec. 1-10	102	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	394	--
Dec. 11-20	121	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	383	--
Dec. 21-Jan. 26, 1955	163	38	.00	30	5.5	21	4.5	127	33	5.2	.4	.2	.13	204	.28	89.8	98	0	31	.9	283	7.7
Jan. 27-31	185	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	251	--
Feb. 1-10	190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	230	--
Feb. 11-20	200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	224	--
Feb. 21-28	202	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	245	--
Mar. 1-10	233	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	218	--
Mar. 11-21	160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	293	--
Mar. 22-Apr. 10	91.6	31	.03	37	6.5	35	5.9	144	59	12	.6	.4	.17	258	.35	63.8	119	1	38	1.4	383	7.7
Apr. 11-20	61.4	--	--	41	11	39	--	168	--	--	--	--	--	305	.41	50.6	148	10	37	1.4	445	7.7
Apr. 21-30	26.4	--	--	43	12	43	--	178	--	--	--	--	--	320	.44	22.8	157	11	37	1.5	467	7.7

RIO GRANDE BASIN--Continued

RIO GRANDE ABOVE CULEBRA CREEK, NEAR LOBATOS, COLO.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
May 1-8, 1955	17.8	--	--	40	11	42	--	188	--	--	--	--	--	318	0.43	15.3	145	0	39	1.5	449	7.9
May 9-17	83.7	--	--	25	5.9	40	--	144	--	--	--	--	--	288	.39	65.1	87	0	50	1.9	337	7.5
May 18-21, 30-31	132	--	--	25	6.0	78	--	202	--	--	--	--	--	352	.48	125	87	0	66	3.6	507	7.5
May 22-29	168	--	--	27	7.1	30	--	152	--	--	--	--	--	216	.29	98.0	96	0	40	1.3	306	7.6
June 1-10	83.9	--	--	29	6.8	50	--	170	--	--	--	--	--	284	.39	64.3	100	0	52	2.2	397	7.7
June 11-21	73.3	--	--	33	8.5	35	--	170	--	--	--	--	--	254	.35	50.3	118	0	39	1.4	361	7.5
June 22-30	35.0	--	--	52	16	63	--	182	--	--	--	--	--	438	.60	41.4	196	46	41	2.0	633	7.6
July 1-10	16.4	39	0.01	56	17	76	7.9	194	187	22	1.1	0.5	0.22	504	.69	22.3	210	50	43	2.3	715	7.6
July 11-20	10.0	--	--	50	15	70	--	192	--	--	--	--	--	443	.60	12.0	186	29	45	2.2	648	7.7
July 21-31	8.77	--	--	44	13	71	--	197	--	--	--	--	--	420	.57	9.94	164	2	49	2.4	616	7.7
Aug. 1-10	20.7	--	--	42	10	56	--	218	--	--	--	--	--	354	.48	19.8	146	0	46	2.0	524	7.7
Aug. 11-20	19.5	--	--	44	11	66	--	225	--	--	--	--	--	390	.53	20.5	155	0	48	2.3	577	7.8
Aug. 21-31	20.8	--	--	41	10	54	--	204	--	--	--	--	--	336	.46	18.9	144	0	45	2.0	505	7.6
Sept. 1-10	31.4	--	--	36	7.8	44	--	178	--	--	--	--	--	285	.39	24.2	122	0	44	1.7	431	7.6
Sept. 11-20	14.3	--	--	37	8.1	48	--	192	--	--	--	--	--	296	.40	11.4	126	0	45	1.9	453	7.7
Sept. 21-30	11.4	--	--	38	8.3	49	--	195	--	--	--	--	--	310	.42	9.54	129	0	45	1.9	463	7.8
Weighted average	85.8	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	329	--

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 September 1955.
Sediment records: January 1948 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 79°F July 29, Aug. 5; minimum, freezing point on several days during December and January.
Sediment concentrations: Maximum daily, 8,660 ppm Aug. 21; minimum daily, 15 ppm Apr. 2.
Sediment loads: Maximum daily, 21,900 tons Aug. 21; minimum daily, 12 tons Nov. 21-30, Apr. 2, 5.
EXTREMES, 1948-55.--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 1954 to September 1955 given in WSP 1392. Flow affected by ice Jan. 22-25.

Temperature (°F) of water, water year October 1954 to September 1955
(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	64	b47	40	32	39	45	--	59	a57	72	71	a53
2	--	48	42	36	40	46	48	a52	60	b71	75	b69
3	66	49	42	42	40	47	47	a48	a54	71	74	a64
4	67	50	a42	40	38	48	a40	a48	a52	b68	a68	a64
5	a63	50	44	40	35	43	48	60	58	b73	79	64
6	a62	48	b42	36	33	45	48	58	a55	b68	74	67
7	60	b47	42	38	--	b46	43	62	a59	a66	70	b69
8	67	49	41	38	--	47	a47	55	a57	a67	a69	69
9	66	47	37	38	39	48	a44	a56	62	75	a66	b68
10	63	46	42	34	36	47	50	a55	62	73	a65	68
11	58	46	40	36	33	45	a47	a52	a56	a70	74	67
12	59	45	40	--	38	50	a43	57	62	a69	73	--
13	61	47	37	36	41	52	48	a54	a58	73	a67	a61
14	55	48	37	--	42	52	50	a57	a57	72	b75	a60
15	54	44	36	38	42	49	53	64	a57	a68	74	64
16	57	46	38	b39	45	47	a51	a54	67	70	73	61
17	57	45	34	39	40	52	59	a52	a57	74	a65	a59
18	57	45	34	36	40	a48	a53	45	a57	a67	a68	66
19	56	42	37	32	36	48	a49	48	69	70	73	62
20	51	42	37	35	a32	b45	50	a46	a60	68	70	a62
21	52	45	33	33	a33	42	52	a57	a61	74	71	a58
22	57	44	37	32	a34	45	a50	57	a59	74	a66	65
23	55	43	35	32	37	48	a49	a54	69	a63	--	60
24	56	46	37	32	38	51	60	a53	a61	a67	68	62
25	54	43	37	32	34	46	56	a51	a62	b70	a64	64
26	52	45	38	33	39	45	a55	56	69	a68	71	65
27	50	42	37	34	39	b45	a51	a53	a60	a65	61	--
28	50	42	33	37	43	48	59	a52	a62	75	71	64
29	50	a39	32	38	--	54	a51	b58	a64	79	68	65
30	49	44	32	38	--	a52	a53	a56	a63	--	67	a55
31	49	--	32	38	--	51	--	a54	--	a69	b62	--
Average	57	45	38	36	36	48	50	54	60	70	70	63

a Measurement before 11 a.m.
b Measurement after 6 p.m.

RIO GRANDE BASIN--Continued

RIO GRANDE AT EMBUDO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

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	247	48	32	259			262		
2	259	50	a 35	262			256		
3	256	46	32	262			279		
4	253	42	29	259			394		
5	259	84	59	262			318		
					21	15		18	14
6	265	82	59	262			328		
7	290	69	54	262			324		
8	282	55	42	268			307		
9	282	60	46	276			282		
10	290	530	415	276			290		
11	276	93	69	272			328		
12	265	58	41	268			314		
13	256	49	34	276			290		
14	250	47	32	279			268		
15	250	28	19	272			335		
					23	17		20	17
16	250	25	17	265			328		
17	256	21	15	265			328		
18	250	21	14	272			324		
19	250	25	17	282			355		
20	253	29	20	276			359		
21	256	31	21	272			363		
22	259			272			367		
23	262			276			371		
24	253			290			380		
25	247			290			388		
					16	12		81	79
26	250	22	15	290			384		
27	253			290			393		
28	256			290			363		
29	256			282			296		
30	256			265			262		
31	256			--	--	--	384		
Total	8,043	--	1,252	8,192	--	440	10,130	--	1,179

Day	January			February			March		
1	367			402	49	53	420	61	69
2	371			402	47	51	442	61	73
3	375			406	59	65	465	86	108
4	393			393	40	42	490	122	161
5	398	60	63	388	28	29	495	97	130
6	380			388	39	41	490	97	128
7	402			388	41	43	490	90	119
8	406			398	35	38	470	59	75
9	406	40	44	402	40	43	500	90	122
10	398	60	64	402	45	49	530	129	185
11	384			371	40	40	540	103	150
12	375			384	36	37	540	89	130
13	375			402	41	45	500	90	122
14	402			402	49	53	465	70	88
15	393			406	49	54	442	70	84
		35	37						
16	402			406	41	45	411	62	69
17	406			402	45	49	398	67	72
18	398			452	77	94	371	49	49
19	388			429	40	46	359	36	35
20	411			402	31	34	347	58	54
21	393	50	53	339	28	26	343	40	37
22	380	97	100	380	40	41	318	25	21
23	360	123	120	470	67	85	314	33	28
24	360	200	238	438	80	95	307	40	33
25	365	215	212	411	50	55	324	47	41
26	375	202	205	434	41	48	318	36	31
27	375	80	81	429	50	58	296	29	23
28	371	46	46	429	60	69	293	29	23
29	380	40	41	--	--	--	286	27	21
30	388	45	47	--	--	--	296	40	32
31	398	42	45	--	--	--	296	26	21
Total	11,975	--	2,170	11,355	--	1,428	12,556	--	2,334

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE AT EMBUDO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	293	20	16	339	149	136	980	200	529
2.....	290	15	12	363	197	193	910	160	393
3.....	276	20	15	363	100	98	850	132	303
4.....	262	19	13	332	96	86	790	143	305
5.....	256	18	12	318	86	74	784	115	243
6.....	279	24	18	310	68	57	724	102	199
7.....	293	21	17	314	68	58	670	100	181
8.....	304	57	47	351	110	104	670	111	201
9.....	310	35	29	442	179	214	702	100	190
10.....	332	33	30	447	170	205	760	110	226
11.....	351			452	137	167	778	110	231
12.....	343			530	192	275	766	103	213
13.....	324			510	151	208	719	86	167
14.....	307			505	132	180	675	78	142
15.....	296			470	98	124	658	68	121
		40	33						
16.....	290			480	130	168	614	49	81
17.....	282			465	108	136	592	54	86
18.....	286			560	250	378	565	50	76
19.....	272			760	750	1,540	540	36	52
20.....	262			910	760	1,870	510	39	54
21.....	256	37	26	945	730	1,860	485	39	51
22.....	268	60	43	1,170	1,220	3,850	456	36	44
23.....	296	98	78	1,370	1,490	5,510	452	32	39
24.....	282	63	48	1,780	1,690	8,120	442	39	47
25.....	276	56	42	1,860	1,420	7,130	416	33	37
26.....	282	86	65	1,780	920	4,420	388	30	31
27.....	296	152	121	1,500	700	2,840	375	30	30
28.....	296	118	94	1,370	600	2,220	359	29	28
29.....	293	83	66	1,210	560	1,830	339	29	27
30.....	314	139	118	1,090	340	1,000	328	32	28
31.....	--	--	--	1,020	220	606	--	--	--
Total.	8,767	--	1,240	24,316	--	45,657	18,297	--	4,355

Day	July			August			September		
1.....	314			256	130	90	406	530	581
2.....	304			259	210	147	380	420	431
3.....	296			276	220	164	351	400	379
4.....	290			262	200	a 140	371	399	400
5.....	286			268	170	123	351	300	284
		28	21						
6.....	279			286	500	386	314	200	170
7.....	268			375	3,520	sb 5,000	300	120	97
8.....	256			339	800	732	286	175	135
9.....	253			380	800	821	290	170	133
10.....	244			351	455	431	282	159	121
11.....	282	89	68	339	315	288	276	129	96
12.....	290	462	362	332	250	224	279	150	113
13.....	256	55	38	314	238	202	265	150	110
14.....	247	40	27	290	200	157	259	120	84
15.....	244	37	24	358	400	s 532	256	130	90
16.....	247	36	24	359	820	795	253	90	61
17.....	244	30	20	355	435	417	253	100	68
18.....	247	38	25	367	375	362	253	92	63
19.....	262	60	42	421	1,150	sb 1,770	253	97	66
20.....	250	49	33	406	1,490	1,630	247	79	66
21.....	250	37	25	634	8,660	s 21,900	238	80	51
22.....	296	180	144	631	3,140	5,350	241	91	59
23.....	253	150	102	545	1,500	2,210	238	90	58
24.....	250	100	68	515	845	1,170	238	81	52
25.....	250	95	64	490	650	860	262	130	92
26.....	279	150	113	429	390	452	286	180	139
27.....	335	530	479	560	5,460	8,260	262	112	79
28.....	371	635	636	500	2,120	2,860	262	98	69
29.....	286	250	193	495	1,100	1,470	265	120	86
30.....	262	125	88	495	1,090	1,460	262	102	72
31.....	265	120	86	452	800	976	--	--	--
Total.	8,456	--	2,871	12,339	--	61,379	8,479	--	4,305

Total discharge for year (cfs-days) 142,905

Total load for year (tons) 128,610

s Computed by subdividing day.

a Computed from estimated concentration graph.

b Computed from partly estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE AT EMBUDO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 10, 1954 ...	1:00 p m.	281	63	848	2,300		77		98		100	--	--		--		PWCM
May 19, 1955....	2:35 p.m.	754	48	848	4,370		19		32		64	85	98		100		VPWCM
May 24	9:00 a.m.	1,790	53	1,770	3,470		15		24		44	67	92		100		VPWCM
Aug. 7.....	5:50 p.m.	560	68	70,700	3,320		57		80		99	100	--		--		VPWCM
Aug. 11.....	1:30 p.m.	347	74	268	--		--		--		67	89	92		94	100	SWCM

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR ABIQUIU, N. MEX.

LOCATION.--At gaging station at bridge on State Highway 96, 1¾ 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 September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 58,000 ppm Aug. 8; minimum daily, 23 ppm June 11.
Sediment loads: Maximum daily, 248,000 tons Aug. 21; minimum daily, 1 ton on several days.
EXTREMES, 1948-55.--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 1954 to September 1955 given in WSP 1392. No gage-height record July 16 to Aug. 18. Flow affected by ice Dec. 13-18, Dec. 23 to Jan. 1, Jan. 5 to Feb. 27.

Suspended sediment, water year October 1954 to September 1955

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.....	38	500	51	38	171	18	44	90	11
2.....	35	800	76	37	115	11	43	72	8
3.....	36	500	49	37	98	10	44	70	8
4.....	37	500	50	37	90	9	44	92	11
5.....	53	780	112	38	92	9	45	74	9
6.....	197	12,400	s7,670	43	69	8	46	58	7
7.....	60	8,000	1,300	43	70	8	49	64	9
8.....	51	1,350	186	40	70	8	38	55	6
9.....	45	700	85	39	60	6	33	70	6
10.....	46	540	67	40	60	a6	40	77	8
11.....	42	420	48	42	70	8	53	123	18
12.....	40	465	50	38	74	8	53	92	13
13.....	38	243	25	43	75	9	40	115	12
14.....	35	221	21	44	76	9	30	140	11
15.....	34	138	13	44	74	9	25	148	10
16.....	33	143	13	44	128	15	25	95	6
17.....	34	117	11	42	85	10	30	85	7
18.....	35	96	9	44	137	16	40	105	11
19.....	35	94	9	44	169	20	44	88	10
20.....	34	97	9	43	108	13	56	76	11
21.....	30	92	7	44	118	14	49	52	7
22.....	30	92	7	44	137	16	50	70	9
23.....	36	100	10	44	124	15	60	116	19
24.....	39	127	13	44	140	17	55	63	9
25.....	37	98	10	44	109	13	50	48	6
26.....	36	92	9	39	70	7	45	66	8
27.....	34	93	9	37	73	7	35	125	12
28.....	22	82	5	48	99	13	30	122	10
29.....	38	180	18	42	94	11	20	121	7
30.....	40	204	22	40	104	11	20	101	5
31.....	39	196	21	--	--	--	25	80	5
Total	1,339	--	9,985	1,246	--	334	1,261	--	288

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR ABIQUIU, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	30	65	5	60	80	13	38	90	9
2.....	38	55	6	45	70	85	72	230	45
3.....	46	110	14	40	100	11	69	280	52
4.....	43	100	12	35	90	9	63	130	22
5.....	70	170	32	30	110	9	100	100	27
6.....	50	190	26	25	90	6	123	1,220	452
7.....	50	200	27	25	100	7	112	1,160	351
8.....	50	100	14	30	110	9	130	1,360	477
9.....	50	60	8	30	130	11	129	1,670	582
10.....	50	80	11	25	60	4	176	3,000	1,430
11.....	50	80	11	35	40	4	152	6,000	2,460
12.....	50	110	15	45	80	10	108	4,000	1,170
13.....	50	45	6	50	50	7	74	3,500	699
14.....	50	60	8	55	90	13	57	7,200	1,110
15.....	50	70	9	60	125	20	50	7,200	972
16.....	50	80	11	60	70	11	38	5,300	544
17.....	40	70	8	60	60	10	239	11,800	s11,800
18.....	25	40	3	60	90	15	400	5,500	5,940
19.....	30	270	22	60	120	19	171	1,000	462
20.....	40	120	13	50	220	30	114	380	117
21.....	30	120	10	40	210	23	94	325	82
22.....	20	80	4	30	200	16	84	315	71
23.....	20	60	3	30	130	11	60	220	36
24.....	30	60	5	40	80	9	34	140	13
25.....	40	75	8	50	60	8	25	120	8
26.....	50	70	9	60	35	6	19	78	4
27.....	50	75	10	70	50	9	19	55	3
28.....	50	110	15	58	90	14	172	1,580	s1,170
29.....	50	80	11	--	--	--	127	470	161
30.....	50	80	11	--	--	--	78	370	78
31.....	50	75	10	--	--	--	54	183	27
Total.	1,352	--	357	1,258	--	399	3,181	--	30,374

Day	April			May			June		
1.....	31	42	4	7.0	140	3	714	1,500	s3,020
2.....	22	67	4	6.3	80	1	810	1,300	a2,900
3.....	19	77	4	7.0	98	2	828	1,320	2,950
4.....	15	59	2	187	2,480	s2,960	723	1,120	2,190
5.....	15	33	1	477	3,800	4,890	716	1,000	1,930
6.....	15	40	2	489	2,300	3,040	709	980	1,880
7.....	13	45	2	501	1,550	2,100	245	380	251
8.....	98	375	s381	544	1,180	1,730	63	80	14
9.....	448	1,090	1,320	604	1,860	3,030	39	44	5
10.....	165	580	258	660	3,290	5,860	32	38	3
11.....	96	140	36	730	8,880	17,500	19	23	1
12.....	80	135	29	674	5,370	9,770	14	30	1
13.....	85	255	59	688	2,500	4,640	11	38	1
14.....	84	155	35	688	1,660	3,080	12	53	2
15.....	46	120	15	695	1,960	3,680	9.3	66	2
16.....	97	792	s282	688	1,500	2,790	8.5	60	1
17.....	157	440	187	681	1,360	2,500	19	117	s33
18.....	168	430	195	716	1,820	3,520	187	410	207
19.....	163	700	308	702	1,280	2,430	199	150	81
20.....	152	760	312	688	1,120	2,080	210	90	51
21.....	58	460	72	695	1,100	2,060	210	100	57
22.....	31	240	20	723	1,100	2,150	210	70	a40
23.....	32	360	31	723	1,080	2,110	203	54	30
24.....	32	880	76	882	3,570	8,500	199	50	27
25.....	34	850	78	1,000	3,200	8,640	193	51	27
26.....	18	250	12	1,130	3,020	s9,760	193	58	30
27.....	13	260	9	1,200	3,500	11,300	190	48	25
28.....	10	220	6	1,200	2,750	8,910	184	43	21
29.....	5.9	140	2	475	600	770	171	41	19
30.....	5.9	210	3	267	200	144	187	36	18
31.....	--	--	--	228	190	117	--	--	--
Total.	2,208.8	--	3,745	18,955.3	--	130,067	7,507.8	--	15,817

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR ABIQUIU, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	104	37	10	65	3,400	b 600	1,070	3,400	a 9,800
2.....	495	1,960	s 4,360	80	4,300	b 900	1,070	2,860	8,260
3.....	653	1,200	2,120	120	6,000	b 2,000	1,040	2,800	a 7,900
4.....	489	300	396	140	15,000	b 5,700	1,030	2,800	a 7,800
5.....	465	500	628	375	21,000	b 21,000	988	2,600	a 6,900
6.....	454	440	a 540	170	4,000	b 1,800	949	2,460	6,300
7.....	448	340	a 410	410	25,000	b 28,000	910	2,200	a 5,400
8.....	432	260	303	315	58,000	b 51,000	898	2,200	a 5,600
9.....	432	220	a 260	140	31,000	b 12,000	850	2,100	a 4,800
10.....	438	170	a 200	140	11,000	b 4,200	802	2,000	a 4,300
11.....	632	3,470	s 8,700	225	16,000	b 9,600	758	1,800	a 3,700
12.....	618	4,360	7,280	140	5,700	b 2,200	705	1,570	2,990
13.....	544	2,450	3,600	170	11,000	b 5,200	477	1,000	1,290
14.....	686	6,480	s 23,700	200	9,400	b 5,100	146	300	118
15.....	246	6,850	s 5,960	170	14,000	b 6,600	77	177	37
16.....	85	1,300	b 300	70	12,000	b 2,200	54	118	17
17.....	105	370	b 100	180	10,000	b 4,900	42	65	a 7
18.....	85	870	b 200	200	28,000	b 15,000	41	65	7
19.....	80	1,800	b 400	227	38,200	s 25,400	41	64	7
20.....	85	3,000	b 700	898	40,400	s105,000	35	124	12
21.....	50	2,100	b 300	1,380	50,200	sc248,000	35	134	13
22.....	20	940	b 50	355	43,500	43,200	31	73	6
23.....	15	760	b 30	192	10,000	5,180	26	57	4
24.....	20	380	b 20	156	8,900	3,750	34	103	9
25.....	20	1,200	b 70	232	27,000	16,900	47	134	17
26.....	45	550	b 70	580	28,000	s 79,900	31	92	8
27.....	80	27,000	b 5,800	1,600	42,000	s221,000	23	129	8
28.....	125	34,000	b 11,000	1,140	15,000	46,200	22	130	8
29.....	75	28,000	b 5,700	1,270	13,000	44,600	24	110	7
30.....	50	14,000	b 1,900	1,100	4,500	13,400	18	81	4
31.....	60	3,000	b 500	1,080	3,500	10,200	--	--	--
Total.	8,136	--	85,607	13,520	--	1,040,730	12,274	--	75,329
Total discharge for year (cfs-days)									72,238.9
Total load for year (tons)									1,393,032

s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from daily sediment samples and estimated discharge.
c Computed from partly estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR ABIQUIU, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 7, 1954	4:00 p.m.	61	63	11,800	3,610		95		99		100	--	--		--		PWCM
Mar. 11, 1955	2:15 p.m.	177	44	7,640	3,730		90		98		100	--	--		--		PWCM
Mar. 18	2:00 p.m.	438	45	3,960	3,980		48		69		88	95	100		--		VPWCM
Apr. 22	2:55 p.m.	28	51	214	1,840		96		97		98	99	99		100		SPWCM
May 6	3:10 p.m.	489	62	2,030	3,040		47		61		80	90	98		100		VPWCM
May 10	2:50 p.m.	646	52	2,950	3,300		48		63		82	91	99		100		VPWCM
May 20	3:20 p.m.	688	61	1,660	3,380		19		29		49	58	69		90	100	VPWCM
July 5	6:40 p.m.	460	71	406	1,310		32		42		70	87	99		100		VPWCM
July 12	2:30 p.m.	507	68	2,870	3,740		45		65		92	97	100		--		VPWCM
July 15	1:30 p.m.	163	73	5,630	4,000		74		95		100	--	--		--		PWCM
July 28	4:40 p.m.	a125	77	32,200	5,380		76		98		100	--	--		--		PWCM
Aug. 5	3:50 p.m.	a375	69	30,900	4,260		60		83		98	100	--		--		VPWCM
Aug. 11	3:05 p.m.	a225	74	46,200	4,160		66		95		100	--	--		--		PWCM
Aug. 19	11:50 p.m.	1,170	--	30,200	3,430		37		59		91	98	100		--		VPWCM
Aug. 26	3:20 p.m.	1,040	74	50,100	4,540		38		62		94	98	100		--		VPWCM

a Daily mean discharge.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR CHAMITA, N. MEX.

LOCATION(revised).--At gaging station 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 1955.
Sediment records: October 1947 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 86°F July22; minimum, freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 55,500 ppm Aug. 21; minimum daily, no flow June 16-17.
Sediment loads: Maximum daily, 150,000 tons Aug. 21; minimum daily, 0 tons June 16, 17.
EXTREMES, 1947-55.--Water temperatures (1950-55): Maximum, 89°F July 19, 1951; 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 1954 to September 1955 given in WSP 1392. Flow affected by ice Dec. 9, Dec. 13 to Feb. 14, Feb. 21-26, Mar. 3.

Temperature (°F) of water, water year October 1954 to September 1955
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	69	53	43	32	33	50	63	a54	65	83	83	75
2	68	49	44	32	41	49	a38	60	a52	a73	78	75
3	76	52	46	a32	42	54	--	68	a61	a69	80	74
4	74	54	a41	32	36	54	54	73	60	66	78	69
5	72	54	47	32	a32	46	55	60	65	75	82	b68
6	67	52	42	32	32	a39	56	67	71	71	a68	71
7	64	51	42	32	32	52	59	--	b72	75	78	b62
8	71	52	42	32	32	a37	51	a54	78	76	63	72
9	72	52	43	32	32	51	a44	65	68	75	a67	72
10	69	51	43	a32	32	53	a41	56	79	73	b74	68
11	66	a38	38	32	32	45	55	64	74	75	78	a65
12	63	51	40	32	32	a42	47	65	a68	68	a66	72
13	68	a42	39	32	33	46	55	65	72	75	73	72
14	a49	50	40	32	34	58	65	a63	75	72	75	76
15	65	51	36	a32	47	57	67	a61	77	73	81	74
16	64	52	36	32	46	52	a54	63	--	63	a72	74
17	63	49	32	35	49	57	a51	59	--	79	a71	67
18	65	50	32	36	a38	47	65	47	a65	79	75	a63
19	64	50	32	35	34	a41	59	54	a64	80	a73	70
20	59	51	32	35	35	a44	63	64	73	75	b63	73
21	63	a38	32	32	32	47	66	a58	76	77	73	75
22	--	49	32	32	32	50	62	a56	82	86	a64	70
23	--	49	32	32	32	54	60	68	74	76	--	66
24	59	50	32	32	32	56	a50	66	79	a78	a70	a58
25	58	a38	32	32	32	a38	72	66	65	76	b73	a57
26	56	49	32	32	a32	36	73	62	a70	76	b76	73
27	55	44	32	32	44	41	64	64	77	a65	73	74
28	54	43	32	32	a36	55	65	66	76	80	a65	73
29	55	45	32	a32	--	57	63	56	75	a68	72	75
30	52	49	32	32	--	62	a59	64	82	a67	70	75
31	55	--	32	34	--	56	--	67	--	a72	72	--
Average	63	49	37	32	36	49	58	62	71	74	73	70

a Measurement before 11 a. m.
b Measurement after 6 p. m.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR CHAMITA, N. MEX.--Continued

Suspended sediment water year October 1954 to September 1955

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.....	28	1,260	95	18	150	7	37	205	20
2.....	25	800	54	17	160	7	44	254	30
3.....	24	600	39	19	200	10	40	195	21
4.....	22	417	25	20	180	10	42	170	19
5.....	51	3,800	523	17	150	7	51	644	89
6.....	218	8,740	s 6,860	18	210	10	53	415	59
7.....	91	6,800	1,670	21	210	12	49	288	38
8.....	68	7,920	1,450	20	140	8	48	245	32
9.....	57	1,540	237	20	150	8	40	532	57
10.....	71	1,700	326	22	142	8	40	442	48
11.....	42	800	91	22	130	8	57	790	122
12.....	40	500	54	22	141	8	57	385	59
13.....	35	240	23	24	170	11	45	290	35
14.....	30	245	20	22	160	10	35	280	26
15.....	25	230	16	22	155	9	30	364	29
16.....	18	190	9	24	142	9	30	440	36
17.....	18	160	8	21	170	10	30	540	44
18.....	19	180	9	22	240	14	35	635	60
19.....	20	150	8	31	300	25	45	572	69
20.....	20	626	34	29	195	15	60	590	96
21.....	22	490	29	29	170	13	60	580	94
22.....	19	120	6	29	210	16	55	490	73
23.....	19	105	5	28	250	19	60	415	67
24.....	21	170	10	31	226	19	60	635	103
25.....	32	203	18	34	180	17	55	374	56
26.....	40	240	26	31	184	15	50	560	76
27.....	40	170	18	27	140	10	45	570	69
28.....	24	145	9	25	152	10	35	418	40
29.....	17	110	5	39	210	22	30	390	32
30.....	22	170	10	29	180	14	25	420	28
31.....	18	170	8	--	--	--	25	470	32
Total.	1,196	--	11,695	733	--	361	1,368	--	1,659
	January			February			March		
1.....	35	410	39	60	1,940	314	60	890	144
2.....	50	410	55	70	850	161	99	1,910	511
3.....	60	250	40	50	460	62	100	1,790	483
4.....	60	370	60	40	230	25	128	1,350	467
5.....	80	450	97	35	210	20	145	2,850	1,120
6.....	70	510	96	30	140	11	159	2,530	1,090
7.....	60	600	97	30	335	27	156	2,000	842
8.....	60	829	134	35	2,180	206	163	2,700	1,190
9.....	60	1,900	308	35	2,660	251	156	2,020	851
10.....	60	500	81	30	1,150	93	182	3,600	1,770
11.....	60	1,090	177	30	350	28	174	5,340	2,510
12.....	60	1,560	253	45	460	56	163	5,930	2,610
13.....	60	1,550	251	45	1,300	158	145	3,540	1,390
14.....	60	1,650	267	50	880	119	118	1,920	612
15.....	60	605	98	62	720	121	105	3,820	1,080
16.....	60	860	139	71	740	142	105	3,630	1,030
17.....	50	2,230	301	73	930	183	179	3,600	1,740
18.....	40	1,160	125	78	1,140	240	451	8,320	10,100
19.....	30	575	47	68	880	162	320	4,230	3,650
20.....	45	1,000	122	57	930	143	200	2,000	1,080
21.....	45	400	49	50	570	77	140	400	151
22.....	30	480	39	40	1,400	151	120	280	91
23.....	25	460	31	35	1,270	120	100	2,010	543
24.....	25	290	20	35	750	71	80	1,290	279
25.....	35	240	23	45	500	61	60	620	100
26.....	40	630	68	55	880	131	57	1,110	171
27.....	50	630	85	65	870	153	62	1,320	221
28.....	60	600	97	75	1,500	304	115	1,500	466
29.....	60	720	117	--	--	--	170	700	321
30.....	60	800	130	--	--	--	121	470	154
31.....	60	660	107	--	--	--	71	670	128
Total.	1,610	--	3,553	1,394	--	3,590	4,404	--	36,895

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR CHAMITA, N. MEX.--Continued

Suspended sediment water year October 1954 to September 1955--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	51	350	48	148	3,940	1,570	606	2,720	s5,000
2	32	200	17	166	3,440	1,540	795	3,200	6,870
3	31	380	a32	148	1,880	751	768	2,930	6,080
4	18	310	15	122	1,480	s590	678	2,390	4,380
5	6.4	210	4	382	7,530	7,770	660	2,200	3,920
6	2.3	120	1	400	5,570	6,020	644	2,350	4,090
7	2.0	100	1	479	5,360	6,930	376	1,560	1,580
8	2.6	130	1	604	5,330	8,690	68	300	55
9	314	5,800	s5,280	696	5,380	10,100	24	100	6
10	206	2,710	1,510	714	5,700	11,000	15	40	2
11	105	1,060	301	822	7,920	17,600	9.0	30	1
12	99	1,170	313	813	6,070	13,300	7.7	50	1
13	73	470	93	813	4,240	9,310	9.0	70	2
14	60	320	52	804	3,720	8,080	9.7	50	1
15	48	200	26	804	3,750	8,140	3.7	60	1
16	20	721	s84	786	3,540	7,510	0	--	0
17	105	1,610	456	759	3,160	6,480	0	--	0
18	145	1,610	630	813	3,900	8,560	46	1,190	s251
19	156	1,920	809	795	3,500	7,510	124	1,000	335
20	156	2,320	977	786	3,040	6,450	141	930	354
21	94	1,480	376	860	3,880	9,010	145	1,110	435
22	71	1,520	291	880	3,880	9,220	159	1,130	485
23	91	1,570	386	860	3,080	7,150	163	970	427
24	60	1,000	162	910	4,010	9,850	145	1,350	529
25	53	910	130	1,060	5,480	15,700	145	1,080	423
26	42	830	94	1,120	6,250	s19,100	152	800	328
27	46	1,660	206	1,280	5,850	20,200	138	1,130	421
28	48	1,650	214	1,240	4,860	16,300	124	1,070	358
29	55	2,670	396	800	3,060	6,610	118	700	223
30	119	3,350	1,080	437	1,430	1,690	75	370	75
31	--	--	--	322	1,100	956	--	--	--
Total	2,311.3	--	13,985	21,623	--	263,687	6,348.1	--	36,633

Day	July			August			September		
1	51	380	52	68	4,450	817	973	6,700	17,600
2	205	2,500	s3,470	83	4,600	1,030	930	6,440	16,200
3	588	5,180	8,220	94	6,600	1,680	890	5,930	14,200
4	418	4,010	4,530	97	4,500	1,180	840	4,840	11,000
5	406	2,820	3,090	139	8,580	s4,410	831	4,880	10,900
6	382	2,170	2,240	145	15,000	5,870	831	4,720	10,600
7	370	1,380	1,380	186	21,200	10,600	813	4,320	9,480
8	364	1,460	1,430	420	50,000	s63,300	804	4,240	9,200
9	358	1,130	1,090	235	38,800	25,500	804	4,080	8,860
10	370	1,270	1,270	178	13,600	6,540	759	3,680	7,540
11	492	11,300	s26,900	225	15,300	9,290	750	4,240	8,590
12	548	22,200	32,800	194	19,500	10,200	696	2,600	4,890
13	479	16,200	21,000	194	11,200	5,870	500	2,680	3,620
14	546	11,800	s40,300	194	11,100	5,810	208	2,080	1,160
15	398	46,000	s58,500	170	9,100	4,180	115	1,000	310
16	118	9,000	2,870	198	15,700	8,390	62	480	80
17	94	1,300	330	202	12,900	7,040	49	260	34
18	83	1,000	224	239	15,400	s11,500	42	170	19
19	60	500	81	210	21,000	11,900	32	180	16
20	55	2,000	297	1,030	35,100	s120,000	24	100	6
21	62	1,300	218	885	55,500	s150,000	18	100	5
22	28	1,200	91	668	42,800	80,100	19	120	6
23	13	500	18	235	22,400	14,200	19	130	7
24	10	300	8	170	18,900	8,680	19	180	9
25	14	6,640	251	295	18,000	14,300	53	7,480	s1,350
26	27	16,000	1,170	377	23,300	s40,300	22	510	30
27	62	15,500	s4,850	1,190	31,800	s120,000	8.4	300	7
28	128	35,000	12,500	1,150	23,000	71,400	7.0	190	4
29	112	21,000	6,350	1,170	18,200	57,500	7.0	170	3
30	51	11,000	1,510	1,030	9,300	25,900	5.7	180	3
31	75	11,000	2,230	995	7,000	18,800	--	--	--
Total	6,967	--	239,270	12,666	--	916,287	11,129.1	--	135,729

Total discharge for year (cfs-days) 71,749.5
Total load for year (tons) 1,663,344

s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO CHAMA NEAR CHAMITA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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)

09161

Date of collection	Time	Instantaneous 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	
Oct. 1, 1954	3:50 p.m.	25	69	1,000	4,750		95		99		99	100	--	--	--	SPWCM
Oct. 6	2:50 p.m.	300	67	11,600	3,790		65		87		95	98	100	--	--	VPWCM
Oct. 10	5:20 p.m.	57	69	1,730	3,620		84		95		99	99	100	--	--	SPWCM
Feb. 1, 1955	3:20 p.m.	60	33	2,730	4,840		16		26		53	89	100	--	--	VPWCM
Mar. 10	1:40 p.m.	141	53	2,150	3,980		41		46		56	73	94	100	--	VPWCM
Mar. 18	1:10 p.m.	444	47	8,170	3,640		34		53		69	87	97	100	--	VPWCM
Apr. 20	3:35 p.m.	166	63	2,330	2,630		32		36		46	78	95	100	--	VPWCM
May 1	9:50 a.m.	163	54	4,350	3,610		14		19		34	59	73	82	100	VPWCM
May 5	8:35 a.m.	406	52	8,830	3,980		36		46		62	89	99	100	--	VPWCM
May 8	9:50 a.m.	596	54	4,140	2,940		20		28		46	76	90	96	100	VPWCM
May 10	8:15 a.m.	678	53	5,330	3,470		22		33		46	75	96	98	98	VPWCM
May 20	2:15 p.m.	786	64	3,010	4,080		11		17		32	62	96	100	--	VPWCM
June 1	2:35 p.m.	741	65	3,680	3,560		12		18		49	75	97	100	--	VPWCM
July 12	8:40 a.m.	636	64	31,100	4,190		57		82		88	92	99	100	--	VPWCM
July 15	2:25 p.m.	250	73	41,100	3,100		66		86		89	90	93	97	99	VPWCM
Aug. 5	7:50 p.m.	225	72	14,500	3,560		45		63		79	93	100	--	--	VPWCM
Aug. 18	11:00 a.m.	190	75	9,530	3,700		49		67		76	84	95	100	--	VPWCM
Aug. 20	9:40 p.m.	6,160	63	47,400	3,460		45		63		80	86	94	99	100	SPWCM
Aug. 26	6:50 p.m.	714	76	33,900	4,020		35		60		89	95	98	100	--	VPWCM
Sept. 25	9:05 a.m.	75	57	12,800	3,510		78		92		95	98	100	--	--	VPWCM

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, 1¾ miles southwest of San Ildefonso Pueblo, San Ildefonso Pueblo Grant, 2½ miles downstream from Pojoaque River (formerly known as Rio Pojoaque), 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 1955.
Water temperatures: October 1948 to September 1955.
Sediment records: October 1947 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 819 ppm Aug. 21; minimum, 165 ppm June 1-10.
Hardness: Maximum, 523 ppm Aug. 21; minimum, 110 ppm June 1-10.
Specific conductance: Maximum observed, 1,090 micromhos Aug. 21; minimum observed, 236 micromhos June 6.
Water temperatures: Maximum, 82°F July 31; minimum, freezing point on many days during December to February.
Sediment concentrations: Maximum daily, 42,600 ppm Aug. 21; minimum daily, 74 ppm July 1.
Sediment loads: Maximum daily, 239,000 tons Aug. 21; minimum daily, 769 tons July 1.
EXTREMES, 1946-55.--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, 1949.
Specific conductance: Maximum observed, 1,230 micromhos Aug. 26, 1951; minimum observed, 165 micromhos June 13, 1952.
Water temperatures (1948-55): Maximum 88°F Aug. 4, 5, 1954; minimum, freezing point on many days during winter months.
Sediment concentrations (1947-55): Maximum daily, 42,600 ppm Aug. 21, 1955; minimum daily, 18 ppm Sept. 24, 26, 1953.
Sediment loads (1947-55): Maximum daily, 239,000 tons Aug. 21, 1955; minimum daily, 9 tons Sept. 22, 24, 26, 1953.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. Flow affected by ice Jan. 23-24, Feb. 4-8, 20-24.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954	338	31		48	10	33		186	71	10		1.0		295	0.40	269	161	8	31	1.1	457	7.8
Oct. 11-20	306	31		42	12	31		178	62	11		.2		277	.38	229	154	8	30	1.1	426	7.9
Oct. 21-31	291	31		44	10	31		176	63	9.8		.2		276	.38	217	151	7	31	1.1	426	8.0
Nov. 1-10	315	29		44	10	32		178	64	10		.2		277	.38	236	151	5	32	1.1	432	8.0
Nov. 11-20	320	30		45	9.9	33		183	65	11		.5		284	.39	245	153	3	32	1.2	442	7.8
Nov. 21-30	333	30		46	11	33		181	67	10		.8		287	.39	258	160	12	31	1.1	444	7.8
Dec. 1-10	360	32		46	12	33		181	70	11		.8		294	.40	286	164	16	30	1.1	448	7.9
Dec. 11-20	387	34		48	10	33		184	65	12		.7		293	.40	306	161	10	31	1.1	442	7.9
Dec. 21-31	391	34		46	9.2	28		174	58	10		.9		272	.37	287	153	10	29	1.0	408	7.8
Jan. 1-10, 1955	467	31		44	9.0	26		165	52	10		.9		254	.35	320	147	12	28	.9	386	7.7
Jan. 11-20	468	31		41	8.8	25		157	50	9.5		.6		243	.33	307	138	10	28	.9	368	7.8
Jan. 21-31	455	34		42	8.3	25		161	49	9.5		.7		248	.34	305	139	7	28	.9	370	8.0

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 1-10, 1955 ..	473	36		36	10	27		152	48	9.0		0.6		242	0.33	309	131	6	31	1.0	361	7.5
Feb. 11-20.....	493	36		40	9.0	26		158	46	9.5		.8		245	.33	326	137	8	29	1.0	370	7.9
Feb. 21-28.....	348	33		40	9.8	27		160	50	9.5		.8		249	.34	348	140	10	29	1.0	383	7.6
Mar. 1-10	617	30		44	8.2	26		156	58	9.0		.6		253	.34	421	144	16	28	.9	389	7.2
Mar. 11-17, 19-20	600	28		44	8.5	28		152	64	8.0		.9		256	.35	415	145	20	30	1.0	396	7.6
Mar. 18	836	22		77	16	50		194	181	14		.5		456	.62	1,030	258	99	30	1.3	676	7.4
Mar. 21-28, 30-31	414	29		43	9.0	30		163	60	10		.4		261	.35	292	144	11	31	1.1	407	7.6
Mar. 29	493	23		71	18	46		190	167	13		1.7		433	.59	576	251	96	28	1.3	644	7.5
Apr. 1-10.....	366	30		44	10	31		165	60	12		.3		268	.36	265	151	16	31	1.1	409	7.8
Apr. 11-20.....	387	32		46	11	29		166	69	11		.5		280	.38	293	160	24	28	1.0	426	7.5
Apr. 21-30.....	345	27		44	8.5	27		165	51	12		.9		251	.34	234	145	10	29	1.0	390	7.4
May 1-4, 6-10	752	22		40	8.8	19		150	39	9.0		1.3		213	.29	432	136	13	23	.7	337	7.5
May 5	660	24		74	20	54		210	173	18		1.5		468	.64	834	266	94	31	1.4	724	7.2
May 11-20.....	1,320	19		45	7.8	18		161	41	7.8		1.1		219	.30	781	144	12	21	.6	355	7.4
May 21-31.....	2,190	18		41	6.9	11		143	30	6.2		1.5		185	.25	1,090	131	14	15	.4	302	7.5
June 1-10	1,240	20		33	6.6	12		124	26	5.8		.8		165	.22	552	110	8	19	.5	267	7.5
June 11-20	655	20		38	6.6	17		135	39	7.5		.6		195	.27	345	122	12	23	.7	312	7.5
June 21-30	515	25		37	7.6	18		132	43	7.5		.6		204	.28	284	124	16	24	.7	311	7.6
July 1-11	613	25		36	7.4	15		130	36	7.0		.6		191	.26	316	120	14	21	.6	293	7.6
July 12-15, 17-20 .	564	25		64	11	26		185	91	8.5		.8		317	.43	483	204	53	22	.8	483	7.7
July 21-28, 30-31 .	350	28		53	10	24		169	73	8.0		1.7		281	.38	266	173	34	23	.8	432	8.0
July 16, 29, Aug. 6, 8-10	640	23		95	16	43		215	193	9.5		1.7		487	.66	842	303	127	24	1.1	709	7.8
Aug. 1-5, 7	497	31		61	9.0	26		203	65	10		1.9		304	.41	408	189	22	23	.8	462	7.8
Aug. 11-20.....	647	26		71	12	27		219	87	8.0		1.5		340	.46	647	226	47	21	.8	521	7.6
Aug. 21.....	2,020	17		162	29	63		277	400	11		.8		819	1.11	4,470	523	296	21	1.2	1,090	6.9
Aug. 22-28.....	1,160	24		80	14	29		210	131	8.5		2.1		392	.53	1,230	257	85	20	.8	585	7.5
Aug. 29-Sept. 10 ..	1,210	22		43	6.8	12		130	50	4.5		1.1		203	.28	663	136	29	16	.4	316	7.5
Sept. 11-20.....	471	26		46	9.0	22		154	59	7.0		.8		246	.33	313	152	26	24	.8	376	7.4
Sept. 21-30.....	241	29		44	9.9	26		168	54	10		.6		256	.35	167	150	13	27	.9	390	7.5
Weighted average	597	26		47	9.2	23		161	61	8.4		1.0		255	0.35	411	156	24	24	0.8	392	--

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Seven-day mercury actuated thermograph/

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

a No thermograph record. Reading prior to 11 a. m. and 6 p. m., not included in average.
b No thermograph record. Reading between 11 a. m. and 6 p. m., not included in average.

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

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	288	520	404	308	170	141	325	138	121
2	273	350	258	300	153	124	329	142	126
3	284	315	243	325	192	168	312	188	158
4	284	300	230	325	217	190	364	208	204
5	312	1,020	863	304	155	127	391	235	248
6	430	1,700	2,560	308	128	106	386	270	281
7	396	2,640	2,820	312	120	101	415	310	347
8	377	1,630	1,660	317	152	130	391	260	274
9	368	1,150	1,140	329	155	138	342	212	196
10	364	1,120	1,110	321	170	147	342	192	177
11	337	1,120	1,020	312	150	126	410	245	271
12	346	490	191	304	150	123	405	220	241
13	329	320	118	312	142	120	382	220	227
14	300	240	194	317	150	128	355	200	192
15	292	240	189	325	150	132	370	280	280
16	292	200	158	333	172	155	350	250	236
17	292	250	197	325	167	147	350	310	293
18	292	215	170	312	160	135	390	260	274
19	288	175	136	325	168	147	434	273	320
20	292	192	151	333	165	148	424	330	378
21	292	180	142	333	140	126	424	307	351
22	288	133	103	333	170	153	444	287	344
23	304	120	98	333	188	169	449	326	395
24	292	118	93	329	175	155	454	311	381
25	288	127	99	337	158	144	459	320	397
26	288	182	142	342	162	150	410	397	439
27	296	130	104	329	135	120	a400	480	518
28	288	125	97	325	125	110	a350	340	321
29	284	133	102	337	130	118	a310	220	184
30	288	150	117	333	133	120	a275	270	200
31	296	158	126	--	--	--	329	320	284
Total	9,640	--	15,034	9,678	--	4,098	11,771	--	8,658
	January			February			March		
1	469	525	665	510	305	420	546	395	582
2	454	345	423	510	330	454	555	445	667
3	464	330	413	510	412	567	580	389	609
4	495	360	481	460	334	415	600	480	778
5	474	355	454	420	318	361	622	508	853
6	454	337	413	440	300	356	633	539	921
7	439	288	341	430	268	311	633	500	855
8	479	350	453	460	255	317	622	630	1,060
9	484	380	497	500	325	439	661	950	1,700
10	459	390	483	490	340	450	715	1,060	2,050
11	454	365	447	424	280	321	748	1,720	3,470
12	449	300	364	439	315	373	715	2,300	4,440
13	434	320	375	464	290	363	650	1,120	1,970
14	464	282	353	516	328	457	570	750	1,150
15	474	330	422	521	387	544	536	650	941
16	469	292	370	510	395	544	493	680	905
17	521	423	595	510	325	448	580	780	1,010
18	490	405	536	542	292	427	836	7,000	15,800
19	434	310	363	549	393	581	667	2,100	3,780
20	495	445	595	460	315	391	541	850	1,240
21	464	322	403	440	240	285	493	500	666
22	400	255	275	400	328	354	469	300	379
23	390	237	250	550	393	584	453	360	440
24	400	300	324	520	400	562	416	320	359
25	479	395	511	523	380	537	394	260	277
26	484	365	477	541	268	391	384	210	218
27	474	320	410	580	462	723	361	160	156
28	464	430	539	585	485	766	378	400	408
29	469	400	507	--	--	--	493	1,490	1,980
30	279	365	472	--	--	--	416	490	550
31	500	360	486	--	--	--	374	290	293
Total	14,358	--	13,697	13,803	--	12,741	17,033	--	50,507

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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	339	180	165	408	260	286	1,410	2,330	s9,740
2	315	150	128	449	300	364	1,650	2,040	9,090
3	301	200	163	464	310	388	1,600	1,860	8,040
4	301	160	130	394	190	202	1,490	1,350	5,430
5	284	100	77	660	3,200	s6,310	1,470	1,290	5,120
6	287	110	85	801	2,290	4,950	1,410	1,500	5,710
7	307	90	75	836	1,840	4,150	1,180	1,040	3,310
8	330	100	89	972	2,500	6,560	748	650	1,310
9	583	1,580	s2,970	1,200	3,410	11,000	715	650	1,250
10	616	1,110	1,850	1,240	3,420	11,500	728	720	1,420
11	460	620	770	1,350	4,190	15,300	728	620	1,220
12	419	330	373	1,290	4,720	16,400	760	638	1,310
13	394	250	266	1,250	3,590	12,100	748	514	1,040
14	355	150	144	1,200	2,290	7,540	691	616	1,150
15	333	150	135	1,220	2,150	7,080	644	348	605
16	292	100	79	1,180	2,200	7,010	595	366	588
17	352	205	195	1,160	2,100	6,580	555	375	562
18	416	290	326	1,270	2,020	6,930	550	256	380
19	416	390	438	1,540	3,100	12,900	650	384	674
20	430	520	604	1,720	3,390	15,700	628	400	678
21	371	410	411	1,880	3,560	18,100	595	350	562
22	318	260	223	2,020	2,000	10,900	585	316	499
23	381	310	319	2,250	2,810	17,100	570	281	432
24	355	210	201	2,540	3,100	21,300	560	228	345
25	342	190	175	2,910	3,510	27,600	523	242	342
26	324	140	122	2,760	3,100	23,100	497	278	373
27	324	140	122	2,700	3,250	23,700	493	245	326
28	336	150	136	2,520	2,600	17,700	460	195	242
29	330	200	178	1,970	2,090	11,100	456	143	176
30	371	190	190	1,390	1,320	4,950	415	116	130
31	--	--	--	1,180	1,190	3,790	--	--	--
Total	10,982	--	11,139	44,744	--	332,590	24,104	--	62,054

Day	July			August			September		
1	346	74	69	381	5,850	6,020	1,330	5,100	18,300
2	336	80	73	423	11,000	s25,200	1,250	4,310	14,500
3	965	1,640	4,270	402	10,300	11,200	1,200	4,350	14,100
4	673	775	1,410	394	4,000	4,260	1,200	4,980	16,100
5	673	635	1,150	398	3,200	3,440	1,140	3,860	11,900
6	655	589	1,040	538	19,600	s30,100	1,090	3,480	10,200
7	667	543	978	984	33,900	s112,000	1,070	2,700	7,800
8	628	542	919	967	40,200	s113,000	1,040	3,060	8,590
9	595	596	957	850	29,000	66,600	1,010	3,050	8,320
10	595	611	982	661	8,400	15,000	958	3,170	8,200
11	606	566	926	650	7,000	12,300	899	2,910	7,060
12	935	11,300	28,500	644	11,500	20,000	843	2,440	5,550
13	741	8,000	16,000	606	6,000	9,820	760	2,300	4,720
14	715	3,600	6,950	565	9,500	14,500	501	1,870	2,530
15	878	14,700	s41,600	661	16,700	s42,900	368	1,240	1,230
16	365	5,500	5,420	570	15,000	23,100	301	1,020	829
17	330	1,070	953	548	13,200	s19,800	270	874	637
18	321	591	512	409	14,000	26,800	257	858	595
19	312	545	459	935	28,300	s97,200	260	897	630
20	278	272	204	1,160	13,100	s41,300	252	913	621
21	292	306	241	2,020	42,600	s239,000	242	878	574
22	276	498	371	1,620	36,300	180,000	225	566	344
23	276	333	248	801	16,600	22,900	220	689	409
24	262	1,260	891	780	8,500	17,900	222	515	309
25	265	424	303	794	7,200	15,400	249	1,650	1,110
26	295	3,700	2,950	703	6,600	12,500	267	1,060	764
27	339	4,250	3,890	1,570	21,100	s94,700	252	725	493
28	505	8,400	11,500	1,880	36,100	226,000	239	706	456
29	460	4,000	4,970	1,600	9,000	38,900	242	638	417
30	571	3,900	3,910	1,479	8,000	31,800	249	742	499
31	624	11,300	s35,300	1,400	5,500	20,800	--	--	--
Total	15,579	--	177,946	27,684	--	1,594,440	18,406	--	147,787

Total discharge for year (cfs-days) 217,782
Total load for year (tons) 2,430,691

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 1, 1954	9:00 a. m.	292	57	578	1,720	--	59	--	62	--	68	77	98		100	--	VPWCM
Oct. 10	9:20 a. m.	337	69	513	1,190	--	31	--	35	--	49	66	98		100	--	VPWCM
Feb. 15, 1955	1:00 p. m.	537	42	404	1,560	--	22	--	32	--	47	57	94		100	--	VPWCM
Mar. 10	11:35 a. m.	709	47	935	2,340	--	41	--	50	--	67	77	95		100	--	VPWCM
Mar. 29	3:50 p. m.	476	52	1,340	5,940	--	37	--	53	--	89	93	98		100	--	VPWCM
Apr. 9	12:15 p. m.	748	49	3,340	3,170	--	23	--	45	--	66	74	78		91	100	VPWCM
May 1	10:50 a. m.	391	57	258	2,020	--	62	--	77	--	88	92	97		100	--	SPWCM
May 5	9:20 a. m.	722	55	3,620	3,690	--	62	--	78	--	93	97	99		100	--	VPWCM
May 8	9:40 a. m.	950	56	2,630	3,770	--	23	--	31	--	51	67	72		82	99	VPWCM
May 10	9:10 a. m.	1,210	55	2,940	2,420	--	26	--	34	--	58	89	98		100	--	VPWCM
May 20	8:50 a. m.	1,750	50	3,020	3,280	--	15	--	22	--	51	86	98		100	--	VPWCM
June 1	8:30 a. m.	1,230	56	993	--	--	--	--	--	--	24	52	90		100	--	V
July 3	11:30 a. m.	1,080	70	1,640	2,900	--	16	--	24	--	41	52	83		96	100	VPWCM
July 12	9:35 a. m.	892	68	7,210	4,040	--	57	--	80	--	91	96	100		--	--	VPWCM
July 31	8:40 p. m.	497	71	27,500	3,730	--	56	--	75	--	94	99	100		--	--	VPWCM
Aug. 2	10:30 p. m.	1,160	67	91,200	2,950	--	35	--	49	--	81	97	99		100	--	SPWCM
Aug. 7	7:30 a. m.	1,040	68	57,200	3,650	--	31	--	45	--	76	95	100		--	--	SPWCM
Aug. 12	10:10 a. m.	633	70	13,700	3,740	--	59	--	80	--	85	94	100		--	--	VPWCM
Aug. 15	9:00 p. m.	2,310	62	142,000	3,280	--	30	--	44	--	72	96	100		--	--	SPWCM
Aug. 17	11:40 p. m.	1,080	71	15,900	3,120	--	30	--	50	--	78	94	99		100	--	VPWCM
Aug. 19	9:40 p. m.	878	68	42,300	3,150	--	50	--	66	--	84	96	99		100	--	SPWCM
Aug. 21	2:00 a. m.	5,020	64	42,300	3,040	--	52	--	69	--	89	98	100		--	--	VPWCM
Aug. 26	10:50 p. m.	1,270	72	11,600	4,770	--	34	--	49	--	78	93	99		100	--	VPWCM
Sept. 25	6:40 p. m.	257	65	2,170	3,590	45	54	61	64	68	73	88	99		100	--	VPWCM
Sept. 25	6:40 p. m.	257	65	2,170	4,160	3	5	15	66	68	73	88	99		100	--	VPN

RIO GRANDE BASIN--Continued

GALISTEO CREEK AT DOMINGO, N. MEX.

LOCATION.--At gaging station in Santo Domingo Pueblo Grant, at highway bridge 0.3 miles northeast of Domingo, Sandoval County, 2¾ miles east of Santo Domingo Pueblo, and 4 miles upstream from mouth.
DRAINAGE AREA.--640 square miles, approximately.
RECORDS AVAILABLE.--Sediment records January 1948 to September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 84,800 ppm Sept. 25; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 1,600,000 tons Sept. 25; minimum daily, 0 tons on many days.
EXTREMES, 1948-55.--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 period January to March, tabulation omitted for that period. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. No gage-height record Oct. 9-11, Dec. 29-31, July 14, 20-21, 31, Aug. 14-17,23, 28-31, Sept. 1-14, 28-30.

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	0.8	920	a 2				0		
2	.6	--	b 2				0		
3	.3	--	(bt)				0		
4	.2	--	(bt)				0		
5	550	16,400	s 202,000				0		
6	340	32,000	s 64,400				0		
7	74	2,000	a 400				0		
8	25	--	b 23				0		
9	5	--	b 1				0		
10	1	--	(bt)				0		
11	.1	--	(bt)				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				.3		
19	0	--	0				.1	--	(et)
20	0	--	0				.1		
21	0	--	0				0		
22	0	--	0				0		
23	0	--	0				0		
24	0	--	0				0		
25	0	--	0				0		
26	0	--	0				0		
27	0	--	0				0		
28	0	--	0				0		
29	0	--	0				0		
30	0	--	0				0		
31	0	--	0				0		
Total	997.0	--	266,828	0		0	0.5	--	1

e Estimated.
s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge relation.

RIO GRANDE BASIN--Continued

GALISTEO CREEK AT DOMINGO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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	0	--	0	1	--	b10			
2	0	--	0	.5	--	b5			
3	0	--	0	.3	--	b3			
4	0	--	0	.2	--	b2			
5	0	--	0	.1	--	b1			
6	0	--	0	.1	--	b1			
7	0	--	0	.1	--	b1			
8	0	--	0	.1	--	b1			
9	0	--	0	.1	--	b1			
10	0	--	0	0	--	0			
11	0	--	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	--	0			
17	0	--	0	0	--	0			
18	0	--	0	0	--	0			
19	0	--	0	0	--	0			
20	0	--	0	0	--	0			
21	0	--	0	0	--	0			
22	0	--	0	0	--	0			
23	0	--	0	.2	--	b2			
24	0	--	0	0	--	0			
25	0	--	0	0	--	0			
26	0	--	0	0	--	0			
27	0	--	0	0	--	0			
28	0	--	0	0	--	0			
29	16	--	b470	0	--	0			
30	21	--	b740	0	--	0			
31	--	--	--	--	--	--			
Total	37	--	1,210	2.7	--	27	0		0

Day	July			August			September		
1	0	--	0	11	--	b520	0	--	0
2	0	--	0	1	--	b30	0	--	0
3	0	--	0	.1	--	b4	0	--	0
4	0	--	0	28	--	b2,000	0	--	0
5	0	--	0	96	--	b13,000	0	--	0
6	0	--	0	14	--	b700	0	--	0
7	2	--	b23	220	--	b50,000	0	--	0
8	0	--	0	36	29,800	s3,030	0	--	0
9	0	--	0	2	5,000	a27	0	--	0
10	0	--	0	.8	--	b2	0	--	0
11	96	16,000	sa31,000	380	--	b200,000	0	--	0
12	440	54,400	s142,000	216	26,800	s18,300	0	--	0
13	102	50,600	s18,200	170	14,000	a6,400	0	--	0
14	10	17,000	a460	10	2,800	a76	0	--	0
15	3	13,000	105	5	1,800	a24	0	--	0
16	1	11,000	a30	1	1,300	a4	0	--	0
17	.5	9,500	a13	.5	1,100	1	0	--	0
18	71	20,900	s14,300	21	12,000	sa2,500	0	--	0
19	128	55,000	s23,800	133	25,100	s23,400	0	--	0
20	10	15,000	a400	62	22,100	s6,730	0	--	0
21	4	3,500	a38	82	16,000	a3,500	0	--	0
22	14	15,000	s1,850	170	--	b54,000	0	--	0
23	.8	30,000	a65	30	12,000	a970	0	--	0
24	26	33,000	2,400	150	38,600	s24,100	53	--	b10,000
25	88	49,700	s16,700	45	24,300	s3,870	4,100	84,800	sc1,600,000
26	390	63,800	s92,200	2	7,000	a38	116	--	b5,600
27	400	55,300	s85,600	510	--	b310,000	25	--	b800
28	120	53,600	s22,700	10	--	b270	5	--	b100
29	300	68,600	s113,000	2	--	b40	2	--	b40
30	116	47,000	sa28,000	1	--	b20	1	--	b20
31	5	12,000	a160	0	--	0	--	--	--
Total	2,327.3	--	593,044	2,409.4	--	723,556	4,302	--	1,616,560

Total discharge for year (cfs-days) 10,075.9

Total load for year (tons) 3,201,226

s Computed by subdividing day.

a Computed from estimated concentration graph.

b Computed from water-sediment discharge relation.

c Computed from partly estimated concentration graph.

GALISTEO CREEK AT DOMINGO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 5, 1954	10:10 p.m.	3,420	57	133,000	4,010		31		45		69	81	93		99	100	SPWCM
July 12, 1955	10:05 a.m.	120	75	99,000	3,760		62		89		97	99	100		--	--	VPWCM
July 12	8:30 p.m.	4,270	68	201,000	3,890		18		29		56	72	90		98	100	SPWCM
July 12	11:30 p.m.	659	60	82,400	4,260		41		61		85	93	98		100	--	SPWCM
July 18	7:00 p.m.	572	67	130,000	5,480		45		68		89	95	99		100	--	SPWCM
July 18	12:00 p.m.	550	58	75,600	5,390		39		60		87	94	97		99	100	SPWCM
July 27	10:20 p.m.	1,070	--	113,000	4,060		29		41		79	93	99		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 1955.
Sediment records: April 1948 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 90°F July 15, Aug. 2, 3; minimum, freezing point on several days in December, January, and February.
Sediment concentrations: Maximum daily, 118,000 ppm Aug. 1; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 90,600 tons Oct. 9; minimum daily, 0 tons on many days.
EXTREMES, 1948-55.--Water temperatures (1950-55): 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.
Sediment loads: Maximum daily, 167,000 tons July 25, 1951; 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 1954 to September 1955 given in WSP 1392. Flow affected by ice Dec. 28, Feb. 5-6.

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally between 11 a.m. and 6 p.m. No flow on many days./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	79	--	46	--	a 32	52	70	--		--	78	a 64
2	--	--	49	--	a 31	63	57	a 52		--	90	83
3	--	--	50	35	45	--	--	--		--	90	--
4	80	61	--	36	35	64	a 40	--		--	86	--
5	79	60	--	35	--	--	58	--		--	83	--
6	65	--	46	32	--	--	47	70		--	75	--
7	74	--	44	33	32	52	a 44	--		--	--	--
8	80	51	41	34	35	60	a 60	--		--	--	--
9	76	56	34	--	43	--	--	77		--	75	--
10	a 55	56	49	35	32	51	--	59		--	80	--
11	61	--	--	34	32	51	a 52	65		--	66	--
12	69	56	--	36	--	--	58	68		--	79	--
13	--	44	35	35	--	--	61	70		--	--	--
14	a 48	--	37	a 32	48	62	66	--		--	--	--
15	--	54	33	--	53	--	62	--		90	81	--
16	--	56	38	--	56	46	--	68		89	83	--
17	--	48	33	38	38	--	--	a 50		80	85	--
18	69	49	--	32	53	55	65	a 51		a 61	72	--
19	--	55	--	33	--	--	55	a 51		68	75	--
20	--	--	32	33	--	--	65	79		87	--	--
21	--	--	33	32	32	--	65	--		--	--	--
22	--	49	33	--	--	54	54	--		--	70	--
23	--	50	35	--	35	58	--	75		--	74	--
24	--	53	34	--	38	59	--	a 61		77	89	--
25	--	--	--	34	33	a 45	66	--		a 68	87	--
26	--	50	--	35	--	--	68	--		67	86	--
27	--	51	31	34	--	--	64	a 66		a 68	--	--
28	--	48	a 31	39	--	54	56	--		--	--	--
29	--	44	--	--	--	61	61	--		73	75	--
30	--	48	--	--	--	64	57	--		79	80	--
31	--	--	--	44	--	a 38	--	--		--	83	--
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 1954 to September 1955

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.....	4.0	9,500	103	0	--	0	16	6,260	s278
2.....	3.6	8,200	a80	0	--	0	13	3,750	132
3.....	2	3,800	a21	1.0	5,800	a16	14	3,250	123
4.....	128	40,500	s26,800	.5	2,250	3	14	4,300	a160
5.....	149	41,500	s28,400	.7	2,300	4	16	4,500	a190
6.....	15	14,500	587	.1	1,000	(at)	16	6,760	s321
7.....	10	10,900	294	.2	1,700	a1	15	5,300	215
8.....	186	32,000	s59,400	0	--	0	14	5,500	208
9.....	270	85,500	s90,600	5.0	5,210	s187	6.8	2,470	s77
10.....	107	51,100	s18,200	14	7,400	280	17	6,480	s327
11.....	15	24,000	972	14	7,700	a290	25	12,000	a810
12.....	11	15,500	460	15	8,600	348	19	11,000	a560
13.....	12	18,000	a580	15	8,700	352	12	9,870	s394
14.....	3	6,500	53	15	9,000	a360	14	9,600	363
15.....	.5	7,000	a9	15	6,800	275	15	4,810	s273
16.....	8.1	26,000	a570	17	7,000	321	15	5,050	s224
17.....	8.1	18,000	a390	14	8,750	331	5	2,200	30
18.....	6.0	5,500	89	12	5,250	170	0	--	0
19.....	3	3,000	a24	16	7,750	335	7.2	3,800	a74
20.....	1.8	6,000	a29	15	6,400	a260	23	4,720	s603
21.....	.9	4,000	a10	15	8,500	a340	22	5,250	s472
22.....	0	--	0	17	7,000	321	18	5,270	s315
23.....	0	--	0	15	5,700	231	14	5,360	s248
24.....	0	--	0	14	8,900	336	19	11,400	s620
25.....	0	--	0	15	5,000	202	17	12,000	a550
26.....	0	--	0	17	6,500	298	20	11,000	a590
27.....	0	--	0	14	3,900	147	14	5,300	200
28.....	0	--	0	13	4,400	154	1	500	1
29.....	0	--	0	14	6,700	s283	0	--	0
30.....	0	--	0	9.8	5,200	138	0	--	0
31.....	0	--	0	--	--	--	0	--	0
Total.	944.0	--	227,671	313.3	--	5,983	402.0	--	8,358

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.....	0.1	2,400	a1	27	6,200	452	12	2,260	s125
2.....	15	9,100	a370	23	4,100	255	15	2,300	93
3.....	32	10,100	873	21	6,300	357	17	2,900	a130
4.....	45	13,600	s2,200	13	4,200	147	18	2,100	102
5.....	32	7,030	s964	6	2,800	a45	21	1,700	a96
6.....	9	1,600	39	4	600	a6	21	2,000	a110
7.....	16	6,430	s454	19	6,000	s637	17	2,000	92
8.....	46	10,200	s1,520	44	9,200	s1,450	18	3,600	175
9.....	31	8,800	a740	29	6,200	485	21	3,300	a190
10.....	26	5,500	386	9.0	3,520	s138	21	3,300	187
11.....	23	9,000	559	6.5	4,670	s183	30	4,600	373
12.....	24	7,100	460	23	9,400	a580	34	5,400	a500
13.....	21	8,100	459	24	10,000	a650	25	2,400	a160
14.....	30	10,600	s960	19	6,760	s503	35	2,700	255
15.....	25	7,800	a530	23	4,300	267	29	1,300	a100
16.....	23	7,500	470	20	3,400	184	53	500	72
17.....	29	11,600	908	16	3,700	160	45	250	a30
18.....	2.5	1,800	12	19	6,500	333	58	300	47
19.....	8.3	4,480	s321	5	3,700	a50	53	300	a43
20.....	34	12,000	1,100	3.0	2,200	a18	29	250	a20
21.....	6.0	5,100	83	1.5	1,600	6	26	4,100	a290
22.....	.1	800	(at)	2.5	3,200	a22	10	3,950	s148
23.....	.6	2,000	a3	34	7,510	s1,430	7	4,100	77
24.....	2.2	2,800	a17	27	7,980	s725	5	3,600	49
25.....	15	5,480	s321	16	5,300	229	2	900	5
26.....	40	8,420	s1,510	25	6,700	a450	0	--	0
27.....	33	8,240	s1,470	21	5,500	a310	32	7,000	a600
28.....	34	12,900	s1,410	14	4,700	a180	32	9,200	795
29.....	30	15,000	a1,200	--	--	--	16	6,200	268
30.....	25	14,000	a940	--	--	--	13	3,900	137
31.....	31	9,700	812	--	--	--	.8	1,100	2
Total.	688.8	--	21,092	494.5	--	10,252	715.8	--	5,271

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

JEMEZ RIVER BELOW JEMEZ CANYON DAM, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	10	1,400	s 73	22	1,100	a 65			
2.....	14	2,200	83	22	1,100	59			
3.....	4	2,600	a 28	22	600	36			
4.....	11	2,320	s 126	22	200	12			
5.....	8	2,250	49	14	250	9			
6.....	9	2,300	56	12	350	11			
7.....	10	3,900	105	15	700	a 28			
8.....	16	4,200	181	12	1,200	a 39			
9.....	12	1,900	a 62	22	1,000	59			
10.....	14	900	a 34	26	900	63			
11.....	14	2,250	85	72	2,640	s 599			
12.....	8	4,680	s 125	108	2,000	583			
13.....	5	1,630	s 24	102	1,200	330			
14.....	2	938	s 4	91	1,000	a 250			
15.....	1	655	s 3	45	750	a 91			
16.....	0	--	0	29	9,900	775			
17.....	10	4,600	a 120	32	9,800	847			
18.....	42	8,450	958	35	9,200	869			
19.....	15	4,650	188	32	13,500	1,170			
20.....	12	1,400	45	32	8,200	708			
21.....	16	1,450	63	29	4,100	a 320			
22.....	22	1,250	74	16	2,500	a 110			
23.....	22	1,000	a 59	9	1,750	43			
24.....	26	700	a 49	10	500	14			
25.....	32	1,600	138	12	300	a 10			
26.....	19	2,250	115	5	300	a 4			
27.....	14	550	21	1	270	1			
28.....	13	500	18	0	--	0			
29.....	19	850	44	0	--	0			
30.....	16	1,100	48	0	--	0			
31.....	--	--	--	0	--	0			
Total.	416	--	2,978	849	11 --	7,103	0		0

Day	July			August			September		
1.....	0	--	0	125	118,000	s 30,800	12	25,500	826
2.....	0	--	0	27	62,000	4,690	8	14,000	302
3.....	0	--	0	31	50,600	s 4,650	3	19,000	a 150
4.....	0	--	0	3	31,000	251	.4	6,000	a 6
5.....	0	--	0	50	33,800	s 7,280	0	--	0
6.....	0	--	0	164	84,000	38,600	0	--	0
7.....	0	--	0	155	53,000	a 23,000	.4	1,000	a 1
8.....	0	--	0	165	28,500	s 14,600	.2	2,000	a 1
9.....	0	--	0	173	9,290	s 4,380	0	--	0
10.....	0	--	0	111	19,200	s 4,440	0	--	0
11.....	4	18,000	a 190	176	58,500	s 30,500	0	--	0
12.....	155	33,000	14,000	360	2,230	s 1,820	0	--	0
13.....	108	9,500	a 2,800	182	5,000	a 2,500	0	--	0
14.....	44	13,900	s 1,880	48	5,500	a 710	0	--	0
15.....	3	33,800	284	28	5,600	423	0	--	0
16.....	20	30,200	s 1,960	43	23,300	2,710	0	--	0
17.....	18	25,300	s 1,810	36	8,300	807	0	--	0
18.....	38	33,000	3,510	39	7,320	s 829	0	--	0
19.....	10	32,600	s 870	40	15,100	1,630	0	--	0
20.....	32	35,500	s 3,750	50	2,300	a 310	0	--	0
21.....	2	21,000	a 110	67	3,500	a 630	0	--	0
22.....	16	25,000	a 1,100	250	5,580	s 2,850	0	--	0
23.....	158	56,000	25,000	418	40,800	s 56,400	0	--	0
24.....	113	19,800	s 6,280	164	30,800	s 17,100	0	--	0
25.....	4	10,200	110	49	17,600	s 2,600	0	--	0
26.....	3	11,900	96	60	6,000	972	0	--	0
27.....	2	2,000	11	48	1,400	a 180	0	--	0
28.....	0	--	0	5	800	a 11	0	--	0
29.....	235	46,700	s 64,600	306	24,700	s 33,400	0	--	0
30.....	310	32,000	27,800	88	40,700	s 11,300	0	--	0
31.....	340	21,000	19,300	30	30,000	2,430	--	--	--
Total.	1,615	--	175,461	3,491	--	302,803	24.0	--	1,286

Total discharge for year (cfs-days)..... 9,953.4
Total load for year (tons)..... 768,258

s Computed by subdividing day.
a Computed from estimated concentration graph.

JEMEZ RIVER BELOW JEMEZ CANYON DAM, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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, 1954	9:00 a.m.	354	64	56,700	4,010	--	61	--	78	--	90	99	100		--		VPWCM
Oct. 5	8:00 a.m.	344	58	37,800	3,650	--	58	--	78	--	88	97	100		--		VPWCM
Oct. 8	11:05 p.m.	610	62	69,200	3,960	--	67	--	80	--	91	96	99		100		VPWCM
Oct. 9	11:25 p.m.	450	58	98,000	3,550	--	57	--	69	--	87	97	100		--		SPWCM
Nov. 13	11:30 a.m.	17	44	7,170	3,400	--	56	--	63	--	84	99	100		--		VPWCM
Dec. 17	3:00 p.m.	a5	33	3,090	2,140	--	15	--	18	--	27	76	100		--		VPWCM
Jan. 28, 1955	3:30 p.m.	61	39	17,300	3,160	--	22	--	32	--	64	95	100		--		VPWCM
Feb. 4	10:55 a.m.	60	32	1,250	1,920	--	20	--	26	--	34	61	100		--		VPWCM
Feb. 18	3:00 p.m.	29	--	10,400	3,750	--	22	--	33	--	62	89	99		100		VPWCM
Apr. 8	10:30 a.m.	26	60	7,050	4,000	--	24	--	32	--	54	88	98		100		VPWCM
Apr. 18	1:30 p.m.	53	64	7,510	3,850	--	37	--	47	--	81	97	100		--		VPWCM
Apr. 27	3:30 p.m.	7.7	64	510	--	--	--	--	--	--	89	97	99		100		S
July 29	11:40 a.m.	342	70	144,000	5,860	49	58	68	76	84	89	93	98		100		SPWCM
July 29	11:40 a.m.	342	70	144,000	5,740	0	0	0	75	86	89	93	98		100		SPN
July 30	3:05 p.m.	288	78	23,800	4,720	--	61	--	86	--	95	96	99		100		VPWCM
Aug. 5	12:30 p.m.	64	83	65,100	4,060	--	47	--	63	--	89	99	100		--		SPWCM
Aug. 19	1:40 p.m.	40	75	4,340	3,910	--	61	--	69	--	85	99	100		--		VPWCM
Sept. 2	12:15 p.m.	8.9	83	13,200	3,580	--	36	--	44	--	91	100	--		--		VPWCM

a Daily mean discharge.

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 Jemez River.
DRAINAGE AREA.--17,300 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 September 1955.
Sediment records: November 1947 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 81°F July 22; minimum, freezing point on many days in December, January, and February.
Sediment concentrations: Maximum daily, 75,000 ppm Sept. 25; minimum daily, 170 ppm Apr. 16.
Sediment loads: Maximum daily, 1,680,000 tons Sept. 25; minimum daily, 12 tons Apr. 29.
EXTREMES, 1947-55.--Water temperatures (1948-55): 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, 18 ppm May 13, 17, 1950.
Sediment loads: Maximum daily, 1,680,000 tons Sept. 25, 1955; minimum daily, less than 0.50 tons Sept. 25, 1953.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. Flow affected by ice Dec. 29 to Jan. 5, Jan. 24-27.

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement, before 11 a.m.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	45	36	a32	38	37	35	56	--	53	61	63
2	56	41	37	32	a42	37	b49	57	57	b78	70	63
3	63	45	36	34	a42	a51	35	52	57	63	72	62
4	66	44	a46	34	32	42	a52	52	b62	--	75	74
5	a63	45	32	a38	b38	b46	36	58	55	69	a78	62
6	60	--	34	a32	33	39	42	51	58	65	b75	64
7	57	--	38	32	32	a50	42	b65	61	63	68	62
8	65	--	35	a38	33	b49	41	57	68	58	68	62
9	60	b45	32	32	38	a47	b58	a67	60	b73	66	62
10	a60	a45	35	33	32	47	43	55	55	65	69	--
11	58	38	a41	33	32	48	a58	40	78	71	63	62
12	55	44	38	33	--	b55	b49	55	64	71	68	63
13	b58	42	33	32	33	45	36	57	60	72	--	62
14	54	41	a41	35	32	53	43	b60	--	70	72	61
15	50	44	a39	a37	35	44	46	60	--	72	68	62
16	47	45	a39	33	37	45	b63	54	61	74	66	59
17	55	43	a34	37	38	42	49	53	58	65	68	70
18	51	41	a33	33	40	41	a68	53	78	65	68	57
19	51	38	32	32	a33	b50	41	51	68	64	a79	a71
20	50	--	a38	38	33	43	41	52	75	70	b71	60
21	52	--	32	31	32	37	b63	b65	a73	69	65	57
22	52	--	32	a33	32	a48	50	60	74	81	65	57
23	48	--	33	32	33	b52	a55	59	72	--	67	57
24	50	--	32	32	32	a48	47	61	a77	--	70	b67
25	b55	--	a36	a32	33	40	b63	60	--	--	78	57
26	51	--	33	a32	b43	a40	50	55	62	b72	68	66
27	--	--	32	a34	36	33	46	54	61	66	70	67
28	38	--	32	32	37	b43	43	b62	61	68	b72	66
29	a56	--	32	37	--	a54	48	56	b70	68	62	60
30	40	--	32	a40	--	42	59	a60	68	70	63	60
31	42	--	32	38	--	35	--	58	--	71	b72	--
Average	54	--	35	34	35	45	48	57	65	68	69	63

a Measurement between 11 a.m. and 6 p.m.
b Measurement after 6 p.m.

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNALILLO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	42	1,250	142	25	360	24	320	1,280	1,110
2	33	1,600	143	34	450	41	325	1,280	1,120
3	194	2,360	s1,310	49	500	66	325	1,330	1,170
4	324	23,500	s24,000	100	871	s306	320	1,400	1,210
5	184	29,600	s15,500	170	1,120	5,140	350	1,580	1,490
6	510	55,400	s101,000	275	1,500	a1,100	380	1,560	1,600
7	162	18,000	s8,090	298	1,600	a1,300	380	1,540	1,580
8	112	9,880	s3,030	298	1,600	a1,300	390	1,400	1,470
9	324	39,500	s40,700	284	1,550	1,200	370	1,930	1,930
10	380	24,000	24,600	293	1,500	1,190	360	1,300	1,260
11	325	3,900	3,420	306	1,420	1,170	360	1,270	1,230
12	215	1,000	1,100	302	1,340	1,090	380	1,350	1,390
13	150	2,000	810	293	1,410	1,120	370	1,560	1,560
14	134	1,200	434	302	1,460	1,190	360	1,590	1,550
15	123	850	282	316	1,530	1,310	365	1,300	1,280
16	99	700	187	320	1,370	1,180	370	1,500	1,500
17	263	2,700	1,920	320	1,650	1,430	365	2,080	2,050
18	276	1,640	1,180	320	1,460	1,260	375	2,000	1,970
19	70	800	151	320	1,550	1,340	360	1,400	1,360
20	43	620	72	325	1,430	1,250	380	1,640	1,680
21	51	500	69	320	--	b1,200	410	1,450	1,610
22	42	400	45	306	--	b1,100	415	1,530	1,710
23	51	475	s84	316	--	b1,200	420	1,260	1,430
24	235	1,330	844	311	--	b1,200	432	1,620	1,890
25	235	1,000	635	311	--	b1,200	444	1,540	1,850
26	46	750	93	320	--	b1,200	450	1,470	1,790
27	33	420	37	320	--	b1,200	450	1,570	1,910
28	29	380	30	320	--	b1,200	438	1,450	1,710
29	22	300	18	320	--	b1,200	370	2,420	2,420
30	28	380	29	311	--	b1,200	250	880	594
31	31	380	32	--	--	--	200	365	197
Total	4,757	--	229,987	8,105	--	35,907	11,474	--	46,621
	January			February			March		
1	250	560	378	486	1,460	1,920	360	1,360	1,320
2	450	530	644	498	1,700	2,290	345	960	894
3	650	2,400	4,210	498	1,640	2,210	340	1,030	946
4	600	4,640	7,520	498	1,600	2,150	395	1,200	1,280
5	500	5,030	6,790	474	1,390	1,780	432	1,320	1,540
6	480	2,300	2,980	438	1,260	1,490	510	1,560	2,150
7	468	1,600	2,020	480	1,390	1,800	415	1,190	1,330
8	474	1,400	a1,800	492	1,400	1,860	360	940	914
9	480	1,980	2,570	510	1,800	2,480	345	900	838
10	480	2,050	2,660	498	1,670	2,250	410	1,350	1,490
11	480	1,900	2,460	474	1,410	1,800	438	2,100	2,480
12	474	1,450	1,860	420	1,400	1,590	426	2,600	2,990
13	462	1,700	2,120	405	1,450	1,590	570	3,300	5,080
14	462	1,650	2,060	444	1,550	1,860	370	2,100	2,100
15	462	1,650	2,060	480	1,500	1,940	243	1,430	938
16	468	1,530	1,930	492	1,810	2,400	223	880	530
17	498	1,700	2,290	498	1,710	2,300	231	1,000	624
18	504	1,750	2,380	498	1,650	2,220	207	940	525
19	480	1,450	1,880	510	1,650	2,270	474	6,500	8,320
20	462	1,390	1,620	444	1,720	2,060	540	4,200	6,120
21	492	1,750	2,320	420	1,700	1,930	327	1,740	s1,620
22	492	1,710	2,270	405	1,600	1,750	211	1,050	598
23	432	1,480	1,730	380	1,550	1,590	125	690	233
24	350	810	765	468	1,980	2,500	94	390	99
25	550	800	1,190	510	2,100	2,890	78	280	59
26	500	2,160	2,920	480	1,840	2,380	76	310	64
27	470	2,500	3,170	474	1,750	2,240	275	1,060	787
28	444	2,020	2,420	486	1,600	2,100	106	800	229
29	462	1,650	2,060	--	--	--	90	620	151
30	468	1,660	2,100	--	--	--	117	760	240
31	474	1,590	2,030	--	--	--	123	800	266
Total	14,718	--	75,207	13,160	--	57,640	9,256	--	46,755

s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNALILLO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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	83	450	101	325	1,460	1,280	840	1,200	2,720
2	86	680	158	360	1,140	1,110	1,150	2,200	6,830
3	302	920	750	355	940	901	1,210	1,640	5,360
4	219	600	355	144	740	288	1,150	1,600	4,970
5	83	240	54	117	550	174	1,420	1,900	7,280
6	51	310	43	323	1,060	s1,170	1,030	1,100	3,060
7	56	270	41	570	2,400	3,690	960	1,350	3,500
8	96	420	109	840	5,300	12,100	680	1,000	1,840
9	68	350	64	952	5,300	13,600	370	560	559
10	400	2,180	s2,780	1,000	4,950	13,400	311	510	428
11	370	2,100	2,100	1,050	5,700	16,200	340	440	404
12	247	1,160	773	1,100	6,100	18,100	660	910	1,620
13	181	510	249	1,080	6,970	20,300	325	510	448
14	128	340	118	1,000	4,450	12,000	325	414	363
15	80	260	56	1,130	5,300	16,200	267	320	231
16	57	170	26	1,080	4,270	12,500	235	320	203
17	227	600	368	920	2,810	6,980	195	360	190
18	73	246	sa54	912	2,470	6,080	239	325	210
19	88	596	s145	1,150	4,700	14,600	480	580	752
20	74	350	70	1,270	4,260	14,600	462	440	549
21	87	420	99	1,460	5,950	23,500	438	375	443
22	67	450	81	1,680	7,000	31,800	178	310	149
23	56	740	112	1,760	6,280	29,800	167	300	135
24	320	1,600	1,380	1,820	5,100	25,100	174	210	99
25	288	980	762	2,350	6,200	39,300	211	320	182
26	72	600	117	2,580	6,000	41,800	456	450	554
27	37	290	29	2,500	4,900	33,100	385	268	279
28	24	200	13	2,300	4,960	30,800	350	200	189
29	20	220	12	2,200	4,560	27,100	42	200	23
30	42	360	41	1,340	3,200	11,800	38	220	23
31	--	--	--	920	2,000	4,970	--	--	--
Total	3,982	--	11,060	36,588	--	484,143	15,088	--	43,593

Day	July			August			September		
1	29	260	20	880	50,100	s131,000	932	7,300	18,400
2	24	200	13	534	36,000	53,800	880	5,600	13,300
3	247	479	s330	536	29,000	s48,400	984	6,600	17,500
4	686	1,710	s3,290	325	17,700	s14,600	1,100	5,760	17,100
5	450	1,000	1,220	287	25,400	s23,000	1,060	5,970	17,100
6	207	780	436	440	28,900	s41,200	761	3,830	7,870
7	195	830	437	660	30,000	53,500	752	4,900	9,950
8	181	560	274	1,150	40,600	s143,000	700	4,780	9,940
9	247	520	347	960	34,000	88,100	770	4,600	9,560
10	504	640	871	765	29,000	59,900	836	4,840	10,900
11	456	440	542	1,840	42,400	249,000	880	4,500	10,700
12	690	22,700	s43,400	1,200	38,200	s148,000	847	4,560	10,400
13	1,060	32,900	s139,000	760	33,200	s72,500	600	2,920	4,730
14	375	8,100	8,200	500	20,000	27,000	350	2,530	2,390
15	400	9,240	s11,200	400	8,500	9,180	200	1,400	756
16	440	8,400	s11,100	400	14,000	15,100	109	530	156
17	340	13,500	12,400	350	16,000	15,100	89	462	111
18	263	13,200	9,370	200	13,000	7,020	83	467	105
19	320	28,300	24,500	540	21,000	30,600	74	390	78
20	96	18,500	4,800	1,030	41,600	s125,000	56	246	37
21	53	6,100	873	1,690	47,200	s246,000	52	267	38
22	30	2,000	162	1,880	42,000	221,000	42	225	26
23	400	45,300	s53,300	1,510	36,800	s161,000	48	280	36
24	480	18,000	20,700	1,180	30,000	s98,600	54	215	31
25	370	48,000	49,700	700	15,500	29,300	6,820	75,000	s1,680,000
26	390	46,100	s62,490	530	8,000	11,400	467	16,000	20,200
27	710	46,500	s94,600	1,850	20,300	s193,000	280	3,800	2,870
28	590	39,900	s69,300	1,860	33,400	s176,000	123	1,320	438
29	600	29,400	s75,300	1,640	30,500	135,000	102	770	212
30	1,080	49,500	s174,000	1,410	19,000	72,300	96	680	176
31	800	14,900	32,200	1,100	10,800	32,100	--	--	--
Total	12,713	--	904,285	29,107	--	2,730,700	20,217	--	1,865,110

Total discharge for year (cfs-days) 179,165

Total load for year (tons) 6,531,008

s Computed by subdividing day.

a Computed from estimated concentration graph.

RIO GRANDE NEAR BERNALILLO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 9, 1954	11:30 p.m.	737	62	51,800	3,450	--	67	--	82	--	96	98	100		--		VPWCM
Nov. 10	11:20 a.m.	311	45	1,430	3,520	--	36	--	53	--	92	98	100		--		VPWCM
Feb. 18, 1955	2:00 p.m.	498	46	1,590	3,690	--	16	--	24	--	66	85	97		100		VPWCM
Mar. 13	9:30 a.m.	600	45	3,020	4,920	--	28	--	40	--	77	91	98		100		VPWCM
Apr. 24	5:30 p.m.	365	68	1,630	3,440	--	25	--	40	--	86	98	100		--		VPWCM
Apr. 30	9:45 a.m.	28	59	208	--	--	--	--	--	--	98	99	100		--		S
May 1	6:30 p.m.	380	63	1,520	3,110	--	35	--	57	--	87	99	100		--		VPWCM
May 13	5:45 a.m.	1,160	57	7,660	3,300	--	31	--	42	--	81	96	100		--		VPWCM
May 19	4:00 p.m.	1,270	63	6,700	3,600	--	14	--	21	--	64	79	90		98	100	VPWCM
May 27	2:40 p.m.	2,320	70	4,190	3,370	14	15	20	26	35	66	90	98		100		VPWCM
May 27	2:40 p.m.	2,320	70	4,190	3,400	7	11	18	29	35	66	90	98		100		VPN
July 5	6:00 a.m.	1,260	69	1,160	1,590	--	26	--	34	--	52	73	97		100		VPWCM
July 15	11:25 a.m.	375	73	9,870	3,970	68	79	90	93	96	98	99	100		--		VPWCM
July 15	11:25 a.m.	375	73	9,870	4,100	1	6	41	94	97	98	99	100		--		VPN
July 29	1:30 p.m.	480	81	9,530	3,070	--	50	--	80	--	96	98	100		--		VPWCM
July 29	5:45 p.m.	1,080	80	59,300	3,620	--	56	--	82	--	96	98	100		--		VPWCM
July 30	12:10 p.m.	730	78	41,200	4,440	--	66	--	86	--	97	99	100		--		VPWCM
Aug. 27	8:30 p.m.	5,750	61	28,100	3,690	--	32	--	52	--	91	99	100		--		VPWCM
Aug. 27	9:00 p.m.	7,360	61	48,100	3,660	--	38	--	58	--	97	99	100		--		VPWCM
Aug. 27	11:00 p.m.	4,300	63	59,500	3,950	--	41	--	63	--	93	99	100		--		VPWCM
Sept. 25	10:30 a.m.	13,300	60	71,600	3,810	--	46	--	66	--	85	94	99		100		VPWCM

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. Gage is on a conveyance channel, 5 miles downstream from heading, formerly San Francisco riverside drain.
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 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 42,200 ppm Aug. 22; minimum daily, only flow from drain on many days.
Sediment loads: Maximum daily, 348,000 tons Sept. 26; minimum daily, 2 tons on several days.
EXTREMES, 1947-55.--Sediment concentrations: Maximum daily, 42,400 ppm Aug. 3, 1950; minimum daily, no river flow on many days. Not determined in interior drain.
Sediment loads; Maximum daily, 348,000 tons Sept. 26, 1955; minimum daily, 0 tons in river on many days. Less than 0.50 ton in interior drain and conveyance channel on many days.
REMARKS.--Records of specific conductance of daily samples and mean daily sediment concentrations available in district office at Albuquerque, N. Mex. Records are summation of water and sediment discharges in main channel, conveyance channel (formerly San Francisco riverside drain), and Bernardo interior drain. Daily sediment concentrations not listed because a compoeite concentration of more than one channel is meaningless. Tables for particle-size analyses for each channel are published separately and show water discharges and concentrations in thoee channels at the time of sampling. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Suspended sediment, water year October 1954 to September 1955

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.....	88		376	36		13	241		742
2.....	86		344	32		8	233		777
3.....	91		340	33		9	245		768
4.....	98		445	32		9	233		741
5.....	106		496	32		9	272		976
6.....	135		1,410	31		12	286		820
7.....	313		s36,400	35		9	291		1,200
8.....	176		10,100	62		25	305		1,510
9.....	194		5,730	68		89	301		1,640
10.....	269		s11,500	47		64	311		1,810
11.....	371		s27,100	47		31	331		1,810
12.....	208		s4,340	48		25	321		1,760
13.....	137		2,570	67		142	316		1,750
14.....	104		890	40		s356	341		1,920
15.....	114		458	9		2	348		1,900
16.....	93		214	54		96	354		1,720
17.....	73		97	112		196	347		1,680
18.....	63		85	134		213	341		1,620
19.....	49		56	165		259	341		1,600
20.....	51		53	178		391	360		1,840
21.....	56		57	171		318	371		2,020
22.....	58		57	182		449	395		1,980
23.....	43		38	190		436	401		2,210
24.....	42		38	201		534	395		2,120
25.....	48		47	206		544	396		1,990
26.....	46		33	213		638	402		2,000
27.....	42		28	217		684	416		2,740
28.....	42		24	225		699	430		2,540
29.....	41		22	237		737	423		2,650
30.....	40		18	241		807	402		2,110
31.....	38		17	--		--	322		1,210
Total.	3,314		103,383	3,345		7,804	10,471		52,154

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNARDO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	307		1,060	465		1,990	515		2,670
2.....	292		983	458		1,950	499		2,590
3.....	327		1,090	458		1,830	384		1,650
4.....	444		2,090	465		2,240	365		1,790
5.....	597		5,610	480		2,250	307		1,340
6.....	536		4,240	451		2,250	308		1,180
7.....	520		3,220	423		1,680	307		1,310
8.....	529		3,130	451		1,800	332		2,030
9.....	512		2,610	464		2,200	250		1,020
10.....	503		2,340	471		2,160	205		507
11.....	505		2,500	487		2,160	159		311
12.....	529		2,760	520		2,440	145		377
13.....	529		2,650	520		2,690	210		591
14.....	513		2,270	512		2,460	169		389
15.....	505		2,360	520		2,580	252		945
16.....	504		2,240	512		2,500	186		592
17.....	504		2,480	512		2,340	198		498
18.....	512		2,700	506		2,320	216		371
19.....	504		2,520	505		1,900	128		161
20.....	520		2,610	552		2,900	145		215
21.....	512		2,670	600		5,610	228		1,270
22.....	488		2,240	536		4,410	391		3,780
23.....	472		2,240	502		3,170	243		1,130
24.....	424		2,720	463		2,610	172		394
25.....	384		2,160	495		2,960	118		132
26.....	390		1,920	566		3,900	85		84
27.....	416		2,170	541		3,270	90		66
28.....	444		2,450	521		3,030	102		84
29.....	451		2,880	--		--	117		148
30.....	458		2,650	--		--	91		69
31.....	466		2,140	--		--	75		42
Total.	14,597		77,703	13,956		73,600	6,992		27,736
	April			May			June		
1.....	73		79	38		6	625		2,860
2.....	82		73	40		7	370		1,050
3.....	65		41	37		4	438		1,460
4.....	82		80	35		3	732		4,500
5.....	85		48	34		3	692		2,710
6.....	75		34	33		3	833		3,960
7.....	66		29	31		4	656		2,410
8.....	66		30	32		5	476		1,240
9.....	62		22	32		5	306		559
10.....	53		13	30		4	247		360
11.....	49		10	32		7	140		107
12.....	48		13	36		7	121		88
13.....	65		31	50		s 38	132		89
14.....	86		62	150		s 771	149		131
15.....	54		20	291		2,400	130		94
16.....	45		9	524		5,180	110		67
17.....	44		8	469		4,190	83		47
18.....	42		7	444		3,500	64		25
19.....	44		13	440		2,800	57		20
20.....	44		9	451		2,630	50		13
21.....	42		6	650		6,290	47		11
22.....	45		6	701		7,610	48		14
23.....	46		7	1,460		25,200	46		11
24.....	46		7	1,320		16,800	42		9
25.....	42		5	1,260		16,300	36		8
26.....	42		5	1,680		26,700	35		7
27.....	42		5	1,620		23,100	31		7
28.....	42		5	1,510		18,400	28		5
29.....	39		5	1,750		21,400	27		6
30.....	39		6	2,140		24,000	25		4
31.....	--		--	1,300		10,800	--		--
Total.	1,655		688	18,620		218,167	6,776		21,872

s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNARDO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	23		2	395		21,600	589		13,500
2.....	21		3	392		s20,100	516		7,150
3.....	21		3	334		s12,600	517		8,160
4.....	19		2	187		8,510	542		9,230
5.....	20		2	133		s4,420	564		11,200
6.....	19		2	151		s4,730	494		10,600
7.....	19		2	207		s11,000	451		6,220
8.....	16		2	354		s32,400	376		3,200
9.....	15		3	520		s50,800	357		3,330
10.....	20		16	375		s27,300	407		5,090
11.....	14		11	500		s38,000	322		2,580
12.....	18		7	1,120		s126,000	247		1,850
13.....	19		9	754		s70,700	176		945
14.....	27		29	596		31,500	194		1,040
15.....	23		34	400		16,400	107		200
16.....	18		23	277		8,640	89		124
17.....	23		22	155		2,560	76		81
18.....	30		33	154		2,190	65		52
19.....	27		60	208		4,700	61		36
20.....	23		37	387		s23,000	49		25
21.....	24		47	762		s72,400	48		21
22.....	31		84	1,600		s187,000	43		18
23.....	94		s5,780	1,400		s156,000	36		12
24.....	104		s2,060	920		79,800	37		12
25.....	137		7,340	599		30,200	77		s3,920
26.....	126		3,010	369		10,300	2,330		s348,000
27.....	159		3,200	346		8,350	316		11,800
28.....	628		s72,900	1,200		s153,000	210		4,280
29.....	378		22,100	1,280		s131,000	167		1,190
30.....	471		s41,800	1,070		s66,700	136		427
31.....	570		s52,900	885		32,900	--		--
Total	3,140		211,523	18,030		1,444,800	9,599		454,293

Total discharge for year (cfs-days)..... 110,495
Total load for year (tons)..... 2,693,723

s Computed by subdividing day.

RIO GRANDE NEAR BERNARDO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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 CONVEYANCE CHANNEL NEAR BERNARDO, N. MEX.																
Oct. 7, 1954	9:30 a.m.	500	--	67,600	4,610		67		90		96	98	100		--		VPWCM
Oct. 11	8:30 a.m.	400	--	27,100	3,220		82		94		97	99	100		--		VPWCM
Nov. 13	2:00 p.m.	84	--	1,200	2,660		70		83		90	93	100		--		SPWCM
Feb. 26, 1955	2:30 p.m.	455	--	2,700	5,020		36		53		74	90	99		100		VPWCM
Mar. 8	3:30 p.m.	319	--	2,770	3,140		25		35		44	52	84		99	100	VPWCM
Mar. 17	1:00 p.m.	181	54	1,000	1,920		62		70		81	89	98		100		SPWCM
May 16	3:00 p.m.	575	--	4,570	4,360		54		67		87	96	100		--		V PWCM
May 23	3:00 p.m.	830	71	7,410	4,140		42		74		91	96	100		--		VPWCM
May 30	1:00 p.m.	1,010	--	5,060	3,430		35		49		66	78	94		100		VPWCM
June 4	5:00 p.m.	615	--	1,650	3,740		46		70		89	98	100		--		SPWCM
July 10	8:00 a.m.	25	--	2,920	3,230		93		99		100	--	--		--		PWCM
July 27	4:40 p.m.	167	76	6,780	3,550		68		87		98	99	100		--		VPWCM
July 28	9:45 a.m.	743	71	41,700	4,930		73		88		97	99	100		--		VPWCM
July 29	7:30 a.m.	341	--	22,400	3,500		74		94		98	99	100		--		VPWCM
Aug. 12	7:30 a.m.	1,200	--	48,600	4,450		55		81		96	98	100		--		VPWCM
Aug. 23	3:00 p.m.	1,330	--	39,600	3,810		63		84		94	98	100		--		VPWCM
Sept. 26	9:00 a.m.	2,140	--	43,500	3,860		68		88		96	98	100		--		VPWCM
Sept. 27	8:30 a.m.	295	--	17,100	4,900		72		90		96	98	100		--		VPWCM

RIO GRANDE BASIN--Continued

RIO GRANDE NEAR BERNARDO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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 FLOODWAY NEAR BERNARDO, N. MEX.																	
Nov. 16, 1954 ..	11:00 a.m.	56	--	631	1,390		69		77		85	97	100		--		VPWCM
Dec. 2	4:00 p.m.	223	--	1,280	2,240		59		65		68	83	100		--		VPWCM
Dec. 16	1:30 p.m.	336	--	1,760	3,760		64		81		87	93	99		100		SPWCM
Feb. 15, 1955 ..	6:30 p.m.	500	52	2,150	2,800		40		52		61	72	95		100		VPWCM
Feb. 26.....	2:00 p.m.	90	--	1,250	3,370		64		92		99	100	--		--		SPWCM
Mar. 15.....	3:00 p.m.	15	--	529	1,410		89		99		100	--	--		--		PWCM
May 18.....	3:00 p.m.	65	--	2,260	2,780		76		95		99	100	--		--		SPWCM
May 23	3:00 p.m.	725	72	5,270	3,110		49		83		94	97	100		--		VPWCM
May 30	1:30 p.m.	989	--	2,720	3,380		53		81		94	98	100		--		VPWCM
June 6	3:30 p.m.	a 160	--	1,420	3,140		44		67		83	87	99		100		VPWCM
Aug. 12	8:00 a.m.	976	--	47,300	7,800		58		88		100	--	--		--		PWCM
Sept. 26	7:30 a.m.	2,640	53	34,400	4,370		81		98		100	--	--		--		PWCM

a Discharge estimated.

RIO GRANDE BASIN--Continued

RIO PUERCO BELOW CABEZON, N. MEX.

LOCATION.--One-fourth mile upstream from mouth of Chico Arroyo, 4¼ miles southwest of Cabezon, Sandoval County, and 1¼ 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 September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 160,000 ppm July 13; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 730,000 tons July 27; minimum daily, 0 tons on many days.
EXTREMES, 1948-55.--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 1954 to September 1955 given in WSP 1392. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff. Flow affected by ice Dec. 17-21, Jan. 7-10, Feb. 2-15, 19-22.

Suspended sediment, water year October 1954 to September 1955

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.....	2	1,600	9	0.1			0		
2.....	.5	400	a 1	.1			0		
3.....	.2	160	(t)	0			0		
4.....	11	13,800	s 2,000	.1			0		
5.....	163	104,000	s 68,200	.1			0		
6.....	39	34,300	s 6,690	0			0		
7.....	9	11,400	s 294	0			0		
8.....	87	31,000	31,600	0			0		
9.....	17	14,400	s 935	0			0		
10.....	3	3,000	24	0			0		
11.....	1	2,800	8	0			.1		
12.....	.2	1,000	a 1	0			0		
13.....	.1			.2			0		
14.....	.1			.1			0		
15.....	.1			.1			0		
16.....	.1			0			0		
17.....	.1			0			0		
18.....	.1			0			0		
19.....	.1			0			0		
20.....	.1			0			0		
21.....	.1	--	(t)	0			.1		
22.....	.1			0			0		
23.....	.1			0			0		
24.....	.1			0			0		
25.....	.1			0			0		
26.....	.1			0			0		
27.....	.1			0			0		
28.....	.1			0			0		
29.....	.1			0			0		
30.....	.1			0			0		
31.....	.1			--			0		
Total.	334.8	--	109,772	0.8	--	(t)	0.2	--	(t)

s Computed by subdividing day.
t Less than 0.50.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO PUERCO BELOW CABEZON, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1				0.1	100	(t)	0		
2				.1	110	(t)	0		
3				0	--	0	3		
4				0	--	0	2		
5				0	--	0	1		
6				0	--	0	.5		
7				0	--	0	.5		
8				0	--	0	.5		
9				0	--	0	.4		
10				0	--	0	.8		
11				0	--	0	2		
12				0	--	0	2		
13				0	--	0	1		
14				0	--	0	.3		
15				0	--	0	.1		
16				0	--	0	0		
17				0	--	0	0		
18				0	--	0	0		
19				0	--	0	0		
20				0	--	0	0		
21				0	--	0	.2		
22				0	--	0	.2		
23				.2	--	(t)	0		
24				.2			0		
25				0	--	0	0		
26				0	--	0	0		
27				0	--	0	.1		
28				0	--	0	0		
29				--	--	--	0		
30				--	--	--	0		
31				--	--	--	0		
Total	--	--	0	0.6	--	(t)	14.6	--	e40

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	0			1	--	e 50			
2	0			4	--	e 450			
3	.2			5	--	e 400			
4	.2			2	--	e 100			
5	.1			1	--	e 30			
6	0			1					
7	0			1	--	e 10			
8	0			1					
9	0			2	--	e 60			
10	0			10	--	e 600			
11	0			22	--	e 5,500			
12	0			19	93,900	5,170			
13	0			17	76,000	a 3,600			
14	0			10	45,100	1,260			
15	0			3	31,100	252			
16	0			2	--	b 150			
17	0			1	--	b 50			
18	0			.5	--	b 15			
19	0			.4	--	b 10			
20	0			.3	--	b 6			
21	0			.2	--	b 3			
22	.2			.1	--	b 1			
23	1			.1	--	b 1			
24	.5			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	--	0			
31	--			0	--	0			
Total	2.3	--	e30	103.6	--	17,738	0	--	0

e Estimated.
t Less than 0.50.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

RIO PUERCO BELOW CABEZON, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	0	--	0	167	95,500	s 83,700	2	21,000	113
2.....	0	--	0	12	35,300	1,190	.2	5,000	3
3.....	0	--	0	141	93,500	s 66,100	.2	126	(t)
4.....	.2	--	(t)	18	29,800	s 1,590	0	--	0
5.....	.2			15	41,900	s 2,840	0	--	0
6.....	0	--	0	62	105,000	s 21,200	0	--	0
7.....	0	--	0	263	146,000	s 197,000	0	--	0
8.....	0	--	0	370	150,000	s 197,000	0	--	0
9.....	0	--	0	40	69,500	s 8,750	0	--	0
10.....	0	--	0	6	42,000	706	.1		
11.....	0	--	0	293	118,000	s 157,000	.1		
12.....	0	--	0	219	103,000	s 96,200	.2		
13.....	140	160.000	s 116,000	111	86,500	s 45,400	.1	--	(t)
14.....	19	118,000	s 7,510	21	56,900	s 3,750	.1		
15.....	1	67,000	188	8	41,200	s 1,220	.1		
16.....	.5	19,000	26	287	92,900	s 128,000	.2		
17.....	1	71,000	s 390	176	125,000	s 110,000	.2	180	(at)
18.....	3	106,000	s 1,250	38	47,200	s 8,800	.2	175	(t)
19.....	19	31,100	4,670	2	27,700	s 305	.2	180	(at)
20.....	0	--	0	13	48,000	s5,060	0	--	0
21.....	370	119,000	s 252,000	16	24,100	s 6,150	0	--	0
22.....	46	98,500	13,100	46	114,000	s 17,400	0	--	0
23.....	27	97,000	s 9,870	19	98,000	5,400	0	--	0
24.....	1	57,000	160	8	74,500	s 2,000	1	2,980	s 127
25.....	68	136,000	s 41,800	9	49,600	s 2,600	2	14,000	s 136
26.....	298	70,700	s 123,000	7	76,000	1,490	0	--	0
27.....	926	159,000	sc730,000	51	69,800	s 2,420	0	--	0
28.....	460	152,000	s 249,000	249	138,000	s 150,000	0	--	0
29.....	32	46,500	s 4,560	120	116,000	s 56,300	0	--	0
30.....	14	39,800	1,560	18	39,000	1,970	0	--	0
31.....	6	22,000	356	6	29,000	470	--	--	--
Total.	2,431.9	--	1,555,440	2,811	--	1,382,011	6.9	--	380

Total discharge for year (cfs-days) 5,706.7
Total load for year (tons) 3,065,412

s Computed by subdividing day.
t Less than 0.50.
a Computed from estimated concentration graph.
c Computed from partly-estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO PUERCO BELOW CABEZON, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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	
May 12, 1955	4:20 p.m.	14	73	93,900	4,280		67		89		95	98	100		--		VPWCM
May 12	4:20 p.m.	14	73	93,900	3,180		69		87		94	98	100		--		VPWCM
July 21	6:40 a.m.	2,400	65	274,000	3,840		32		43		61	75	92		99	100	SPWCM
July 26	6:15 p.m.	30	69	71,600	4,690		66		84		95	99	100		--		VPWCM
July 26	10:15 p.m.	1,650	65	122,000	4,110		38		50		75	91	99		100		SPWCM
July 27	10:15 p.m.	2,750	60	119,000	3,270		31		41		60	81	96		100		SPWCM
Aug. 3	1:50 a.m.	465	70	276,000	3,030		29		37		60	78	95		100		SPWCM
Aug. 7	10:10 p.m.	2,350	67	272,000	3,640		23		32		55	72	94		100		SPWCM
Aug. 8	10:30 a.m.	1,350	71	215,000	4,560		31		42		66	82	96		100		SPWCM
Aug. 11	9:00 a.m.	330	69	98,800	3,740		59		76		96	100	--		--		VPWCM
Aug. 12	7:00 a.m.	384	58	145,000	4,000		46		60		81	94	100		--		SPWCM
Aug. 13	3:30 p.m.	700	--	120,000	3,660		44		64		85	95	100		--		SPWCM

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 Cabezon.
DRAINAGE AREA.--1,390 square miles, approximately.
RECORDS AVAILABLE.--Sediment records: July 1948 to September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 106,000 ppm Aug. 5; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 679,000 tons July 27; minimum daily, 0 tons on many days.
EXTREMES, 1948-55.--Sediment concentrations: Maximum daily, 113,000 ppm July 23, 1949; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 1,220,000 tons July 17, 1953; minimum daily, 0 tons on many days.
REMARKS.--Maximum observed sediment concentration during water year, 228,000 ppm Aug. 5. No flow during November, December, April and June; tabulation omitted for these months. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. Flow affected by ice Jan. 13 to Mar. 3.

Suspended sediment, water year October 1954 to September 1955

Day	October			January			February		
	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	910	2	0			0		
2.....	1	380	a 1	0			0		
3.....	1	230	1	0			0		
4.....	363	11,100	s 89,100	0			0		
5.....	820	66,400	s 185,000	0			0		
6.....	440	56,200	s 98,200	.1			0		
7.....	27	19,000	1,390	0			.1		
8.....	170	30,800	s 43,900	.1			0		
9.....	566	57,500	s 109,000	0			.1		
10.....	45	25,000	3,040	0			0		
11.....	6	17,000	275	0			0		
12.....	3	2,500	20	0			0		
13.....	2	1,500	8	0			0		
14.....	1	--	b 2	0			.1		
15.....	.5	--	b 1	0			0		
16.....	.2			0			0		
17.....	.1			0			0		
18.....	.1			.1			0		
19.....	.1			0			.2		
20.....	.1			0			.2		
21.....	.1	--	(bt)	0			0		
22.....	.1			0			0		
23.....	.1			0			0		
24.....	.1			0			0		
25.....	.1			0			0		
26.....	0	--	0	0			0		
27.....	0	--	0	0			.1		
28.....	0	--	0	0			.1		
29.....	0	--	0	0			--		
30.....	0	--	0	0			--		
31.....	0	--	0	0			--		
Total.	2,447.6	--	529,941	0.3		0	0.9		0

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

CHICO ARROYO NEAR GUADALUPE, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	March			May			July		
	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.....	.1			0		0	0	--	0
3.....	.1			0		0	0	--	0
4.....	0			0		0	4	12,300	s 591
5.....	0			0		0	2	26,600	s 203
6.....	0			0		0	1	37,800	s 241
7.....	0			0		0	1	30,300	s 130
8.....	0			.1		(bt)	0	--	0
9.....	0			0		0	0	--	0
10.....	0			42		b 4,400	5	1,750	s 858
11.....	0			38		b 3,800	30	65,700	s 7,610
12.....	0			.6	2,810	5	127	81,600	s 32,600
13.....	0			.1		b 1	84	67,000	15,800
14.....	0			0		0	28	47,000	s 3,850
15.....	0			0		0	7	38,000	745
16.....	0			0		0	60	46,900	s 19,800
17.....	0			0		0	42	47,400	s 7,740
18.....	0			0		0	23	27,500	s 5,790
19.....	0			0		0	28	46,300	s 3,890
20.....	0			0		0	4	27,500	297
21.....	0			0		0	15	51,200	s 2,690
22.....	0			0		0	27	59,700	s 4,380
23.....	0			0		0	144	79,400	s 38,100
24.....	0			0		0	358	59,300	s 110,000
25.....	0			0		0	716	53,000	s 167,000
26.....	0			0		0	960	81,800	s 304,000
27.....	0			0		0	2,040	97,400	s 697,000
28.....	0			0		0	856	74,200	s 196,000
29.....	0			0		0	440	50,000	s 110,000
30.....	0			0		0	186	46,400	s 29,000
31.....	0			0		0	30	40,000	3,360
Total.	0.2		0	80.8	--	8,206	6,218	--	1,743,675

Day	August			September		
	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day	Mean discharge (cfs)	Mean concentration (ppm)	Tons per day
1.....	78	74,000	s 13,300	5	7,500	101
2.....	10	57,000	s 1,570	2	3,400	18
3.....	191	56,300	39,100	.4	600	1
4.....	60	38,000	6,380	.1	162	(t)
5.....	460	106,000	s 178,000	0	--	0
6.....	204	50,700	s 42,000	0	--	0
7.....	520	66,300	s 117,000	0	--	0
8.....	745	77,300	s 186,000	0	--	0
9.....	84	33,000	7,760	0	--	0
10.....	437	27,400	s 104,000	0	--	0
11.....	916	79,000	s 303,000	0	--	0
12.....	246	68,500	s 65,200	0	--	0
13.....	712	68,500	s 259,000	0	--	0
14.....	294	64,000	s 82,300	0	--	0
15.....	453	37,900	s 119,000	0	--	0
16.....	560	63,500	s 123,000	0	--	0
17.....	184	69,000	s 46,800	0	--	0
18.....	77	44,800	s 11,700	0	--	0
19.....	109	46,800	s 31,600	.7	1,100	s 2
20.....	190	55,700	s 52,900	.7	21,700	s 89
21.....	429	73,900	s 114,000	.4	38,000	43
22.....	444	74,800	s 106,000	0	--	0
23.....	324	58,800	s 59,600	0	--	0
24.....	288	40,500	s 52,400	0	--	0
25.....	142	41,700	s 18,400	0	--	0
26.....	19	22,000	1,130	0	--	0
27.....	900	74,600	s 307,000	0	--	0
28.....	707	95,300	s 207,000	0	--	0
29.....	112	43,000	13,500	0	--	0
30.....	19	28,000	1,440	0	--	0
31.....	8	15,000	324	--	--	--
Total.	9,922	--	2,670,404	9.3	--	254

Total discharge for year (cfs-days) 18,679.1
Total load for year (tons) 4,952,480

s Computed by subdividing day.
t Less than 0.50 ton.
b Computed from water-sediment discharge curve.

CHICO ARROYO NEAR GUADALUPE, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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, 1954	9:15 p. m.	3,260	59	95,400	3,380		29		41		61	79	96		100		SPWCM
Oct. 5	1:45 p. m.	711	58	73,900	3,930		40		54		70	81	97		100		SPWCM
July 4, 1955	6:55 p. m.	65	65	77,300	2,880		66		86		89	93	99		100		SPWCM
July 25	11:45 p. m.	4,600	64	81,700	5,060		44		60		83	97	100		--		SPWCM
July 26	12:00 p. m.	3,980	62	144,000	4,940		31		43		61	81	98		100		SPWCM
July 27	8:45 a. m.	1,780	62	100,000	3,060		36		49		66	78	96		100		SPWCM
July 29	12:30 p. m.	98	76	29,400	3,620		70		78		85	92	99		100		VPWCM
Aug. 5	12:15 a. m.	1,840	70	225,000	3,350		23		33		58	74	95		100		SPWCM
Aug. 5	12:00 m.	142	77	70,300	4,810		69		85		93	96	100		--		VPWCM
Aug. 6	9:30 p. m.	790	71	121,000	3,870		36		52		79	88	97		100		SPWCM
Aug. 7	4:15 p. m.	534	75	78,000	4,360		45		59		80	90	99		100		SPWCM
Aug. 8	8:55 a. m.	1,580	68	87,600	4,460		34		46		72	85	97		100		SPWCM
Aug. 10	7:20 p. m.	4,600	--	104,000	3,550		57		71		92	98	100		--		SPWCM
Aug. 11	1:30 a. m.	3,500	--	106,000	3,640		55		69		90	98	100		--		SPWCM
Aug. 13	11:30 a. m.	4,300	--	59,000	4,000		44		63		96	100	--		--		VPWCM
Aug. 14	4:00 p. m.	108	--	36,500	4,180		75		84		92	98	100		--		VPWCM
Aug. 15	7:00 p. m.	3,320	--	94,800	3,560		37		50		83	97	100		--		SPWCM
Aug. 24	7:15 p. m.	2,540	--	88,900	3,120		34		51		82	94	99		100		SPWCM
Aug. 27	4:15 p. m.	4,700	63	78,200	2,630		31		49		82	94	97		99	100	SPWCM
Aug. 27	11:00 p. m.	1,900	58	105,000	2,340		29		41		64	81	99		100		SPWCM

RIO GRANDE BASIN--Continued

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 September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 120,000 ppm May 11; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 364,000 tons Aug. 11; minimum daily, 0 tons on many days.
EXTREMES, 1948-55.--Sediment concentrations: Maximum daily, 120,000 ppm May 11, 1955; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 364,000 tons Aug. 11, 1955; minimum daily, 0 tons on many days.
REMARKS.--No flow during period February to April; tabulation omitted for that period. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Suspended sediment, water year October 1954 to September 1955

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.....	16	1,500	a 65	0.3	--	(t)	3	270	2
2.....	14	6,300	238	.4	--	(t)	3	230	a 2
3.....	14	2,000	76	.8	--	(t)	3	238	2
4.....	10	478	13	.9	--	(t)	4	220	a 2
5.....	25	17,200	s 1,620	.9	--	(t)	4	240	a 3
6.....	69	13,200	s 3,310	1	--	(t)	3	257	2
7.....	17	3,500	161	1	--	(t)	3	200	a 2
8.....	12	1,100	a 36	5	--	5	3	245	2
9.....	43	6,100	sb 1,600	5	--	5	2	230	a 1
10.....	121	23,000	sa 9,500	5	334	5	4	220	a 2
11.....	26	6,300	s 510	5	330	a 4	3	211	2
12.....	8	1,000	a 22	5	300	a 4	4	180	a 2
13.....	4	150	a 2	7	308	6	3	240	2
14.....	1	91	(t)	6	330	a 5	4	270	a 3
15.....	.8	79	(t)	6	350	6	2	238	s 2
16.....	.3	49	(t)	7	320	a 6	4	300	sa 5
17.....	.2	--	(t)	5	239	3	1	150	(t)
18.....	.2	--	(t)	3	220	a 2	.4	--	(t)
19.....	.2	--	(t)	3	260	a 2	1	--	(t)
20.....	.2	--	(t)	3	331	3	.8	--	(t)
21.....	.3	--	(t)	3	310	a 3	.3	--	(t)
22.....	.2	--	(t)	3	300	a 2	.9	--	(t)
23.....	.3	86	(t)	3	310	3	1	--	e 1
24.....	.3	--	(t)	4	281	3	.9	232	1
25.....	.1	--	(t)	4	280	a 3	1	--	e 1
26.....	.2	--	(t)	3	307	2	2	--	e 2
27.....	0	--	0	3	290	a 2	3	--	e 2
28.....	0	--	0	2	270	a 1	.2	--	(t)
29.....	0	--	0	2	296	2	0	--	0
30.....	.1	--	(t)	2	300	a 2	2	110	sa 2
31.....	.2	--	(t)	--	--	--	.2	142	(t)
Total.	383.6	--	17,154	99.3	--	81	66.7	--	47

e Estimated.
s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.
b Computed from partly estimated concentration graph.

RIO GRANDE BASIN--Continued

SAN JOSE RIVER AT CORREO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	January			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	0	--	0	0	--	0	0		0
2	0	--	0	0	--	0	0		0
3	2	--	e 1	0	--	0	0		0
4	4	--	e 2	0	--	0	0		0
5	5	70	1	0	--	0	0		0
6	4	--	e 1	0	--	0	0		0
7	3	--	e 1	0	--	0	0		0
8	2	145	1	0	--	0	0		0
9	1	--	(t)	0	--	0	0		0
10	0	--	0	0	--	0	0		0
11	.1	--	(t)	78	120,000	sa 39,000	0		0
12	0	--	0	7	69,000	s 1,870	0		0
13	0	--	0	.1	5,500	sa 2	0		0
14	0	--	0	0	--	0	21		c 3,500
15	1	--	(t)	0	--	0	.2		c 2
16	.2	--	(t)	0	--	0	0		0
17	4	200	s 2	0	--	0	0		0
18	.8	--	(t)	0	--	0	0		0
19	0	--	0	0	--	0	0		0
20	0	--	0	0	--	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	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	0	--	0	--		0
Total	27.1	--	10	85.1	--	40,872	21.2		3,502

Day	July			August			September		
1	0	--	0	2	503	3	64	4,100	708
2	0	--	0	0	--	0	18	2,600	a 130
3	0	--	0	0	--	0	10	1,500	40
4	0	--	0	0	--	0	6	1,400	a 23
5	0	--	0	0	--	0	5	1,400	a 19
6	0	--	0	.1	52,700	s 5,720	4	1,300	a 14
7	0	--	0	115	13,700	s 32,800	3	900	a 7
8	0	--	0	346	46,500	s 46,500	2	500	a 3
9	0	--	0	137	13,700	s 6,250	2	498	3
10	0	--	0	584	21,400	s82,700	.2	50	(at)
11	94	23,000	sa 33,000	4,100	32,600	s 364,000	0	--	0
12	96	67,200	s 24,900	337	12,500	s 12,600	0	--	0
13	2	12,000	sa 92	112	10,000	3,020	0	--	0
14	.1	1,000	(at)	163	11,800	s 5,580	0	--	0
15	0	--	0	158	9,100	3,880	0	--	0
16	0	--	0	285	16,800	s 13,900	0	--	0
17	0	--	0	156	14,000	s 6,470	0	--	0
18	7	3,810	s 199	65	8,600	1,510	0	--	0
19	5	3,250	s 59	207	26,100	s 29,800	.1	--	(t)
20	0	--	0	985	48,000	sb 160,000	.1	--	(t)
21	14	19,400	s 1,470	1,760	48,000	s 257,000	0	--	0
22	5	9,500	sb 220	581	20,000	s 38,100	0	--	0
23	53	39,000	sa 6,500	204	9,000	a 5,000	0	--	0
24	40	30,400	s 3,880	142	8,500	3,260	0	--	0
25	67	19,400	s 4,660	202	16,000	sb 9,100	0	--	0
26	82	12,300	s 5,570	125	17,000	sb 5,900	0	--	0
27	186	32,000	sb 18,000	77	14,000	sa 3,100	0	--	0
28	690	41,400	s 85,700	122	16,500	5,440	0	--	0
29	181	11,500	5,620	156	17,100	s 7,840	0	--	0
30	61	8,000	1,320	48	9,900	a 1,300	0	--	0
31	10	3,000	a 81	94	8,500	a 2,200	--	--	--
Total	1,593.1	--	191,271	11,263.1	--	1,112,973	114.4	--	947

Total discharge for year (cfs days) 13,653.6
Total load for year (tons) 1,366,857

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.
b Computed from partly estimated concentration graph.
c Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

SAN JOSE RIVER AT CORREO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 6, 1954	3:30 p.m.	75	63	10,800	4,210	--	88	--	98	--	99	99	100		--		SPWCM
Nov. 15	11:45 a.m.	6	44	380	2,550	--	97	--	98	--	99	100	--		--		SPWCM
July 26, 1955	2:45 p.m.	600	67	40,800	6,180	--	48	--	63	--	87	98	100		--		VPWCM
July 28	10:05 a.m.	816	68	34,400	5,550	--	44	--	52	--	69	88	99		100		SPWCM
July 28	3:00 p.m.	920	--	44,100	5,530	--	35	--	43	--	63	89	100		--		SPWCM
July 28	6:15 p.m.	840	74	35,000	5,020	--	40	--	45	--	66	89	100		--		SPWCM
Aug. 11	3:40 a.m.	6,440	63	29,700	5,520	--	58	--	74	--	88	95	99		100		VPWCM
Aug. 11	10:30 a.m.	7,600	64	30,400	2,800	53	57	67	74	79	90	96	99		100		VPWCM
Aug. 11	10:30 a.m.	7,600	64	30,400	3,210	3	8	23	76	82	90	96	99		100		VPN
Aug. 11	2:00 p.m.	3,500	71	35,100	3,670	--	51	--	61	--	77	95	100		--		VPWCM
Aug. 11	4:20 p.m.	2,150	71	38,300	3,750	--	50	--	60	--	77	91	100		--		SPWCM
Aug. 21	10:20 a.m.	1,520	69	50,000	3,380	--	34	--	39	--	59	82	98		100		SPWCM

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.
Sediment records: July 1948 to September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 210,000 ppm July 14; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 1,700,000 tons Aug. 21; minimum daily 0 tons on many days.
EXTREMES, 1948-55.--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.--Miscellaneous temperature measurements for water year October 1954 to September 1955 available in district office at Albuquerque, N. Mex. No flow during period January to April; tabulation omitted for that period. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Suspended sediment, water year October 1954 to September 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1.....	18	8,000	a390	0	--	0	0.4	--	(t)
2.....	12	1,600	52	0	--	0	.8	--	(t)
3.....	9	1,700	a41	0	--	0	.8	90	(t)
4.....	8	1,880	41	0	--	0	1	--	(t)
5.....	705	76,800	s399,000	0	--	0	.6	--	(t)
6.....	896	127,000	s370,000	0	--	0	.7	--	(t)
7.....	315	83,200	s84,400	0	--	0	2	--	e2
8.....	80	--	b12,000	0	--	0	.6	196	(t)
9.....	200	--	b65,000	0	--	0	.1	--	(t)
10.....	800	--	b350,000	0	--	0	.6	--	(t)
11.....	136	44,000	16,800	0	--	0	.6	127	(t)
12.....	30	--	b1,500	0	--	0	1	--	(t)
13.....	13	--	b380	1	--	(t)	.6	88	(t)
14.....	3	4,000	32	3	--	e2	1	--	(t)
15.....	.5	971	1	4	--	e3	.6	115	(t)
16.....	.1	75	(at)	3	--	e2	1	--	(t)
17.....	0	--	0	3	--	e1	0	--	0
18.....	0	--	0	3	--	e1	0	--	0
19.....	0	--	0	2	--	e1	0	--	0
20.....	0	--	0	1	--	(t)	0	--	0
21.....	0	--	0	1	--	(t)	0	--	0
22.....	0	--	0	1	--	(t)	0	--	0
23.....	0	--	0	1	--	(t)	0	--	0
24.....	0	--	0	1	--	(t)	0	--	0
25.....	0	--	0	1	--	(t)	0	--	0
26.....	0	--	0	1	--	(t)	0	--	0
27.....	0	--	0	1	--	(t)	0	--	0
28.....	0	--	0	1	--	(t)	0	--	0
29.....	0	--	0	.4	--	(t)	0	--	0
30.....	0	--	0	.7	--	(t)	0	--	0
31.....	0	--	0	--	--	--	0	--	0
Total	3,225.6	--	1,299,637	29.1	--	13	12.4	--	5

e Estimated.
s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

RIO PUERCO AT RIO PUERCO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	May			June			July		
	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	--	0
2	0	--	0	0	--	0	0	--	0
3	0	--	0	0	--	0	0	--	0
4	0	--	0	0	--	0	0	--	0
5	0	--	0	0	--	0	0	--	0
6	0	--	0	0	--	0	0	--	0
7	0	--	0	0	--	0	0	--	0
8	0	--	0	0	--	0	0	--	0
9	0	--	0	0	--	0	0	--	0
10	0	--	0	0	--	0	0	--	0
11	196	58,000	sa 59,000	0	--	0	0	--	0
12	55	74,800	11,500	0	--	0	151	40,500	s 37,100
13	15	68,500	2,880	0	--	0	57	110,000	sa 33,000
14	4	57,000	a 640	16	--	b 2,800	95	210,000	sc 71,000
15	1	29,000	a 78	4	--	b 450	60	178,000	32,000
16	0	--	0	.4	--	b 23	17	143,000	7,290
17	0	--	0	0	--	0	3	112,000	974
18	0	--	0	0	--	0	118	123,000	s 63,300
19	0	--	0	0	--	0	44	73,800	s 9,590
20	0	--	0	0	--	0	15	52,500	2,200
21	0	--	0	0	--	0	21	113,000	6,880
22	0	--	0	0	--	0	153	147,000	s 83,100
23	0	--	0	0	--	0	386	140,000	sa 210,000
24	0	--	0	0	--	0	270	131,000	s 109,000
25	0	--	0	0	--	0	300	122,000	s 146,000
26	0	--	0	0	--	0	1,060	158,000	s 720,000
27	0	--	0	0	--	0	2,200	135,000	s 970,000
28	0	--	0	0	--	0	3,240	160,000	s 1,590,000
29	0	--	0	0	--	0	973	111,000	s 338,000
30	0	--	0	0	--	0	832	105,000	s 377,000
31	7	--	b 300	--	--	--	203	86,000	sa 55,000
Total	278	--	74,398	20.4	--	3,273	10,198	--	4,861,434

Day	August			September		
1	24	56,800	3,820	95	18,700	4,800
2	106	110,000	sa 49,000	36	9,100	a 880
3	24	103,000	7,170	20	3,800	205
4	140	146,000	s 66,100	10	2,700	a 73
5	70	113,000	22,900	5	2,000	a 27
6	460	157,000	s 225,000	2	1,200	a 6
7	650	160,000	sa 330,000	1	400	a 1
8	1,380	142,000	s 623,000	0	--	0
9	1,480	144,000	s 818,000	0	--	0
10	312	82,200	s 76,900	0	--	0
11	5,800	92,900	a 1,430,000	0	--	0
12	1,130	99,300	s 341,000	0	--	0
13	615	114,000	s 216,000	0	--	0
14	880	133,000	s 454,000	0	--	0
15	410	64,000	73,500	0	--	0
16	1,010	110,000	sc 520,000	0	--	0
17	682	113,000	s 268,000	0	--	0
18	450	120,000	s 187,000	0	--	0
19	195	86,000	47,000	0	--	0
20	1,710	130,000	sc 690,000	0	--	0
21	3,460	170,000	sc 1,700,000	0	--	0
22	1,180	105,000	s 470,000	0	--	0
23	480	60,000	a 81,000	0	--	0
24	350	80,000	78,000	160	--	b 55,000
25	361	61,200	s 63,900	10	--	b 1,500
26	233	58,200	s 44,400	.2	--	b 8
27	148	20,000	a 8,000	0	--	0
28	1,380	129,000	s 663,000	0	--	0
29	930	120,000	324,000	0	--	0
30	287	79,000	a 63,000	0	--	0
31	126	42,000	a 15,000	--	--	--
Total	26,463	--	9,958,690	339.2	--	62,500

Total discharge for year (cfs-days) 40,565.7
Total load for year (tons) 16,259,950

e Estimated.
s Computed by subdividing day.
t Less than 0.50 ton.

a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.
c Computed from partly-estimated concentration graph.

RIO PUERCO AT RIO PUERCO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 5, 1954 ...	5:30 p.m.	2,200	--	175,000	3,530	--	36	--	46	--	65	83	99		100		SPWCM
Oct. 6	6:45 p.m.	1,700	60	170,000	3,840	--	34	--	42	--	62	79	99		100		SPWCM
Oct. 11	4:15 p.m.	100	64	39,100	3,320	--	84	--	95	--	98	100	--		--		VPWCM
July 18, 1955...	11:35 a.m.	686	--	210,000	3,700	--	59	--	95	--	87	91	97		100		SPWCM
July 26.....	3:50 p.m.	3,650	69	276,000	3,870	--	35	--	46	--	64	85	98		100		VPWCM
July 27	4:20 p.m.	4,660	69	170,000	3,850	32	38	43	50	61	74	92	100		--		SPWCM
July 27.....	4:20 p.m.	4,660	69	170,000	3,920	2	5	7	51	55	74	92	100		--		SPN
July 27.....	10:10 p.m.	5,190	67	101,000	2,640	--	51	--	67	--	79	93	99		100		VPWCM
July 28	6:35 a.m.	2,020	66	172,000	2,570	--	34	--	43	--	62	81	98		100		SPWCM
Aug. 8.....	4:30 a.m.	2,150	69	175,000	3,460	--	39	--	61	--	69	84	98		100		SPWCM
Aug. 11	10:20 a.m.	7,680	65	56,900	2,770	--	59	--	75	--	90	95	99		100		SPWCM
Aug. 21.....	8:45 a.m.	5,470	70	98,400	3,770	--	43	--	55	--	76	90	99		100		SPWCM
Aug. 28.....	11:30 a.m.	4,180	72	175,000	2,920	--	34	--	45	--	64	81	98		100		SPWCM

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 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 204,000 ppm Aug. 9; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 2,120,000 tons July 28; minimum daily, 0 tons on many days,
EXTREMES, 1947-55.--Sediment concentrations: Maximum daily, 215,000 ppm July 22, 1949; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 2,120,000 tons July 28, 1955; minimum daily, 0 tons on many days.
REMARKS.--No flow during period November to April and June; tabulation omitted for that period. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Suspended sediment, water year October 1954 to September 1955

Day	October			May			July		
	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.....	25	40,000	2,800	0	--	0	0	--	0
2.....	16	34,000	1,520	0	--	0	0	--	0
3.....	12	32,000	1,080	0	--	0	0	--	0
4.....	352	78,000	s223,000	0	--	0	0	--	0
5.....	818	77,800	s454,000	0	--	0	0	--	0
6.....	840	158,000	s462,000	0	--	0	0	--	0
7.....	640	145,000	s334,000	0	--	0	.8	--	e9
8.....	160	77,000	34,500	0	--	0	.3	--	e3
9.....	116	69,600	s27,300	0	--	0	260	18,000	sa220,000
10.....	750	136,000	s388,000	0	--	0	268	61,000	s138,000
11.....	340	85,000	80,900	0	--	0	2	6,000	32
12.....	71	51,000	10,100	71	71,600	s26,100	.2	8,000	4
13.....	28	42,600	3,340	38	100,000	s11,000	78	73,300	s24,100
14.....	7	39,000	764	3	86,000	722	74	105,000	s33,300
15.....	2	34,700	194	1	26,000	70	64	121,000	s24,400
16.....	.4	35,000	39	.1	16,000	a4	36	155,000	16,700
17.....	0	--	0	0	--	0	10	140,000	a4,200
18.....	0	--	0	0	--	0	6	--	e2,000
19.....	0	--	0	0	--	0	115	150,000	s67,100
20.....	0	--	0	0	--	0	72	112,000	s26,800
21.....	0	--	0	0	--	0	19	64,200	s3,530
22.....	0	--	0	0	--	0	107	61,200	s39,200
23.....	0	--	0	0	--	0	512	136,000	s255,000
24.....	0	--	0	0	--	0	445	154,000	s217,000
25.....	0	--	0	0	--	0	120	113,000	39,300
26.....	0	--	0	0	--	0	368	145,000	s164,000
27.....	0	--	0	0	--	0	1,760	187,000	s1,120,000
28.....	0	--	0	0	--	0	4,050	179,000	s2,120,000
29.....	0	--	0	0	--	0	1,840	148,000	s824,000
30.....	0	--	0	0	--	0	450	117,000	s189,000
31.....	0	--	0	0	--	0	578	126,000	s223,000
Total	4,177.4	--	2,023,537	113.1	--	37,896	11,235.3	--	5,750,678

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO PUERCO NEAR BERNARDO, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	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.....	96	82,800	s 22,900	122	65,000	22,200			
2.....	24	67,000	4,500	63	34,500	6,090			
3.....	80	93,200	s 22,200	16	24,000	1,040			
4.....	31	114,000	s 16,200	3	28,000	a 230			
5.....	101	153,000	46,400	.7	30,000	a 57			
6.....	145	143,000	s 63,400	0	--	0			
7.....	510	184,000	s 303,000	0	--	0			
8.....	845	201,000	s 539,000	0	--	0			
9.....	1,690	204,000	1,070,000	0	--	0			
10.....	490	118,000	168,000	0	--	0			
11.....	2,870	87,100	s 671,000	0	--	0			
12.....	4,100	92,900	s 869,000	0	--	0			
13.....	605	124,000	s 213,000	0	--	0			
14.....	398	134,000	s 209,000	0	--	0			
15.....	616	134,000	s 252,000	0	--	0			
16.....	285	83,500	s 73,700	0	--	0			
17.....	1,050	142,000	s 456,000	0	--	0			
18.....	500	118,000	s 175,000	0	--	0			
19.....	606	100,000	s 221,000	0	--	0			
20.....	1,040	119,000	s 407,000	0	--	0			
21.....	3,260	107,000	1,010,000	0	--	0			
22.....	2,100	108,000	658,000	0	--	0			
23.....	612	80,000	137,000	0	--	0			
24.....	460	131,000	s 181,000	0	--	0			
25.....	271	105,000	82,500	847	140,000	sa500,000			
26.....	250	103,000	74,700	27	24,800	s 2,320			
27.....	590	120,000	sa440,000	3	1,060	9			
28.....	940	180,000	sa720,000	.8	1,580	3			
29.....	1,110	185,000	s 639,000	0	--	0			
30.....	510	119,000	176,000	0	--	0			
31.....	200	88,000	51,000	--	--	--			
Total.	26,385	--	9,971,500	1,082.5	--	531,949			

Total discharge for year (cfs-days) 42,993.3
Total load for year (tons) 18,315,560

s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO PUERCO NEAR BERNARDO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 5, 1954	3:00 a.m.	2,190	--	194,000	5,840	--	36	--	48	--	69	86	99		100		SPWCM
Oct. 6	8:00 a.m.	900	--	159,000	6,720	--	41	--	55	--	77	90	99		100		SPWCM
Oct. 6	3:30 p.m.	690	--	148,000	3,100	--	41	--	58	--	77	91	99		100		SPWCM
Oct. 10	2:00 p.m.	1,270	--	194,000	2,540	--	36	--	46	--	68	86	100		--		SPWCM
May 12, 1955	2:00 p.m.	128	--	114,000	3,380	--	74	--	97	--	100	--	--		--		VPWCM
July 15	3:30 p.m.	79	86	124,000	3,450	--	84	--	99	--	100	--	--		--		VPWCM
July 23	12:30 a.m.	900	63	208,000	4,950	--	51	--	69	--	81	90	99		100		SPWCM
July 27	2:30 a.m.	4,700	--	195,000	4,930	--	38	--	55	--	77	92	100		--		SPWCM
July 27	8:50 p.m.	1,140	71	154,000	4,230	--	47	--	61	--	81	93	100		--		SPWCM
July 28	12:20 a.m.	3,470	70	165,000	4,060	--	42	--	52	--	79	95	100		--		SPWCM
July 28	8:30 a.m.	5,300	69	109,000	3,720	--	49	--	60	--	84	96	100		--		SPWCM
July 29	5:30 a.m.	2,590	70	143,000	4,650	--	36	--	44	--	77	94	100		--		SPWCM
Aug. 12	12:30 a.m.	6,440	68	58,900	4,170	--	70	--	84	--	92	98	100		--		VPWCM
Aug. 12	6:15 a.m.	7,880	67	54,400	3,950	--	70	--	83	--	93	96	99		100		VPWCM
Aug. 15	9:30 a.m.	720	--	132,000	4,470	--	44	--	55	--	84	96	100		--		SPWCM
Aug. 21	5:45 p.m.	5,960	--	100,000	4,620	3	4	9	73	81	90	98	100		--		SPN
Aug. 21	5:45 p.m.	5,960	--	100,000	4,560	48	55	63	72	79	90	98	100		--		SPWCM

RIO GRANDE BASIN--Continued

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 September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 150,000 ppm July 12; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 663,000 tons Aug. 21; minimum daily, 0 tons on many days.
EXTREMES, 1948-55.--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.--Maximum observed sediment concentration during water year, 268,000 ppm Aug. 11. Records of specific conductance and some temperature measurements for individual samples available in the district office at Albuquerque, N. Mex. No flow during period November to May; tabulation omitted for that period. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. Revised discharge for Oct. 9, 1954 given in WSP 1512.

Suspended sediment, water year October 1954 to September 1955

Day	October			June			July		
	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	--	0
2	21	42,000	sa 5,000	0	--	0	0	--	0
3	9	40,600	s 1,090	0	--	0	0	--	0
4	23	21,100	s 8,640	0	--	0	0	--	0
5	400	63,600	s 109,000	0	--	0	0	--	0
6	35	68,000	sa 9,200	0	--	0	0	--	0
7	12	38,000	a 1,300	0	--	0	2	53,200	s 893
8	600	36,600	s 183,000	0	--	0	0	--	0
9	580	69,500	s 148,000	0	--	0	0	--	0
10	210	56,000	sa 48,000	0	--	0	.7	18,200	s 180
11	15	28,000	a 1,100	0	--	0	127	36,200	s 59,400
12	0	--	0	0	--	0	147	150,000	sa 81,000
13	0	--	0	0	--	0	0	--	0
14	0	--	0	8	60,000	sb 2,400	0	--	0
15	0	--	0	2	15,000	a 81	0	--	0
16	0	--	0	0	--	0	0	--	0
17	0	--	0	0	--	0	.5	--	e 30
18	0	--	0	0	--	0	0	--	0
19	0	--	0	0	--	0	0	--	0
20	0	--	0	0	--	0	0	--	0
21	0	--	0	0	--	0	.4	--	e 20
22	0	--	0	0	--	0	3	--	e 400
23	0	--	0	0	--	0	0	--	0
24	0	--	0	0	--	0	130	--	e 40,000
25	0	--	0	0	--	0	344	102,000	s 120,000
26	0	--	0	0	--	0	16	71,800	s 3,270
27	0	--	0	0	--	0	620	129,000	s 255,000
28	0	--	0	0	--	0	640	78,000	s 188,000
29	0	--	0	0	--	0	30	44,000	s 4,620
30	0	--	0	0	--	0	134	76,600	s 35,200
31	0	--	0	--	--	--	2	40,000	a 220
Total	1,905	--	514,330	10	--	2,481	2,196.6	--	788,233

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from partly estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO SALADO NEAR SAN ACACIA, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	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.....	0	--	0	1		e 80			
2.....	0	--	0	0		0			
3.....	0	--	0	0		0			
4.....	0	--	0	0		0			
5.....	0	--	0	0		0			
6.....	3	10,000	s 392	0		0			
7.....	350	94,000	s 116,000	0		0			
8.....	313	117,000	s 129,000	0		0			
9.....	35	58,000	sa 8,200	0		0			
10.....	60	57,800	s 15,300	0		0			
11.....	534	99,000	s 229,000	0		0			
12.....	570	103,000	s 208,000	0		0			
13.....	260	94,300	s 71,600	0		0			
14.....	10	52,000	a 1,500	0		0			
15.....	50	--	e 8,000	0		0			
16.....	220	--	e 80,000	0		0			
17.....	20	--	e 5,000	0		0			
18.....	32	--	e 7,000	0		0			
19.....	130	54,000	s 24,500	0		0			
20.....	1,650	91,900	s 520,000	0		0			
21.....	1,600	118,000	s 663,000	0		0			
22.....	37	63,000	6,530	0		0			
23.....	50	--	e 15,000	0		0			
24.....	134	87,300	s 39,600	0		0			
25.....	140	86,000	s 39,700	10		e 2,000			
26.....	70	57,200	11,200	1		e 80			
27.....	90	--	e 20,000	0		0			
28.....	710	123,000	s 284,000	0		0			
29.....	30	82,000	a 6,900	0		0			
30.....	2	53,000	297	0		0			
31.....	.2	--	e 10	--		--			
Total.	7,100.2	--	2,509,729	12		2,160			

Total discharge for year (cfs-days) 11,223.8
Total load for year (tons) 3,816,933

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO SALADO NEAR SAN ACACIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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)

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	
Oct. 5, 1954	5:30 a.m.	900	59	76,000	3,860		50		68		83	91	97	99	100		SPWCM
July 7, 1955	5:30 a.m.	22	--	153,000	3,490		80		98		100	--	--	--	--		PWCM
July 25	12:00 m	438	78	94,100	3,480		58		79		89	94	99	100	--		SPWCM
Aug. 12	1:00 a.m.	1,050	69	157,000	4,220		29		43		68	85	97	100	--		SPWCM
Aug. 21	8:00 a.m.	5,000	71	129,000	7,120		35		48		70	87	98	100	--		SPWCM
Aug. 28	10:00 a.m.	5,900	--	158,000	4,850		38		55		75	80	95	98	99	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 September 1955.
EXTREMES, 1954-55.--Sediment loads: Maximum daily, 28,300 tons Aug. 21; minimum daily, 0 tons on several days.
EXTREMES, 1947-55.--Sediment loads: Maximum daily, 47,900 tons Aug. 12, 1953; minimum daily 0 tons on many days.
REMARKS.--Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Monthly and annual summary of suspended-sediment discharge, water year October 1954 to September 1955

Month	Discharge (cfs-days)	Suspended sediment (tons)
1954		
October	1,116	49,499
November	42.5	103
December	3.5	63
1955		
January	2.9	52
February	173.6	2,359
March	2,923	17,050
April	2,595	13,548
May	2,790	66,882
June	2,830	14,947
July	1,507	208,873
August	2,885	536,699
September	2,639	59,680
Total for year	19,507.5	a969,755

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 21,314,899 tons. Suspended-sediment records for Rio Grande at San Acacia are given on page 426.

SOCORRO MAIN CANAL NORTH AT SAN ACACIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1953 to September 1954
(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
Mar. 1, 1954	3:20 p.m.	111	54	5,550	5,380		27		40		84	98	100	--	--	VPWCM
Mar. 3	8:30 a.m.	107	46	1,570	1,250		14		20		32	40	69	99	100	VPWCM
Mar. 5	10:30 a.m.	97.6	45	2,120	1,960		43		51		86	98	100	--	--	VPWCM
Mar. 8	9:00 a.m.	93.8	45	1,570	3,250		38		48		83	98	100	--	--	VPWCM
Mar. 10	10:15 a.m.	110	49	1,940	2,240		50		68		99	99	100	--	--	SPWCM
Mar. 12	9:45 a.m.	121	36	789	1,620		54		67		86	93	100	--	--	VPWCM
Mar. 22	7:00 a.m.	109	52	1,260	1,670		25		31		56	90	100	--	--	VPWCM
Mar. 24	11:05 a.m.	106	--	543	2,360		51		67		86	97	100	--	--	VPWCM
Mar. 27	9:15 a.m.	116	50	841	1,640		41		53		87	95	100	--	--	VPWCM
Apr. 5	10:10 a.m.	122	59	1,720	3,640		63		73		93	100	--	--	--	VPWCM
Apr. 7	2:30 p.m.	130	72	1,290	2,140		41		53		83	96	100	--	--	VPWCM
Apr. 9	1:45 p.m.	121	71	1,380	2,710		42		51		82	97	100	--	--	VPWCM
Apr. 21	8:30 a.m.	141	--	2,160	4,620		43		55		83	98	100	--	--	VPWCM
Apr. 24	2:00 p.m.	151	71	1,020	2,380		53		74		95	100	--	--	--	SPWCM
May 3	2:00 p.m.	148	56	525	--		--		--		76	91	100	--	--	VW
May 5	4:00 p.m.	158	80	2,900	3,320		55		70		98	100	--	--	--	VPWCM
May 7	3:00 p.m.	163	81	1,740	3,280		41		51		80	98	100	--	--	VPWCM
May 17	10:45 a.m.	169	73	3,830	4,070		52		64		94	99	100	--	--	VPWCM
May 17	11:30 p.m.	169	--	5,390	5,350		48		66		96	100	--	--	--	VPWCM
May 19	3:30 p.m.	145	80	12,000	4,820		51		64		84	98	100	--	--	VPWCM
May 26	11:00 a.m.	180	67	4,500	4,680		47		69		93	100	--	--	--	VPWCM
May 26	7:00 p.m.	170	--	4,300	4,430		42		60		95	100	--	--	--	VPWCM
May 27	8:00 p.m.	169	68	4,800	3,660		33		44		80	96	100	--	--	VPWCM
June 2	10:00 a.m.	163	--	1,990	3,620		31		41		73	95	100	--	--	VPWCM
June 4	2:30 p.m.	127	76	632	--		--		--		91	98	100	--	--	S
June 14	3:00 p.m.	86.6	76	873	--		--		--		40	72	100	--	--	VW
June 16	6:00 p.m.	78.0	80	572	--		--		--		60	89	100	--	--	VW
June 19	10:00 a.m.	47.5	--	227	--		--		--		81	96	100	--	--	S
June 28	9:00 a.m.	33.9	--	166	--		--		--		81	97	99	99	100	S

RIO GRANDE BASIN--Continued

SOCORRO MAIN CANAL NORTH AT SAN ACACIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1953 to September 1954--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
July 1, 1954	1:30 p.m.	47	86	5,940	3,670		79		91		94	97	100	--		VPWCM
July 3	10:30 a.m.	33	85	41,200	3,280		84		96		97	99	100	--		VPWCM
July 11	9:00 a.m.	10	--	432	1,200		97		98		98	99	99	100		SPWCM
July 14	11:00 a.m.	4.3	90	214	560		65		69		99	99	99	100		SPWCM
July 16	10:00 a.m.	2.2	80	275	740		92		93		98	98	99	100		SPWCM
July 23	7:30 a.m.	109	--	89,500	3,330		66		94		98	99	100	--		VPWCM
July 28	6:30 p.m.	103	84	38,600	3,200		76		94		99	99	100	--		SPWCM
July 30	10:00 a.m.	61	83	12,700	3,620		92		99		100	--	--	--		PWCM
Aug. 9	8:30 a.m.	120	79	46,900	3,620		80		98		100	--	--	--		PWCM
Aug. 11	2:30 p.m.	141	79	43,900	3,650		70		73		98	100	--	--		VPWCM
Aug. 13	11:00 a.m.	125	74	73,300	3,140		63		88		97	99	100	--		VPWCM
Aug. 25	10:00 a.m.	103	--	62,000	3,700		74		91		99	100	--	--		VPWCM
Aug. 27	3:00 p.m.	101	81	27,100	3,580		86		98		100	--	--	--		PWCM
Sept. 7	1:00 p.m.	60	79	104,000	3,900		89		100		--	--	--	--		PWCM
Sept. 9	10:00 a.m.	60	81	91,600	2,920		80		99		100	--	--	--		PWCM
Sept. 20	2:00 p.m.	14	81	16,000	3,960		97		100		--	--	--	--		PWCM
Sept. 23	10:00 a.m.	10	65	843	2,200		89		97		99	100	--	--		SPWCM
Sept. 25	10:00 a.m.	50	75	65,700	3,260		67		97		99	100	--	--		VPWCM

Oct. 3, 1954	3:00 p. m.	71	76	2,550	3,200		79	95	99	100	--		SPWCM
Oct. 8	10:00 a. m.	76	73	68,100	4,220		52	75	92	97	100		VPWCM
Oct. 18	2:00 p. m.	52	--	2,440	3,730		53	80	100	--	--		PWCM
Oct. 25	2:00 p. m.	37	--	763	2,010		69	82	97	98	100		SPWCM
Feb. 24, 1955	12:30 p. m.	92	46	5,590	4,330		30	42	80	97	100		VPWCM
Feb. 25	11:00 a. m.	84	50	2,890	3,450		46	64	94	99	100		VPWCM
Mar. 7	9:00 a. m.	83	--	1,860	4,450		55	75	99	100	--		SPWCM
Mar. 9	3:45 p. m.	97	60	1,780	4,110		52	71	97	99	100		SPWCM
Mar. 11	12:00 m.	96	34	1,670	3,520		50	66	90	99	100		SPWCM
Mar. 21	9:00 a. m.	108	35	1,710	2,500		31	38	67	97	100		VPWCM
Mar. 23	2:30 p. m.	110	60	5,690	6,160		62	81	93	100	--		VPWCM
Mar. 25	11:30 a. m.	121	62	1,370	2,720		52	67	90	97	100		SPWCM
Apr. 5	4:00 p. m.	125	53	1,510	2,300		30	39	65	93	100		VPWCM
Apr. 6	9:00 a. m.	130	46	1,670	2,330		24	32	60	92	100		VPWCM
Apr. 18	4:00 p. m.	81	62	1,200	1,470		24	28	51	90	100		VPWCM
Apr. 21	10:00 a. m.	64	61	2,450	2,720		15	19	51	93	100		VPWCM
Apr. 23	11:00 a. m.	62	68	1,750	2,110		18	22	50	88	100		VPWCM
May 4	6:00 p. m.	41	63	843	1,060		30	34	52	90	100		VPWCM
May 7	1:00 p. m.	43	80	853	1,280		26	31	64	92	100		VPWCM
May 16	9:00 a. m.	153	60	6,840	3,680		56	66	83	97	100		VPWCM
May 19	2:00 p. m.	126	65	6,280	2,920		34	48	73	95	100		VPWCM
May 21	9:00 a. m.	132	61	3,920	3,620		46	61	83	97	100		VPWCM
May 31	2:00 p. m.	136	71	6,780	3,760		37	53	85	98	100		VPWCM
June 2	2:00 p. m.	134	73	2,030	2,660		63	85	99	100	--		SPWCM
June 3	3:00 p. m.	148	75	2,170	4,300		45	60	90	100	--		VPWCM
June 13	10:00 a. m.	133	60	1,340	832		22	31	73	97	100		VPWCM
June 15	11:00 a. m.	154	--	1,960	2,480		82	89	99	100	--		SPWCM
June 16	12:00 m.	133	80	1,980	2,080		14	18	44	94	100		VPWCM
June 27	10:00 a. m.	43	75	591	--		--	--	40	91	100		V
June 29	1:00 p. m.	34	81	490	--		--	--	49	97	100		V

RIO GRANDE BASIN--Continued

SOCORRO MAIN CANAL NORTH AT SAN ACACIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955--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
July 11, 1955	9:00 a.m.	24	74	6,620	4,480		66		72		91	100	--			VPWCM
July 13	11:00 a.m.	24	87	9,190	3,640		90		99		100	--	--			PWCM
July 15	4:00 p.m.	25	93	42,100	3,940		80		93		94	99	100			VPWCM
Aug. 8	9:30 a.m.	120	75	62,000	3,550		56		77		91	98	100			SPWCM
Aug. 10	3:30 p.m.	56	81	74,200	4,890		62		82		93	99	100			VPWCM
Aug. 24	10:00 a.m.	143	85	53,300	2,930		66		83		97	100	--			VPWCM
Aug. 26	12:00 m.	138	85	36,300	2,340		78		92		98	100	--			VPWCM
Sept. 6	4:00 p.m.	151	85	6,090	3,940		50		65		92	98	100			VPWCM
Sept. 9	8:00 a.m.	96	78	4,140	3,780		49		60		89	100	--			VPWCM
Sept. 19	9:00 a.m.	82	74	1,670	2,340		24		28		52	96	100			VPWCM
Sept. 20	4:30 p.m.	76	80	1,140	2,030		34		38		68	98	100			VPWCM

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 1955.
Water temperatures: October 1947 to September 1955.
Sediment records: July 1946 to September 1955.
EXTREMES,1954-55.--Dissolved solids: Maximum, 1,780 ppm July 14-17, 20; minimum, 360 ppm May 21-31.
Hardness: Maximum, 818 ppm July 14-17, 20; minimum, 194 ppm May 21-31.
Specific conductance: Maximum daily, 2,560 micromhos July 20; minimum daily, 488 micromhos May 31.
Water temperatures: Maximum, 93°F July 15; minimum, 33°F Jan. 18, 21.
Sediment concentrations: Maximum daily, 128,000 ppm July 27; minimum daily, no flow Sept. 21-24.
Sediment loads: Maximum daily, 1,760,000 tons Aug. 12; minimum daily, 0 tons Sept. 21-24.
EXTREMES, 1937, 1939-55.-- Dissolved solids: Maximum, 2,950 ppm Oct. 26, 1953; minimum, 183 ppm June 1-10, 1942.
Hardness: Maximum, 1,420 ppm Oct. 26, 1953; minimum, 101 ppm June 11-20, 1942.
Specific conductance: Maximum daily, 3,700 micromhos July 14, 1940; minimum daily, 236 micromhos May 17, 1942.
Water temperatures (1947-55): Maximum, 93°F July 15, 1955; minimum, freezing point on several days during winter months in most years.
Sediment concentrations (1946-55): Maximum daily, 196,000 ppm Aug. 11, 1946; minimum daily, no flow on many days.
Sediment loads (1946-55): Maximum daily, 1,760,000 tons Aug. 12, 1955; minimum daily, 0 tons on many days.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 gaging station. Data reported do not include flow in canal. Monthly sediment records for the canal are given on page 418 . Records of discharge for water year October 1954 to September 1955 given in WSP 1392. 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 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-4, 1954....	48.5	29		95	20	131		a219	328	60		4.9		776	1.06	102	319	140	47	3.2	1,130	8.3
Oct. 5-6.....	1,240	16		230	47	209		254	905	51		.1		1,580	2.15	5,290	768	560	37	3.3	2,030	7.9
Oct. 7-12.....	881	22		147	31	146		276	509	48		.6		1,040	1.41	2,470	494	268	39	2.9	1,450	7.7
Oct. 13-20.....	92.0	39		81	24	102		254	233	50		3.5		658	.89	163	300	92	42	2.6	983	7.9
Oct. 21-31.....	9.4	43		85	23	120		250	258	65		1.2		718	.98	18.2	306	102	46	3.0	1,060	8.0
Nov. 1-10.....	41.8	41		85	23	118		253	256	66		.8		714	.97	80.6	306	99	46	2.9	1,050	8.1
Nov. 11-20.....	85.1	40		79	21	105		247	223	58		1.5		648	.88	149	284	81	45	2.7	969	8.0
Nov. 21-30.....	186	38		80	17	86		238	198	42		2.5		580	.79	291	270	74	41	2.3	859	8.0
Dec. 1-10.....	280	36		79	18	78		239	183	41		2.8		556	.76	420	271	75	38	2.1	826	8.2
Dec. 11-20.....	369	34		82	13	71		b225	165	37		2.8		516	.70	514	258	74	37	1.9	766	--
Dec. 21-31.....	410	31		78	13	68		219	154	36		3.0		491	.67	544	248	68	37	1.9	742	8.1
Jan. 1-10, 1955...	483	31		77	13	66		217	149	36		3.1		482	.66	629	246	68	37	1.8	726	8.1
Jan. 11-20.....	524	31		75	13	63		218	139	35		2.3		465	.63	658	240	62	36	1.8	709	7.9
Jan. 21-31.....	475	31		74	12	61		213	137	32		2.2		454	.62	582	234	60	36	1.7	685	8.0

a Includes equivalent of 10 parts per million of carbonate (CO_3).
b Includes equivalent of 6 parts per million of carbonate (CO_3).

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RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 1-10, 1955...	491	33		70	13	62		217	134	31		5.2		455	0.62	603	228	50	37	1.8	687	7.6
Feb. 11-20	528	34		69	13	56		210	128	29		2.5		434	.59	619	226	54	35	1.6	676	7.8
Feb. 21-28	526	30		69	14	57		216	123	28		2.8		430	.58	611	230	52	35	1.6	673	7.6
Mar. 1-10.....	339	29		69	16	63		218	149	32		2.5		468	.64	428	238	60	37	1.8	717	7.5
Mar. 11-20.....	123	33		77	14	79		223	170	41		1.1		525	.71	174	250	67	41	2.2	802	7.6
Mar. 21-31.....	109	34		84	17	88		237	193	47		1.5		584	.79	172	280	86	41	2.3	883	7.7
Apr. 1-10	28.4	45		83	17	105		225	229	59		.7		650	.88	49.8	277	92	45	2.8	957	8.0
Apr. 11-20	6.0	50		93	21	116		263	251	67		1.1		728	.99	11.8	318	103	44	2.8	1,070	7.9
Apr. 21-30	2.4	49		98	22	130		265	276	77		.3		782	1.06	5.07	335	118	46	3.1	1,150	8.0
May 1-12.....	1.8	46		91	25	135		258	286	86		.3		796	1.08	3.87	330	118	47	3.2	1,180	7.8
May 13-14.....	8.0	24		156	41	187		267	624	78		1.4		1,240	1.69	26.8	558	338	42	3.4	1,720	7.3
May 15-20.....	330	30		66	15	73		202	163	40		2.2		488	.66	435	226	60	41	2.1	751	7.8
May 21-31.....	1,290	28		58	12	44		194	98	22		2.5		360	.48	1,250	194	35	33	1.4	563	7.6
June 1-10.....	494	28		60	12	49		194	109	27		2.0		382	.52	510	199	40	35	1.5	599	7.6
June 11-20.....	24.7	28		80	18	91		240	196	48		1.2		580	.79	38.7	274	77	42	2.4	890	7.6
June 21-30	2.1	41		83	22	111		246	239	60		.6		678	.92	3.84	298	96	45	2.8	1,010	7.9
July 1-9.....	.49	46		91	19	120		230	277	66		.3		732	1.00	.97	305	116	46	3.0	1,040	--
July 10-13, 18-19 .	76.5	27		111	26	144		234	390	72		.5		886	1.20	183	384	192	45	3.2	1,270	7.8
July 14-17, 20	23.0	23		254	45	254		310	948	100		.2		1,780	2.42	111	818	564	40	3.9	2,280	7.6
July 21-31.....	1,300	24		183	33	162		279	598	59		1.3		1,200	1.63	4,210	592	364	37	2.9	1,590	7.7
Aug. 1-10	710	26		163	33	134		270	514	46		2.2		1,050	1.43	2,010	542	321	35	2.5	1,410	7.5
Aug. 11-20	1,916	21		155	26	150		234	523	50		1.0		1,040	1.41	5,380	494	302	40	2.9	1,420	7.7
Aug. 21-31	1,963	22		139	26	130		242	456	42		1.1		935	1.27	4,960	454	256	38	2.6	1,300	7.7
Sept. 1-10.....	440	28		73	12	60		191	158	24		2.6		452	.61	537	232	75	36	1.7	686	8.0
Sept. 11-20c.....	123	35		83	11	78		228	176	37		1.6		534	.73	177	252	65	40	2.1	807	7.7
Sept. 25.....	656	20		175	33	161		261	551	95		.8		1,160	1.58	2,050	572	358	38	2.9	1,700	7.9
Sept. 26-30.....	538	34		97	18	84		232	245	39		2.5		634	.86	921	316	126	37	2.1	952	8.1
Weighted average	d421	27		112	21	102		232	325	40		1.9		743	1.01	835	366	176	38	2.3	1,050	--

c No flow September 21-24.
d Average for 361 days of flow.

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/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	72	58	50	--	42	--	68	a 50	67	b79	b78	76
2	74	a 42	51	45	48	--	55	66	73	78	b79	79
3	--	60	50	47	40	55	58	b70	70	77	80	78
4	a62	60	49	45	40	56	58	70	73	b79	b79	b77
5	65	58	--	40	38	55	55	b63	--	a73	80	77
6	69	--	48	40	--	55	60	80	a65	b72	81	78
7	68	a 40	50	38	40	58	58	71	74	78	--	78
8	58	59	48	38	45	58	60	62	77	88	b79	77
9	62	57	41	--	45	58	62	b64	b68	a66	83	b76
10	--	55	43	40	40	59	64	63	82	a70	81	79
11	a58	56	45	41	44	55	64	75	73	a74	79	78
12	65	41	--	42	48	57	52	72	b74	a74	75	b77
13	a57	55	45	45	--	58	61	68	71	84	b78	80
14	a58	58	45	44	50	58	65	73	b72	82	78	80
15	68	50	46	44	52	58	b67	74	b73	93	76	78
16	65	57	43	--	55	50	67	b74	80	a66	79	78
17	--	57	37	43	48	60	b68	70	75	--	78	72
18	68	50	40	a33	53	57	62	b64	74	b75	79	a74
19	70	58	--	40	35	59	68	67	a64	80	85	75
20	a50	a38	45	42	38	51	70	b67	b76	77	78	75
21	69	--	42	a33	41	45	71	70	75	80	76	--
22	69	a39	42	40	43	57	57	b67	b79	b 68	81	--
23	69	51	43	--	45	58	68	75	b78	72	b78	--
24	--	50	44	38	45	58	64	72	b76	--	b78	--
25	66	--	--	42	48	55	b72	63	81	a74	81	a64
26	a46	51	--	44	48	50	73	68	b81	76	85	70
27	a43	50	40	45	55	a35	b61	b70	b75	74	b75	a65
28	58	50	38	48	56	53	63	72	78	78	78	75
29	60	--	34	39	--	60	70	74	81	77	80	75
30	a43	50	35	--	--	60	68	b70	b78	b74	78	73
31	--	--	35	50	--	53	--	71	--	a68	77	--
Average	62	52	43	42	45	55	64	69	75	74	79	73

a Measurement before 11 a. m.
b Measurement after 6 p. m.

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

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.....	53	15,000	2,150	6	495	8	255	2,500	1,720
2.....	43	6,100	s785	19	442	s18	234	1,220	771
3.....	49	4,000	a530	35	255	24	241	1,500	976
4.....	49	8,000	1,060	39	505	53	227	550	337
5.....	1,490	73,400	s365,000	37	460	46	262	1,250	884
6.....	990	82,900	s264,000	40	375	40	290	6,500	5,090
7.....	1,080	78,300	s248,000	44	400	48	299	7,100	5,730
8.....	930	75,200	s343,000	58	390	61	308	8,300	6,900
9.....	963	81,900	s236,000	72	420	82	344	8,200	7,620
10.....	1,120	93,300	s380,000	68	500	92	335	6,300	5,700
11.....	820	59,500	137,000	60	580	94	362	6,600	6,450
12.....	371	38,500	40,000	78	620	131	353	7,550	7,200
13.....	190	20,500	10,500	65	1,110	195	326	6,600	5,810
14.....	145	54,000	21,900	75	1,490	302	380	10,400	10,700
15.....	130	55,000	20,000	46	1,000	124	362	8,600	8,400
16.....	75	2,400	486	44	1,100	131	380	6,600	6,770
17.....	46	1,300	161	61	1,000	s162	371	6,900	6,910
18.....	39	1,400	147	115	20,200	6,270	380	10,200	10,500
19.....	55	1,280	190	135	25,400	9,260	400	14,100	15,200
20.....	56	1,280	s201	172	21,800	10,100	380	13,600	14,000
21.....	36	1,090	106	178	14,000	6,730	390	10,600	11,200
22.....	9	1,390	34	172	4,850	2,250	400	8,800	9,500
23.....	8	1,410	30	184	6,100	3,030	410	8,750	9,690
24.....	7	900	17	190	6,100	3,130	420	4,980	5,650
25.....	6	830	13	202	7,100	3,870	400	4,700	5,080
26.....	6	740	12	184	8,650	4,300	410	4,380	4,850
27.....	7	610	12	172	7,200	3,340	420	7,600	8,620
28.....	6	370	6	172	6,550	3,040	438	11,500	13,600
29.....	6	450	7	196	10,700	5,660	438	5,600	6,620
30.....	6	380	6	208	6,980	3,920	426	14,100	16,200
31.....	6	420	7	--	--	--	360	8,490	8,250
Total.	8,797	--	2,071,360	3,127	--	66,511	11,001	--	226,928
	January			February			March		
1.....	340	13,200	12,100	498	3,380	4,540	498	3,250	4,370
2.....	330	5,250	4,680	510	5,460	7,520	510	5,190	7,150
3.....	350	8,090	7,650	498	5,980	8,040	438	4,250	5,030
4.....	450	11,400	13,900	510	3,590	4,940	370	2,400	2,400
5.....	630	9,400	16,000	510	4,360	6,000	360	3,360	3,270
6.....	570	6,600	10,200	474	7,600	9,730	266	2,910	2,090
7.....	540	7,800	11,400	450	8,250	10,000	282	1,970	1,500
8.....	555	7,500	11,200	474	9,250	11,800	290	2,100	1,640
9.....	540	9,400	13,700	486	5,000	6,560	218	1,750	1,030
10.....	525	5,460	7,740	498	2,600	3,500	156	1,400	590
11.....	525	5,600	7,940	510	3,090	4,250	118	1,400	446
12.....	525	4,350	6,170	540	2,610	3,810	96	1,880	487
13.....	540	5,350	7,800	540	3,100	4,520	128	1,630	563
14.....	540	6,800	9,910	525	4,310	6,110	128	2,000	691
15.....	525	4,950	7,020	540	3,800	5,540	162	2,890	1,260
16.....	510	3,720	5,120	525	4,700	6,660	162	3,080	1,350
17.....	498	3,980	5,350	525	2,050	2,910	128	2,250	778
18.....	510	6,180	8,510	510	3,000	4,310	132	2,250	802
19.....	525	7,600	10,800	525	3,620	5,130	93	3,250	816
20.....	540	9,700	14,100	540	3,980	5,800	86	3,600	836
21.....	510	5,750	7,920	630	9,160	15,600	90	2,100	510
22.....	498	3,650	4,910	570	11,800	18,200	258	3,500	2,440
23.....	486	4,400	5,770	510	5,000	6,890	266	3,400	2,440
24.....	450	3,840	4,670	450	5,370	6,520	162	2,200	962
25.....	414	2,970	3,320	426	4,250	4,890	96	1,560	404
26.....	414	3,410	3,810	570	5,180	7,970	64	1,230	s203
27.....	426	6,000	6,900	540	5,410	7,890	51	800	110
28.....	450	8,250	10,000	510	5,000	6,890	60	920	149
29.....	498	3,420	4,600	--	--	--	72	1,200	233
30.....	570	4,200	6,460	--	--	--	45	1,290	157
31.....	510	5,860	8,070	--	--	--	32	1,400	121
Total.	15,294	--	257,720	14,394	--	196,340	5,817	--	44,828

s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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.....	25	1,750	s 112	2	900	5	600	4,000	6,480
2.....	40	1,490	161	2	1,250	7	360	2,400	2,330
3.....	30	1,000	s78	2	1,350	7	360	2,700	2,620
4.....	40	800	86	1	900	2	642	3,200	s 5,280
5.....	42	1,360	154	1	650	2	679	2,650	4,860
6.....	29	1,600	125	2	750	4	736	3,280	6,520
7.....	21	2,780	s 168	1	950	3	660	3,000	5,350
8.....	20	2,220	s101	1	620	2	426	2,950	3,390
9.....	24	1,360	88	1	800	2	274	1,480	1,090
10.....	13	4,800	168	1	850	2	204	1,200	661
11.....	9	3,500	85	1	1,750	5	99	1,050	281
12.....	6	3,300	53	6	4,000	65	24	820	53
13.....	9	3,690	s102	3	41,100	s436	11	1,150	34
14.....	7	3,360	64	13	18,300	s516	31	725	s76
15.....	7	2,800	53	80	8,200	s1,630	41	2,720	s390
16.....	6	1,650	27	234	9,000	5,690	13	1,750	61
17.....	5	800	11	450	11,000	13,400	9	2,160	52
18.....	5	1,100	15	462	6,000	7,480	7	1,700	32
19.....	3	1,300	11	350	4,500	4,250	6	2,000	32
20.....	3	1,900	15	402	3,600	3,910	6	1,800	29
21.....	3	1,150	9	486	5,000	6,560	5	1,470	20
22.....	2	1,360	s8	615	6,000	9,960	2	920	5
23.....	2	1,050	6	1,400	12,000	s52,100	3	720	6
24.....	3	1,250	10	1,050	8,500	24,100	3	730	6
25.....	3	800	6	1,220	8,700	28,700	3	800	6
26.....	3	700	6	1,480	12,000	48,000	1	600	2
27.....	2	800	4	1,560	10,000	42,100	1	700	2
28.....	2	900	5	1,440	9,000	35,000	1	580	2
29.....	2	1,000	5	1,640	9,500	42,100	1	850	2
30.....	2	800	4	1,950	9,800	51,600	.9	840	2
31.....	--	--	-	1,400	7,800	29,500	--	--	--
Total.	368	--	1,740	16,256	--	407,138	5,208.9	--	39,674

Day	July			August			September		
1.....	0.6	220	(t)	595	42,500	s69,300	726	24,500	47,800
2.....	.5	300	(t)	310	28,000	23,400	552	19,800	29,500
3.....	.5	320	(t)	370	26,000	26,000	460	13,000	16,100
4.....	.4	280	(t)	214	66,700	s39,300	400	10,000	10,800
5.....	.4	320	(t)	128	39,000	14,000	450	9,000	10,900
6.....	.4	280	(t)	110	47,100	s15,700	362	9,400	9,190
7.....	.5	6,000	8	790	116,000	s286,000	353	7,000	6,670
8.....	.5	2,000	3	1,490	105,000	s455,000	335	5,400	4,880
9.....	.6	8,000	13	1,950	124,000	701,000	326	5,300	4,660
10.....	332	28,600	s44,900	1,140	79,500	s250,000	440	3,900	4,630
11.....	22	28,500	s4,810	2,230	101,000	s809,000	410	3,900	4,320
12.....	12	62,000	s3,000	7,480	79,100	s1,760,000	335	4,300	3,890
13.....	6	24,000	389	1,730	76,500	s362,000	196	4,000	2,120
14.....	15	45,300	s4,250	870	69,500	s181,000	178	4,800	2,310
15.....	11	67,000	2,060	1,140	77,000	246,000	63	2,310	s521
16.....	9	63,000	1,590	852	54,000	129,000	16	1,600	s68
17.....	6	28,000	454	1,160	82,100	s293,000	10	1,300	35
18.....	3	25,000	202	621	81,300	146,000	8	1,470	32
19.....	84	70,600	s37,200	830	78,200	s243,000	11	1,670	s54
20.....	74	74,200	s19,000	2,250	85,500	s673,000	7	1,190	s29
21.....	3	33,000	277	4,350	125,000	s1,600,000	0	--	0
22.....	137	28,300	s40,400	4,420	79,700	s1,050,000	0	--	0
23.....	440	68,500	s85,400	1,950	60,000	328,000	0	--	0
24.....	880	81,200	s222,000	1,500	62,000	260,000	0	--	0
25.....	725	73,400	s167,000	1,010	52,000	147,000	656	42,500	s195,000
26.....	324	76,200	s80,400	628	36,000	63,300	1,960	46,300	s285,000
27.....	2,190	128,000	s997,000	609	40,000	s119,000	390	21,500	22,600
28.....	4,610	121,000	s1,620,000	1,910	91,800	567,000	172	11,500	5,340
29.....	2,660	98,300	s773,000	2,460	77,800	s599,000	92	6,000	1,490
30.....	1,000	70,500	s205,000	1,620	58,000	263,000	75	3,000	608
31.....	1,330	58,700	s233,000	1,140	33,000	105,000	--	--	--
Total.	14,877.4	--	4,541,358	47,857	--	11,823,000	8,983	--	668,547

Total discharge for year (cfs-days) 151,980.3
Total load for year (tons) 20,345,144

s Computed by subdividing day.
t Less than 0.50 ton.

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ACACIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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	
Oct. 7, 1954	6:00 p.m.	1,010	68	59,800	4,820		71		85		100	--	--	--		PWCM
Nov. 26	7:00 a.m.	166	40	8,390	3,860		24		31		62	95	100	--		VPWCM
Dec. 10	9:00 a.m.	308	36	6,260	3,760		33		50		88	99	100	--		VPWCM
Feb. 15, 1955	6:00 p.m.	585	52	6,440	4,170		22		32		58	84	96	100		VPWCM
Mar. 20	9:30 a.m.	114	53	5,000	3,680		14		20		64	97	100	--		VPWCM
May 13	4:00 a.m.	8.2	55	64,800	3,380		86		100		--	--	--	--		PWCM
May 13	5:00 p.m.	2	67	31,100	3,610		89		100		--	--	--	--		PWCM
May 14	6:00 a.m.	2	55	22,400	3,650		92		97		99	100	--	--		VPWCM
May 18	7:00 p.m.	679	64	5,610	3,380		39		50		77	97	100	--		VPWCM
May 29	5:30 p.m.	1,900	74	10,300	3,740		30		46		88	99	100	--		VPWCM
June 6	9:00 a.m.	698	--	3,020	3,560		37		53		88	100	--	--		VPWCM
July 7	10:00 a.m.	.5	--	16,400	3,790		92		99		100	--	--	--		PWCM
July 11	9:00 p.m.	290	--	190,000	3,550		45		60		70	83	99	100		SPWCM
July 14	6:00 a.m.	3.7	69	35,300	3,730		90		96		98	100	--	--		VPWCM
July 28	11:30 a.m.	5,100	74	102,000	3,960		59		69		89	98	100	--		SPWCM
Aug. 10	3:30 p.m.	1,050	81	75,300	3,320		67		76		94	100	--	--		VPWCM
Aug. 11	7:00 p.m.	3,180	--	148,000	4,040		31		40		60	80	96	100		SPWCM
Aug. 12	1:00 p.m.	11,300	75	55,900	3,520		70		86		97	100	--	--		VPWCM
Aug. 13	6:00 a.m.	1,890	68	59,100	4,700		64		83		95	100	--	--		VPWCM
Aug. 21	10:00 a.m.	5,200	73	71,900	4,860		56		73		96	100	--	--		VPWCM
Aug. 31	11:30 a.m.	1,120	--	35,500	4,620		59		72		92	100	--	--		VPWCM
Sept. 9	8:00 a.m.	344	78	7,560	3,110		31		39		71	99	100	--		VPWCM

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ANTONIO, N. MEX.

LOCATION.--At gaging station at bridge on U. S. Highway 380, about 0.9 mile east of San Antonio, Socorro County.
DRAINAGE AREA.--27,400 square miles, approximately (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).
RECORDS AVAILABLE.--Water temperatures: August 1951 to June 1955 (discontinued).
Sediment records: August 1951 to June 1955 (discontinued).
EXTREMES, 1954-55.--Water temperatures: Minimum, freezing point on several days during December to February.
Sediment concentrations: Maximum daily, 88,000 ppm Oct. 7; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 270,000 tons Oct. 9; minimum daily, 0 tons on many days.
EXTREMES, 1951-55.--Water temperatures: Maximum, 95°F July 1, 1953; minimum, freezing point on many days.
Sediment concentrations: Maximum daily, 122,000 ppm Sept. 14, 1954; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 1,200,000 tons Sept. 27, 1954; minimum daily, 0 tons on many days.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Intermittent samples collected for size analyses after daily station was discontinued. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Temperature (°F) of water, October 1954 to June 1955
/Once-daily measurement generally between 11 a. m. and 6 p. m.. No flow on many days/

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

a Measured before 11 a. m.
b Measured after 6 p. m.

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ANTONIO, N. MEX.--Continued

Suspended sediment, October 1954 to June 1955

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	97	35,500	9,640	0	--	0	181	5,300	2,590
2	68	22,000	4,040	12	1,000	32	165	5,110	2,280
3	66	17,800	3,170	12	1,000	32	160	5,390	2,330
4	55	13,000	1,930	7	900	17	165	6,200	2,760
5	1,030	46,100	s 243,000	15	750	30	158	6,070	2,590
6	592	66,800	s 140,000	17	500	a 23	178	5,500	2,640
7	1,010	88,000	s 266,000	17	390	18	190	5,800	2,980
8	672	73,800	s 149,000	18	410	20	202	6,220	3,390
9	1,320	70,000	s 270,000	19	520	27	211	6,190	3,530
10	629	59,900	s 132,000	25	1,100	74	249	7,350	4,940
11	800	81,700	s 196,000	27	1,600	117	263	8,200	5,820
12	322	47,000	42,400	25	2,200	148	260	8,190	5,750
13	172	33,000	15,900	35	1,500	142	266	7,500	5,700
14	116	21,500	6,730	45	1,400	170	278	7,600	5,700
15	97	12,000	3,140	50	1,590	215	274	8,200	6,070
16	76	6,900	1,420	30	1,000	81	298	9,150	7,360
17	61	4,000	659	22	900	53	278	7,900	5,930
18	47	2,700	343	28	1,200	s 110	290	7,100	5,560
19	43	1,900	221	66	2,400	428	294	7,000	5,560
20	41	1,800	199	87	3,600	846	282	7,580	5,770
21	28	1,600	s 124	112	4,600	1,390	274	8,470	6,270
22	54	2,100	306	121	4,850	1,580	286	8,100	6,250
23	39	1,770	s 189	131	4,710	1,670	310	8,450	7,070
24	18	1,300	63	140	4,700	1,780	322	9,100	7,910
25	14	1,200	a 45	146	5,000	1,970	326	9,400	8,270
26	12	1,100	a 36	150	5,400	2,190	318	10,000	8,590
27	5	1,000	a 14	152	5,360	2,200	330	10,500	9,360
28	0	--	0	150	5,100	2,070	338	10,600	9,670
29	0	--	0	155	5,010	2,100	322	8,400	7,300
30	0	--	0	172	5,390	2,500	310	8,700	7,280
31	0	--	0	--	--	--	298	6,200	4,990
Total	7,484	--	1,486,569	1,986	--	22,033	8,076	--	171,900

Day	January			February			March		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	270	5,400	3,940	450	10,200	12,400	415	9,500	10,600
2	256	9,000	6,220	420	9,900	11,200	425	8,900	10,200
3	211	6,900	3,930	435	10,200	12,000	400	10,000	10,800
4	238	7,600	4,880	430	10,100	11,700	306	7,000	5,780
5	342	11,600	10,700	440	10,100	12,000	290	5,950	4,660
6	522	16,000	22,600	450	10,600	12,900	256	5,250	3,630
7	430	12,400	14,400	450	10,700	13,000	252	4,950	3,370
8	420	11,800	13,400	440	10,500	12,500	282	5,500	4,190
9	405	11,900	13,000	450	10,200	12,400	270	5,550	4,050
10	400	9,800	10,600	435	9,600	11,300	202	4,300	2,350
11	400	10,100	10,900	410	10,000	11,100	150	2,800	1,130
12	415	11,000	12,300	420	10,600	12,000	129	2,050	714
13	420	11,000	12,500	440	11,200	13,300	142	2,200	843
14	420	10,700	12,100	450	11,100	13,500	150	2,800	1,130
15	430	10,000	11,600	425	8,800	10,100	146	2,700	1,060
16	420	9,500	10,800	410	9,300	10,300	150	2,550	1,030
17	405	10,200	11,200	385	8,200	8,520	120	2,700	875
18	420	9,800	11,100	450	11,000	13,400	110	2,400	713
19	435	9,800	11,500	462	19,500	24,300	99	2,100	561
20	460	10,900	13,500	480	9,000	11,700	80	1,500	324
21	420	10,400	11,800	468	12,000	15,200	74	1,250	250
22	410	9,800	10,800	552	16,000	23,800	72	1,100	214
23	400	8,200	8,860	468	12,800	16,200	245	5,600	3,700
24	390	9,000	9,480	425	10,300	11,800	208	4,900	2,750
25	360	9,200	8,940	380	8,800	9,030	125	3,500	1,180
26	310	8,400	7,030	410	11,200	12,400	70	1,800	340
27	330	9,800	8,730	435	12,200	14,300	51	950	131
28	360	10,500	10,200	420	11,100	12,600	50	1,100	148
29	440	12,000	14,300	--	--	--	94	1,500	a 380
30	474	10,800	13,800	--	--	--	88	1,350	321
31	462	11,000	13,700	--	--	--	77	1,400	291
Total	12,075	--	338,810	12,290	--	364,950	5,528	--	77,715

s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE AT SAN ANTONIO, N. MEX.--Continued

Suspended sediment, October 1954 to June 1955--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.....	59	800	127	0	--	0	660	8,950	s17,000
2.....	21	700	40	0	--	0	380	5,300	5,440
3.....	39	850	90	0	--	0	235	5,000	3,170
4.....	27	450	33	0	--	0	274	5,000	3,700
5.....	22	600	36	0	--	0	528	7,300	10,400
6.....	23	500	31	0	--	0	468	6,200	7,830
7.....	7	300	6	0	--	0	605	7,500	12,300
8.....	2	250	1	0	--	0	290	4,200	3,290
9.....	5	300	4	0	--	0	175	2,800	1,320
10.....	.1	40	(at)	0	--	0	94	1,800	457
11.....	.9	--	(bt)	0	--	0	68	1,200	220
12.....	0	--	0	0	--	0	19	1,000	a51
13.....	1	--	(bt)	0	--	0	4	--	b3
14.....	1	--	(bt)	0	--	0	14	1,300	sc65
15.....	3	--	b2	0	--	0	4	--	b3
16.....	.4	--	(bt)	4	1,800	sa34	10	--	b40
17.....	.1	--	(bt)	38	3,500	sa410	0	--	0
18.....	3	--	b2	162	6,900	3,020	0	--	0
19.....	.5	--	(bt)	187	6,900	3,480	0	--	0
20.....	.9	--	(bt)	199	5,900	3,170	0	--	0
21.....	.7	--	(bt)	214	5,700	3,290	0	--	0
22.....	.4	--	(bt)	378	9,300	s10,200	0	--	0
23.....	0	--	0	663	13,400	s28,900	0	--	0
24.....	0	--	0	1,050	21,000	s61,100	0	--	0
25.....	0	--	0	1,080	17,200	50,200	0	--	0
26.....	0	--	0	1,150	17,600	s54,900	0	--	0
27.....	0	--	0	1,650	23,000	102,000	0	--	0
28.....	0	--	0	1,420	17,200	65,900	0	--	0
29.....	0	--	0	1,470	14,300	56,800	0	--	0
30.....	0	--	0	1,660	19,300	86,500	0	--	0
31.....	--	--	0	1,420	16,600	63,600	--	--	--
Total.	217.0	--	374	12,745	--	593,504	3,828	--	65,254

Total discharge for period (cfs-days) 64,230
Total load for period (tons) 3,121,109

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.
c Computed from partly estimated concentration graph.

RIO GRANDE AT SAN ANTONIO, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 5, 1954	9:30 a.m.	4,080	65	111,000	4,520		44		62		83	92	99		100		SPWCM
Oct. 9	7:30 a.m.	1,890	61	60,700	5,330		48		71		91	97	100		--		VPWCM
Oct. 10	8:00 p.m.	1,030	69	68,200	3,890		52		74		92	97	100		--		VPWCM
Nov. 22	1:00 p.m.	146	46	5,000	5,620		58		77		92	98	100		--		VPWCM
Dec. 17	2:00 p.m.	282	33	8,230	7,600		41		64		89	97	100		--		VPWCM
Dec. 26	3:30 p.m.	314	43	10,300	5,000		40		60		86	96	100		--		VPWCM
Jan. 29, 1955	2:05 p.m.	450	41	14,700	3,620		28		40		84	98	100		--		VPWCM
Feb. 20	7:10 p.m.	498	35	8,690	7,690		31		49		85	97	100		--		VPWCM
Feb. 28	12:00 m.	420	46	11,000	4,170		31		41		88	98	100		--		VPWCM
Mar. 16	4:40 p.m.	208	52	3,450	6,930		40		54		85	96	100		--		VPWCM
May 19	6:45 p.m.	190	64	6,920	3,460		63		70		92	99	100		--		VPWCM
May 30	12:30 p.m.	1,660	68	19,100	4,360		30		42		81	94	100		--		VPWCM
May 31	5:00 p.m.	1,270	68	13,900	4,520		39		49		88	97	100		--		VPWCM
June 14	5:30 p.m.	25	82	1,330	2,450		70		77		85	99	100		--		VPWCM
July 27	12:00 m.	450	73	82,100	3,920		77		94		98	99	100		--		VPWCM
July 27	5:15 p.m.	3,270	75	132,000	5,840		58		84		94	97	100		--		SPWCM
Aug. 11	12:20 p.m.	626	77	50,900	3,760		66		88		97	99	100		--		VPWCM
Aug. 12	11:40 a.m.	6,460	73	102,000	3,210		47		59		80	89	99		100		SPWCM
Aug. 12	3:05 p.m.	5,860	77	91,300	2,720		48		60		79	90	99		100		SPWCM
Aug. 27	8:50 a.m.	456	72	39,600	3,160		79		93		98	99	100		--		VPWCM
Sept. 7	8:05 a.m.	270	66	8,560	4,220		64		79		92	98	100		--		VPWCM
Sept. 15	8:40 a.m.	71	67	2,900	4,840		86		93		98	99	100		--		SPWCM
Sept. 28	11:50 a.m.	232	78	17,100	3,960		84		95		99	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 1955.
Sediment records: March 1954 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 90°F June 12; minimum freezing point on several days during December, January to February.
Sediment concentrations: Maximum daily, 111,000 ppm Aug. 8; minimum daily, no flow on several days.
Sediment loads: Maximum daily, 294,000 tons July 28; minimum daily, 0 tons on several days.
EXTREMES, March 1954 to September 1955.--Water temperatures: Maximum, 90°F June 12, 1955; minimum, freezing point on several days during December 1954, January to February 1955.
Sediment concentrations: Maximum daily, 111,000 ppm Aug. 8, 1955; minimum daily, no flow on several days during 1955.
Sediment loads: Maximum daily, 294,000 tons July 28, 1955; minimum daily, 0 tons on several days during 1955.
REMARKS.--Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Temperature (°F) of water, water year October 1954 to September 1955
(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	73	65	45	34	38	52	--	--	a 63	--	85	80
2	71	64	50	35	44	a 42	58	--	70	--	85	82
3	a 69	60	52	a 36	37	54	60	--	75	--	85	a 60
4	77	56	53	37	41	a 56	--	--	75	--	85	a 70
5	74	59	a 45	--	36	46	53	--	75	--	82	a 69
6	a 68	60	49	36	33	a 46	--	--	85	--	a 73	81
7	64	53	52	41	40	48	--	--	82	--	a 73	82
8	a 65	a 44	a 38	--	a 32	--	--	--	--	--	84	73
9	a 69	a 45	a 33	39	a 34	58	73	--	b 77	--	85	80
10	a 63	a 48	a 37	35	35	58	77	--	72	--	b 78	a 72
11	a 63	--	46	a 32	a 32	a 50	--	--	80	--	b 75	a 69
12	a 60	a 43	a 38	a 34	34	59	--	--	90	--	80	78
13	a 60	48	a 34	a 32	a 35	54	--	--	75	--	76	83
14	a 56	a 46	44	a 37	47	--	--	--	76	--	a 75	83
15	a 54	a 42	38	43	a 39	--	--	--	--	--	82	84
16	62	a 43	40	40	43	--	--	--	--	--	81	82
17	65	a 44	35	42	--	--	--	--	--	--	85	a 70
18	a 58	45	37	a 32	--	58	--	--	--	--	83	--
19	a 56	48	--	a 32	b 35	58	--	a 59	--	--	79	--
20	a 56	50	a 33	a 32	33	51	--	73	--	--	a 75	--
21	a 57	48	36	a 32	--	a 39	--	68	--	--	a 75	--
22	a 56	a 40	36	32	38	a 35	--	72	--	--	81	--
23	a 53	45	a 34	a 33	38	56	--	a 66	--	a 70	82	--
24	61	a 43	a 36	--	a 35	a 43	--	74	--	a 75	a 75	--
25	a 53	49	37	a 33	a 36	a 47	--	a 61	--	82	a 76	--
26	a 57	46	--	a 33	a 41	36	--	a 63	--	72	a 73	69
27	64	50	a 36	a 35	a 46	50	--	66	--	70	a 75	71
28	62	46	a 32	a 32	a 40	a 37	--	72	--	81	a 72	74
29	60	a 38	a 32	a 34	--	b 60	--	72	--	72	82	75
30	65	a 44	a 33	b 40	--	57	--	68	--	83	78	78
31	63	--	a 32	44	--	--	--	70	--	80	73	--
Average	62	49	39	36	38	50	--	--	--	--	79	--

a Measurement before 11 a.m.
b Measurement after 6 p.m.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL BELOW HEADING, NEAR SAN MARCIAL, N. MEX.

Suspended sediment, water year October 1954 to September 1955

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	33	34,000	3,140	0	--	0	127	9,000	3,090
2	12	22,200	719	1	930	3	125	7,600	2,560
3	6	9,600	156	4	722	8	139	9,600	3,600
4	5	17,500	236	6	290	5	149	9,600	3,860
5	270	43,800	s 54,600	6	430	7	137	8,900	3,290
6	246	53,900	s 42,900	9	360	9	146	9,200	3,630
7	324	90,900	s 87,400	9	305	7	155	8,950	3,750
8	328	74,500	s 70,700	9	310	8	159	8,700	3,730
9	497	72,800	s 100,000	11	240	7	166	8,700	3,900
10	245	48,900	s 35,000	12	230	7	221	10,200	6,090
11	438	73,300	s 96,000	16	600	a 26	220	9,600	5,700
12	209	58,200	s 34,600	17	1,390	64	225	9,300	5,650
13	92	44,000	s 11,700	17	1,640	75	237	9,450	6,050
14	46	33,000	4,250	28	2,800	212	238	9,200	5,910
15	24	18,000	1,170	34	3,000	275	237	8,400	5,380
16	13	10,100	355	33	2,490	222	274	9,900	7,320
17	10	6,690	181	18	1,660	81	250	8,900	6,010
18	7	3,350	63	13	1,390	49	233	9,200	5,790
19	6	2,220	36	27	2,500	182	237	7,700	4,930
20	4	1,710	18	59	4,700	749	272	8,650	6,350
21	4	1,350	15	87	5,900	1,390	252	8,700	5,920
22	5	1,360	18	94	7,490	1,900	25	2,500	169
23	4	1,900	21	98	7,300	1,930	109	150	44
24	4	2,420	26	98	6,450	1,710	254	62	43
25	3	625	5	101	6,500	1,770	294	300	238
26	3	110	1	108	7,500	2,190	305	750	618
27	3	550	4	102	7,000	1,930	455	5,500	6,760
28	2	975	5	107	6,800	1,960	405	11,100	12,100
29	0	--	0	104	6,990	1,960	216	10,500	6,120
30	0	--	0	123	7,500	2,490	156	5,000	2,110
31	0	--	0	--	--	--	126	1,650	561
Total	2,841	--	543,319	1,351	--	21,226	6,544	--	131,273

Day	January			February			March		
1	224	4,600	2,780	371	9,900	9,920	387	9,900	10,300
2	374	6,450	6,510	345	9,550	8,900	383	9,200	9,510
3	359	6,000	5,820	351	9,650	9,150	399	9,100	9,800
4	277	6,700	5,010	354	10,500	10,000	325	9,500	8,340
5	273	9,000	6,630	361	10,400	10,100	274	9,300	6,880
6	500	13,500	s 18,300	385	11,900	12,400	232	7,800	4,890
7	449	12,000	14,500	391	12,300	13,000	182	7,300	3,590
8	416	11,100	12,500	379	10,500	10,700	203	6,500	3,560
9	407	11,100	12,200	374	9,300	9,390	229	7,000	4,330
10	363	10,200	10,000	378	10,200	10,400	179	6,500	3,140
11	341	9,500	8,750	387	9,600	10,000	117	7,300	2,310
12	363	9,510	9,320	398	8,600	9,240	95	4,300	1,100
13	369	10,100	10,100	424	9,500	10,900	80	3,400	734
14	383	10,400	10,800	440	10,400	12,400	88	--	b 900
15	384	10,800	11,200	432	9,600	11,200	88	--	b 900
16	375	8,900	9,010	382	10,000	10,300	80	--	b 800
17	353	9,900	9,440	349	10,000	a 9,400	102	--	b 1,500
18	354	10,700	10,200	359	11,000	a 11,000	98	5,400	1,430
19	362	10,400	10,200	370	11,900	11,900	84	5,600	1,270
20	384	9,750	10,100	375	12,100	12,300	62	3,400	569
21	398	11,200	12,000	405	11,000	12,000	57	2,500	385
22	373	12,000	12,100	477	11,000	14,200	51	2,100	289
23	250	9,600	6,480	470	10,500	13,300	127	5,160	s 2,300
24	346	8,100	a 7,600	371	10,100	10,100	167	7,400	3,340
25	409	7,980	8,810	377	11,000	11,200	94	5,100	1,290
26	294	9,700	7,700	331	11,800	10,500	46	3,400	422
27	242	9,250	6,040	438	9,500	11,200	28	1,800	136
28	293	9,850	7,970	430	9,550	11,100	33	1,700	151
29	339	11,400	10,400	--	--	--	46	2,700	335
30	411	10,600	11,800	--	--	--	64	2,050	353
31	419	10,600	12,000	--	--	--	60	1,600	a 260
Total	11,084	--	296,090	10,904	--	308,200	4,460	--	85,115

s Computed by subdividing day.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL BELOW HEADING, NEAR SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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	39	1,400	147	1			285	7,530	s 6,860
2	31	1,700	142	2			275	11,000	8,170
3	8	800	17	3			174	6,900	3,240
4	18	2,200	107	3			157	7,000	2,970
5	6	554	9	3			253	9,200	6,280
6	4	522	6	3			192	7,200	3,730
7	9	900	22	4			203	8,800	4,820
8	4	172	2	1			147	6,800	a 2,700
9	2	61	(t)	2	--	(bt)	67	3,950	715
10	1	--	(bt)	3			30	2,700	219
11	1	--	(bt)	3			13	1,540	54
12	0	--	0	2			10	541	15
13	0	--	0	2			5	164	2
14	2			1			4	142	2
15	1			3			2		
16	1			2			1		
17	3			0	--	0	1		
18	2			20	--	b 200	1		
19	1			100	15,000	4,050	3	--	b 1
20	1			129	13,600	4,740	2		
21	2	--	(bt)	134	6,500	2,350	4		
22	3			174	11,400	s 6,210	9		
23	2			312	19,100	16,100	3		
24	1			695	14,500	s 25,500	0	--	0
25	2			773	6,800	14,200	2		
26	3			893	7,400	17,800	4		
27	4			1,020	4,250	11,700	4	--	b 1
28	4			940	3,000	7,610	2		
29	2			116	4,100	1,280	2		
30	2			96	7,100	1,840	2		
31	--	--	--	177	5,100	2,440	--	--	--
Total	159	--	459	5,617	--	166,020	1,857	--	39,792

Day	July			August			September		
1	0	--	0	419	60,500	s 72,500	378	41,500	43,900
2	0	--	0	222	54,000	33,600	227	33,800	21,500
3	4			152	39,100	16,600	152	25,300	10,400
4	2			125	42,000	14,700	112	20,300	6,140
5	2			103	51,000	s 16,300	90	16,600	4,030
6	1			76	27,000	5,540	107	18,500	5,340
7	2			171	68,300	s 36,700	168	14,500	s 6,470
8	2			428	111,000	s 139,000	189	11,300	5,770
9	2			680	79,800	s 151,000	192	11,600	6,010
10	2	--	(bt)	799	93,000	s 219,000	154	9,800	4,070
11	1			392	67,100	s 74,600	211	11,900	6,780
12	1			862	74,500	s 174,000	176	10,800	5,130
13	2			1,080	34,000	103,000	150	9,400	3,810
14	1			857	18,400	s 44,600	62	5,700	954
15	1			470	43,000	s 60,300	30	3,400	275
16	2			416	62,000	72,200	33	3,500	312
17	0	--	0	336	67,200	s 65,900	4		
18	0	--	0	412	92,500	s 113,000	2		
19	0	--	0	585	88,000	s 151,000	3		
20	1			535	78,100	s 129,000	1		
21	3	--	b 7	936	91,000	s 261,000	2	--	b 2
22	9			1,200	60,000	202,000	1		
23	128	46,600	s 23,200	1,210	29,800	97,400	3		
24	229	98,400	s 66,700	897	39,700	s 95,700	2		
25	445	96,800	s 125,000	575	63,500	102,000	3		
26	474	78,200	s 117,000	386	54,600	59,000	554	65,900	s 113,000
27	351	97,600	s 109,000	257	46,600	33,500	1,400	29,000	110,000
28	1,140	89,000	294,000	438	65,400	s 91,300	411	26,000	s 25,400
29	1,500	62,200	s 263,000	782	58,200	s 127,000	150	26,100	10,600
30	1,110	53,800	s 167,000	798	71,600	s 161,000	80	14,600	3,150
31	609	69,600	s 125,000	500	62,000	86,800	--	--	--
Total	6,024	--	1,289,907	17,099	--	3,009,240	5,047	--	393,059

Total discharge for year (cfs-days) 72,987
Total load for year (tons) 6,231,700

s Computed by subdividing day.
t Less than 0.50 ton.
a Computed from estimated concentration graph.
b Computed from water-sediment discharge curve.

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 1954 to September 1955
(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. 2, 1954	12:40 p.m.	10	71	20,700	4,960		94		99		100	--	--		--		PWCM
Oct. 10	8:25 a.m.	240	63	49,900	3,580		67		87		96	100	--		--		VPWCM
Oct. 20	9:15 a.m.	5	56	1,740	3,360		91		99		99	99	100		--		SPWCM
Nov. 20	4:45 p.m.	74	50	5,030	3,620		59		70		90	93	100		--		VPWCM
Dec. 1	3:35 p.m.	140	45	9,460	3,920		49		61		78	94	100		--		VPWCM
Dec. 10	10:30 a.m.	240	37	10,800	3,880		53		71		83	93	100		--		VPWCM
Dec. 20	9:45 a.m.	260	33	9,180	3,230		42		58		76	95	100		--		VPWCM
Jan. 1, 1955	11:15 a.m.	680	34	5,790	4,820		19		24		46	94	100		--		VPWCM
Feb. 1	12:20 p.m.	360	38	9,060	3,940		39		57		82	95	99		100		VPWCM
Feb. 10	11:30 a.m.	370	35	11,400	3,860		29		44		77	93	100		--		VPWCM
Feb. 16	1:30 p.m.	380	51	10,900	4,150		32		45		84	96	100		--		VPWCM
Feb. 27	9:20 a.m.	460	46	9,490	3,570		36		50		80	91	99		100		VPWCM
Feb. 28	9:10 a.m.	420	40	9,280	3,800		37		50		81	93	99		100		VPWCM
Mar. 1	2:30 p.m.	380	52	9,920	4,210		29		46		83	97	100		--		VPWCM
Mar. 2	8:45 a.m.	380	42	8,680	3,850		35		50		88	96	100		--		VPWCM
Mar. 23	5:30 p.m.	200	58	9,340	4,790		29		42		72	87	99		100		VPWCM
May 20	2:00 p.m.	130	73	14,100	3,820		29		34		48	65	96		100		SPWCM
May 27	11:00 a.m.	1,100	66	4,090	3,500		64		88		96	99	100		--		VPWCM
June 1	10:20 a.m.	230	63	2,950	3,230		81		96		100	--	--		--		PWCM
June 13	5:00 p.m.	9	75	164	--		--		--		99	99	100		--		S
July 29	11:10 a.m.	1,700	74	64,400	2,830		73		96		100	--	--		--		PWCM
July 31	4:30 p.m.	920	80	80,500	5,230		51		68		92	98	100		--		SPWCM
Aug. 9	5:30 p.m.	790	85	71,600	3,060		48		68		93	99	100		--		SPWCM
Aug. 13	11:00 a.m.	1,000	76	31,700	4,000		86		100		--	--	--		--		PWCM
Aug. 22	5:00 p.m.	1,200	81	42,400	5,040		84		98		100	--	--		--		PWCM
Aug. 27	8:30 a.m.	270	75	47,000	4,920		67		79		88	95	100		--		SPWCM
Sept 1	4:45 p.m.	310	80	34,600	4,320		58		75		89	98	100		--		VPWCM
Sept. 10	9:00 a.m.	120	72	7,840	3,970		57		65		77	92	100		--		VPWCM
Sept. 27	6:00 a.m.	1,400	60	39,200	6,620		73		95		100	--	--		--		PWCM

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 1955.
Water temperatures: March 1954 to September 1955.
Sediment records: March 1954 to September 1955.
EXTREMES, October 1954 to September 1955.--Dissolved solids: Maximum, 1,880 ppm July 25, 28-29; minimum, 552 ppm May 21-31.
Hardness: Maximum, 878 ppm July 25, 28-29; minimum, 233 ppm May 21-31.
Specific conductance: Maximum daily, 2,560 micromhos July 25; minimum daily, 640 micromhos May 27.
Water temperatures: Maximum, 95°F June 21, 22, July 8, 15; minimum, 33°F Dec. 28, 30, 31.
Sediment concentrations: Maximum daily, 61,700 ppm July 29; minimum daily, 53 ppm Dec. 31.
Sediment loads: Maximum daily, 254,000 tons July 29; minimum daily, 2 tons July 13.
EXTREMES, March 1954 to September 1955.--Dissolved solids: Maximum, 1,880 ppm July 25, 28-29, 1955; minimum, 528 ppm Sept. 26, 1954.
Hardness: Maximum, 878 ppm July 25, 28-29, 1955; minimum, 222 ppm Sept. 26, 1954.
Specific conductance: Maximum daily, 2,560 micromhos July 25, 1955; 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.
Sediment concentrations: Maximum daily, 61,700 ppm July 29, 1955; minimum daily, 53 ppm Dec. 31, 1954.
Sediment loads: Maximum daily, 254,000 tons July 29, 1955; minimum daily, less than 0.50 ton on several days in 1954.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 furnished by Santa Fe district office of Surface Water Branch; 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 1392. Quality of water records for Rio Grande floodway given on page 443.

Chemical analyses, in parts per million, water year October 1954 to September 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 (resudue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954..	225	22	0.08	159	33	168	8.3	229	565	93	0.7	0.5	0.27	1,180	1.60	717	532	344	40	3.2	1,620	7.4
Oct. 11-20.....	126	--	--	138	29	182	--	--	--	--	--	--	--	1,080	1.47	367	464	--	48	3.7	1,580	--
Oct. 21-31.....	29.6	--	--	136	38	245	--	--	--	--	--	--	--	1,240	1.69	99.1	496	--	52	4.8	1,850	--
Nov. 1-10.....	36.3	--	--	115	31	213	--	--	--	--	--	--	--	1,080	1.47	106	414	--	53	4.5	1,640	--
Nov. 11-20	49.2	--	--	112	28	190	--	--	--	--	--	--	--	993	1.35	132	394	--	51	4.2	1,520	--
Nov. 21-30.....	126	--	--	100	22	137	--	--	--	--	--	--	--	760	1.03	259	340	--	47	3.2	1,170	--
Dec. 1-10.....	179	--	--	90	21	119	--	238	--	--	--	--	--	719	.98	347	311	116	45	2.9	1,070	7.7
Dec. 11-20.....	282	--	--	83	20	101	--	226	--	--	--	--	--	663	.90	505	289	104	43	2.6	986	7.8
Dec. 21-31.....	289	--	--	86	21	108	--	244	--	--	--	--	--	696	.95	543	301	101	44	2.7	1,030	7.7
Jan. 1-10, 1955..	423	32	.00	84	16	100	5.4	232	200	69	.7	.8	.19	624	.85	713	276	86	44	2.6	937	7.8
Jan. 11-20	459	--	--	75	17	94	--	212	--	--	--	--	--	602	.82	746	257	84	44	2.6	895	7.5
Jan. 21-31.....	446	--	--	80	18	98	--	222	--	--	--	--	--	622	.85	749	274	92	44	2.6	931	7.5
Feb. 1-10.....	477	--	--	78	18	94	--	219	--	--	--	--	--	608	.83	783	268	89	43	2.5	895	7.6
Feb. 11-20	459	--	--	75	19	88	--	217	--	--	--	--	--	572	.78	709	261	83	42	2.4	854	7.6
Feb. 21-28	501	--	--	72	18	87	--	213	--	--	--	--	--	557	.76	753	254	79	43	2.4	849	7.4

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL, AT SAN MARCIAL, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Mar. 1-10, 1955..	404	--	--	80	18	102	--	225	--	--	--	--	--	634	0.86	692	274	89	45	2.7	951	7.6
Mar. 11-20	183	--	--	93	20	130	--	243	--	--	--	--	--	748	1.02	370	314	115	47	3.2	1,140	7.6
Mar. 21-31.....	163	--	--	94	22	147	--	242	--	--	--	--	--	808	1.10	356	325	126	50	3.5	1,220	7.6
Apr. 1-10	65.8	36	0.01	105	18	186	8.1	261	305	159	0.6	3.4	0.36	957	1.30	170	336	122	54	4.4	1,460	8.0
Apr. 11-20	77.0	--	--	94	22	179	--	246	--	--	--	--	--	924	1.26	192	325	124	54	4.3	1,390	8.0
Apr. 21-30.....	54.4	--	--	89	22	192	--	237	--	--	--	--	--	956	1.30	140	312	118	57	4.7	1,430	8.0
May 1-10	45.0	--	--	92	23	193	--	243	--	--	--	--	--	967	1.32	117	324	125	56	4.7	1,460	8.0
May 11-20	67.1	--	--	95	24	190	--	250	--	--	--	--	--	966	1.31	175	336	130	55	4.5	1,440	8.1
May 21-31.....	578	--	--	72	13	87	--	210	--	--	--	--	--	552	.75	861	233	61	45	2.5	828	8.0
June 1-10	294	--	--	75	14	91	--	209	--	--	--	--	--	574	.78	456	244	73	45	2.5	861	7.9
June 11-20	49.4	--	--	88	20	163	--	217	--	--	--	--	--	862	1.17	115	302	124	54	4.1	1,280	7.9
June 21-30.....	25.1	--	--	99	23	186	--	230	--	--	--	--	--	974	1.32	66.0	342	153	54	4.4	1,450	7.8
July 1-10	24.0	30	02	106	28	201	9.8	268	342	170	.6	3.5	35	1,030	1.40	66.7	380	160	53	4.5	1,560	7.9
July 11-20	11.6	--	--	115	28	220	--	248	--	--	--	--	--	1,140	1.55	35.7	402	199	54	4.8	1,670	8.0
July 21-23, 26-27, 30-31	445	--	--	177	34	197	--	257	--	--	--	--	--	1,340	1.82	1,610	582	371	42	3.6	1,780	7.7
July 24	163	--	--	90	16	100	--	161	--	--	--	--	--	677	.92	298	290	158	43	2.6	986	7.6
July 25, 28-29 ...	872	--	--	266	52	228	--	295	--	--	--	--	--	1,880	2.56	4,430	878	636	36	3.3	2,250	7.7
Aug. 1-10.....	413	--	--	175	31	172	--	264	--	--	--	--	--	1,200	1.63	1,340	564	348	40	3.1	1,630	7.6
Aug. 2	713	--	--	175	27	156	--	244	--	--	--	--	--	1,150	1.56	2,180	548	348	38	2.9	1,540	7.7
Aug. 21-31.....	801	--	--	155	25	141	--	246	--	--	--	--	--	1,020	1.39	2,210	490	288	39	2.8	1,400	7.7
Sept. 1-10	219	--	--	94	15	93	--	220	--	--	--	--	--	623	.85	368	296	116	41	2.4	926	7.9
Sept. 11-17.....	105	--	--	84	16	98	--	218	--	--	--	--	--	610	.83	173	276	97	44	2.6	919	8.1
Sept. 18-30.....	219	--	--	139	25	128	--	237	--	--	--	--	--	912	1.24	539	450	256	38	2.6	1,300	7.8
Weighted average	256	--	--	113	22	126	--	224	--	--	--	--	--	834	1.13	576	372	189	42	2.8	1,190	--

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL, AT SAN MARCIAL, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/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	78	64	46	36	42	52	a45	63	65	90	83	82
2	75	53	52	36	45	a42	60	63	70	92	90	81
3	a71	54	55	a34	40	52	--	a57	80	90	88	a66
4	84	56	55	37	41	a50	a46	77	75	a89	--	a72
5	84	61	45	--	36	48	55	a63	--	91	80	a71
6	69	56	a49	36	--	51	59	--	85	a87	a75	82
7	64	53	53	38	36	51	a50	80	90	a85	a70	83
8	66	a45	a42	37	37	--	a59	74	--	95	86	76
9	69	a46	38	41	36	64	77	59	82	87	86	83
10	a64	a42	41	36	36	57	73	68	81	90	78	a68
11	a60	--	42	35	35	a47	60	a54	81	81	80	a69
12	62	a45	41	a35	36	66	a46	a59	83	84	76	77
13	a61	49	a37	a34	37	66	64	77	83	85	80	80
14	a57	50	b45	a38	42	--	64	76	91	93	a73	81
15	a58	a42	38	41	a39	--	63	72	94	95	82	82
16	65	47	41	43	a43	--	74	59	83	a68	83	80
17	70	a42	39	40	--	--	--	68	92	a68	84	a75
18	59	44	40	a34	--	65	a59	a59	92	86	72	a65
19	a55	45	--	a34	38	56	68	a59	a60	90	85	70
20	a55	50	a35	35	35	53	59	68	93	83	a74	83
21	a55	55	a36	a34	35	39	a55	70	95	90	a76	80
22	a56	a43	a34	35	36	35	62	a74	95	87	83	83
23	a52	a43	a35	34	36	65	69	a63	80	--	84	79
24	64	a45	37	--	a36	a46	a60	68	84	a71	b78	a71
25	a54	51	38	a34	a36	a48	72	a63	82	77	a79	80
26	a50	a45	--	a34	a42	38	66	a57	a59	70	a73	75
27	59	51	a35	39	46	54	a55	66	90	69	a76	75
28	57	46	a33	a35	a40	a40	a54	72	92	83	a75	b74
29	59	a40	34	41	--	b63	70	72	83	76	79	78
30	60	a44	a33	b40	--	a49	65	a66	87	85	78	80
31	63	--	a33	44	--	--	--	70	--	83	86	--
Average	63	49	41	37	38	52	61	67	83	83	80	74

a Measurement before 11 a. m.
b Measurement after 6 p. m.

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RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL, AT SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

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	77	18,500	3,850	33	405	36	172	225	104
2	56	4,050	612	33	415	37	156	105	44
3	51	2,050	282	32	350	30	161	175	76
4	48	1,000	130	35	275	26	163	385	169
5	89	850	204	36	285	28	172	168	78
6	385	13,000	s10,900	36	235	23	168	100	45
7	310	40,700	35,300	39	205	22	185	140	70
8	389	47,000	51,200	40	135	15	195	145	76
9	396	49,400	54,800	41	160	18	198	90	48
10	450	25,800	s34,500	38	143	15	224	168	102
11	418	34,200	s42,300	40	110	a10	266	450	323
12	343	34,100	32,700	41	135	15	258	148	103
13	164	27,000	12,000	48	300	39	272	105	77
14	91	17,400	4,280	46	245	30	284	295	226
15	57	6,100	939	52	110	15	278	105	79
16	48	1,640	190	57	127	20	300	653	529
17	39	1,400	147	58	315	49	294	288	229
18	37	930	93	47	250	32	268	85	62
19	35	700	66	44	113	13	288	65	51
20	36	350	34	59	90	14	314	85	72
21	36	355	35	90	105	26	306	54	53
22	33	360	32	112	115	35	203	67	37
23	28	450	34	121	95	31	104	155	44
24	23	746	46	128	87	30	256	120	83
25	27	783	57	131	88	31	336	87	79
26	34	500	a50	134	92	33	343	60	a60
27	30	647	52	132	140	50	443	221	s319
28	26	400	a30	136	175	64	495	196	262
29	31	490	41	116	110	34	286	70	54
30	30	700	a60	163	370	163	230	65	40
31	28	415	31	--	--	--	176	53	25
Total	3,840	--	284,995	2,118	--	984	7,794	--	3,619

Day	January			February			March		
1	227	61	37	510	196	270	499	240	323
2	314	68	58	460	294	365	482	285	371
3	420	92	104	455	330	a410	497	325	436
4	396	110	118	473	145	185	484	311	406
5	347	140	131	468	155	196	420	560	635
6	479	145	188	488	195	257	396	305	326
7	554	133	199	477	205	264	328	972	701
8	517	140	195	497	145	195	302	300	245
9	497	160	215	479	127	164	328	855	757
10	475	157	201	466	2,780	3,500	306	780	644
11	444	112	134	427	460	530	225	455	276
12	451	110	134	449	205	249	193	455	237
13	453	115	141	477	160	206	171	670	309
14	468	220	278	488	167	220	171	660	a300
15	475	468	600	493	170	226	179	700	a340
16	457	228	281	466	170	214	168	870	a390
17	453	227	278	444	160	a190	182	1,600	a790
18	466	160	193	405	180	a200	210	2,150	1,220
19	449	172	209	484	528	690	174	1,480	695
20	497	185	248	453	280	342	158	1,760	751
21	517	150	209	424	500	s635	166	1,380	619
22	468	178	225	545	292	s469	158	260	111
23	367	120	119	603	245	399	177	560	268
24	398	120	a130	510	165	227	288	480	373
25	464	120	150	479	185	239	236	1,040	663
26	497	141	189	433	437	511	160	980	423
27	376	133	135	488	350	461	129	420	146
28	387	145	152	528	295	421	118	260	83
29	427	152	175	--	--	--	125	380	128
30	493	138	184	--	--	--	116	192	61
31	508	238	326	--	--	--	122	540	a180
Total	13,721	--	5,936	13,369	--	12,235	7,668	--	13,207

s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL, AT SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--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	90	345	84	38	746	s 67	363	1,280	1,250
2	48	904	s 75	48	788	s 95	427	1,280	1,480
3	51	879	s 82	58	480	75	343	870	806
4	58	580	91	52	630	88	248	465	311
5	61	950	s 127	50	440	59	321	600	a 520
6	70	490	93	45	420	a 50	334	620	559
7	70	290	55	42	590	67	306	440	364
8	74	410	82	33	830	74	288	1,380	1,070
9	66	710	127	39	610	64	188	1,910	970
10	70	600	113	45	825	100	125	1,410	476
11	68	610	112	42	420	48	100	1,120	302
12	85	900	207	43	360	42	59	1,230	196
13	88	330	78	40	820	89	36	1,030	s 110
14	84	290	66	36	1,170	114	36	1,080	s 113
15	83	300	67	37	1,260	126	31	760	64
16	80	480	104	47	570	72	36	1,510	147
17	69	360	a 70	50	470	63	45	1,400	170
18	65	367	s 51	68	550	101	48	1,400	131
19	76	360	74	128	270	93	52	695	98
20	72	240	47	180	220	107	51	800	110
21	63	170	29	212	180	103	50	690	93
22	49	567	s 62	225	185	112	46	650	81
23	60	600	97	376	230	233	23	792	s 47
24	63	295	50	592	392	s 710	16	1,200	52
25	61	350	58	818	510	1,130	24	1,280	83
26	52	350	49	922	1,050	2,610	24	1,110	72
27	64	430	74	1,070	500	1,440	21	1,000	57
28	51	290	40	1,270	1,100	3,770	18	1,020	50
29	43	410	48	463	500	s 716	15	1,130	46
30	38	721	s 66	206	480	267	14	1,260	48
31	--	--	--	201	1,220	662	--	--	--
Total	1,972	--	2,378	7,476	--	13,347	3,688	--	9,926

Day	July			August			September		
1	15	1,000	40	576	45,600	73,500	453	23,200	28,400
2	44	810	96	278	29,600	22,200	300	18,100	14,700
3	58	590	92	215	21,600	12,500	196	17,200	9,100
4	31	1,320	110	220	22,000	a 13,000	148	12,200	4,880
5	22	1,270	75	206	22,700	12,600	117	9,350	2,950
6	21	1,040	59	184	18,700	9,290	132	8,000	2,850
7	19	1,120	57	246	36,600	25,200	186	8,550	s 4,480
8	13	730	26	482	47,300	63,800	236	9,200	5,860
9	10	640	17	721	48,900	98,700	266	8,400	6,030
10	7	650	12	1,000	40,100	112,000	155	6,100	2,550
11	5	550	7	607	41,900	71,200	200	7,800	4,210
12	4	410	4	820	42,700	98,000	190	5,250	2,690
13	3	300	2	1,200	28,000	90,700	164	5,300	2,350
14	19	542	s 48	1,180	22,600	72,000	75	3,700	749
15	14	1,130	43	618	31,900	53,200	43	2,100	244
16	10	1,130	31	530	41,800	62,000	42	2,700	306
17	8	690	15	407	38,900	44,300	18	750	36
18	11	1,000	30	508	51,000	72,500	13	510	18
19	21	1,090	62	596	24,200	38,900	14	670	25
20	21	1,110	63	541	30,900	45,100	16	420	18
21	15	1,030	42	905	33,500	84,900	38	620	64
22	12	950	31	1,240	40,100	139,000	49	570	75
23	35	1,550	s 139	1,360	27,800	102,000	48	450	58
24	163	8,700	3,830	1,070	26,700	77,100	45	350	43
25	284	42,400	s 35,800	706	34,800	68,800	45	425	52
26	578	44,300	71,700	490	34,400	47,200	323	36,800	s 37,400
27	354	46,100	45,700	315	30,000	25,500	1,300	31,400	110,000
28	862	60,600	146,000	457	38,000	s 51,700	635	18,800	32,200
29	1,470	61,700	254,000	710	41,000	81,500	206	13,000	7,230
30	1,460	41,400	169,000	950	36,900	98,200	121	7,800	2,550
31	660	42,300	78,200	609	32,300	55,100	--	--	--
Total	6,249	--	805,331	19,947	--	1,921,690	5,774	--	282,118

Total discharge for year (cfs-days) 93,616
Total load for year (tons) 3,355,766

s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO GRANDE CONVEYANCE CHANNEL AT SAN MARCIAL, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 2, 1954....	1:20 p.m.	52	75	2,980	5,380		90		99		100	--					PWCM
Oct. 10	9:15 a.m.	497	64	26,800	4,960		86		100		--	--					PWCM
Feb. 10, 1955 ..	1:00 p.m.	466	36	4,280	4,390		83		98		100	--					PWCM
Feb. 22.....	11:19 a.m.	572	35	227	910		88		97		98	100					SPWCM
Feb. 27.....	9:40 a.m.	495	41	240	710		83		94		99	100					SPWCM
Feb. 28.....	9:30 a.m.	512	40	295	1,010		93		98		99	100					SPWCM
Mar. 1.....	2:00 p.m.	490	52	227	790		85		95		99	100					SPWCM
Mar. 2	9:10 a.m.	486	42	281	910		83		88		90	92	95		100		SPWCM
Mar. 20.....	2:05 p.m.	91	53	1,520	3,130		82		98		99	100					SPWCM
May 11	9:45 a.m.	45	54	445	--		--		--		98	100					S
June 1	11:55 a.m.	284	65	1,490	2,580		91		99		99	100					SPWCM
June 2	6:00 p.m.	385	70	1,760	3,490		92		99		99	100					SPWCM
June 19	8:30 a.m.	53	83	620	--		--		--		100	--					S
July 2	3:30 p.m.	50	92	821	1,560		86		96		100	--					PWCM
July 30	4:30 a.m.	1,670	--	43,200	4,030		88		99		100	--					PWCM
July 31	8:30 a.m.	570	72	36,300	3,430		89		99		100	--					PWCM
Aug. 9	6:00 p.m.	818	86	44,400	4,000		87		100		--	--					PWCM
Aug. 13.....	1:30 p.m.	1,210	80	26,100	5,120		91		100		--	--					PWCM
Aug. 23.....	10:00 a.m.	1,360	79	28,200	4,440		93		99		100	--					PWCM
Aug. 25	10:15 a.m.	719	79	34,500	3,230		87		99		100	--					PWCM
Sept. 10	8:15 a.m.	141	68	5,120	3,670		84		94		100	--					PWCM
Sept. 20	5:00 p.m.	20	83	364	--		--		--		99	100					S
Sept. 27	5:00 p.m.	1,480	75	22,000	4,020		87		99		100	--					PWCM

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 18½ miles southwest of San Antonio.
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 1955.
Water temperatures: January 1949 to September 1955.
Sediment records: July 1946 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 1,750 ppm Oct. 7; minimum, 401 ppm May 28-31.
Hardness: Maximum, 822 ppm Oct. 7; minimum, 222 ppm June 1-10.
Specific conductance: Maximum daily, 2,210 micromhos Aug. 12; minimum daily, 562 micromhos June 1.
Water temperatures: Maximum, 92°F June 10; minimum, 52°F Oct. 26;
Sediment concentrations: Maximum daily, 98,300 ppm Aug. 8; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 283,000 tons Aug. 22; minimum daily, 0 tons on many days.
EXTREMES, 1946-55.--Dissolved solids: Maximum, 1950 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 micromhos Apr. 8, 1953; minimum daily, 311 micromhos June 14, 1952.
Water temperatures (1949-55): 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.
Sediment loads: Maximum daily, 366,000 tons July 25, 1949; minimum daily, 0 tons on many days.
REMARKS.--Values reported for dissolved solids are residues on evaporation. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. No flow during period November 1954 to April 1955; suspended sediment tabulation omitted for that period. 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 1954 to September 1955 furnished by Santa Fe district office of Surface Water Branch. 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 1392. Quality of Water records for Rio Grande conveyance channel at San Marcial on page 437.

Chemical analyses, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 8-10, 1954.....	233	22	0.21	146	29	145	7.0	244	502	62	0.7	1.3	0.25	1,050	1.43	661	484	284	39	2.9	1,440	7.5
Oct. 7	426			254	46	194		220		52				1,750	2.38	2,010	822	642	34	2.9	2,030	--
Oct. 11-15	230			148	30	146		--		--				987	1.34	613	493	--	39	2.9	1,400	--
Oct. 16-30a ...	23.6			96	21	123		--		--				715	.97	45.6	326	--	45	3.0	1,080	--
May 28-31, 1955 .	808			71	12	45		230		--				401	.55	875	226	38	30	1.3	605	7.7
June 1-10	201			69	12	61		210		--				457	.62	248	222	50	37	1.8	677	8.0
June 11-14 a ...	11.4			85	16	140		222		--				677	.92	20.8	278	96	52	3.6	1,030	7.8
July 29-31.....	801			202	42	186		226		--				1,430	1.94	3,090	676	492	37	3.1	1,820	7.9
Aug. 1-10	312			185	31	148		308		--				1,170	1.59	986	589	336	35	2.7	1,560	7.7
Aug. 11-20.....	838			185	32	158		264		--				1,220	1.66	2,760	593	376	37	2.8	1,600	7.7
Aug. 21-31 a ...	1,050			163	31	139		273		--				1,070	1.46	3,030	534	310	36	2.6	1,430	7.7
Sept. 1-9.....	184			97	18	85		220		--				630	.86	313	316	136	37	2.1	919	7.9
Weighted average	b400			155	29	133		258		--				1,020	1.39	1,100	506	294	36	2.6	1,370	--

a No flow Oct. 31 to May 27, June 15 to July 28, Sept. 10-30.
b Average for 91 days of flow.

RIO GRANDE BASIN--Continued

RIO GRANDE FLOODWAY AT SAN MARCIAL, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, generally between 11 a. m. and 6 p. m.
No flow on many days/

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68							--	68	--	80	77
2	68							--	a65	--	83	80
3	a71							--	75	--	84	a62
4	--							--	80	--	85	a72
5	72							--	65	--	79	a71
6	68							--	75	--	a75	78
7	62							--	72	--	a71	--
8	a65							--	--	--	80	--
9	67							--	77	--	b80	--
10	a64							--	92	--	76	--
11	a62							--	72	--	78	--
12	a61							--	73	--	75	--
13	a62							--	--	--	a73	--
14	a57							--	--	--	a75	--
15	a54							--	--	--	78	--
16	58							--	--	--	82	--
17	58							--	--	--	82	--
18	a61							--	--	--	a78	--
19	a59							--	--	--	80	--
20	a57							--	--	--	b75	--
21	a58							--	--	--	75	--
22	a60							--	--	--	78	--
23	a56							--	--	--	76	--
24	60							--	--	--	b78	--
25	a54							--	--	--	a76	--
26	a52							--	--	--	a75	--
27	60							--	--	--	a76	--
28	58							--	--	--	a73	--
29	b60							--	--	b73	79	--
30	62							a66	--	81	75	--
31	--							72	--	82	76	--
Average	61	--	--	--	--	--	--	--	--	--	78	--

a Measurement before 11 a. m.
b Measurement after 6 p. m.

RIO GRANDE BASIN--Continued

RIO GRANDE FLOODWAY AT SAN MARCIAL, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

Day	October			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	104	40,100	11,700	0	--	0	938	6,230	s14,000
2	72	29,000	5,640	0	--	0	140	3,860	s1,680
3	43	21,100	2,450	0	--	0	30	500	40
4	51	20,400	2,810	0	--	0	8	796	s34
5	196	38,000	sa36,000	0	--	0	135	5,890	s2,380
6	313	50,300	s48,800	0	--	0	147	6,000	2,380
7	426	84,300	s102,000	0	--	0	250	7,400	5,000
8	460	72,700	s97,000	0	--	0	200	6,800	a3,700
9	477	67,700	90,400	0	--	0	104	3,950	1,110
10	379	47,400	s54,200	0	--	0	58	2,780	435
11	520	68,400	99,600	0	--	0	24	900	58
12	303	57,200	s49,200	0	--	0	17	580	27
13	148	41,900	s17,800	0	--	0	4	100	a1
14	98	31,600	8,360	0	--	0	.6	--	(bt)
15	80	21,000	4,540	0	--	0	0	--	0
16	65	11,000	1,930	0	--	0	0	--	0
17	54	7,100	1,040	0	--	0	0	--	0
18	41	4,100	454	0	--	0	0	--	0
19	34	2,550	234	0	--	0	0	--	0
20	30	2,190	177	0	--	0	0	--	0
21	26	2,400	168	0	--	0	0	--	0
22	28	2,390	s194	0	--	0	0	--	0
23	36	2,540	247	0	--	0	0	--	0
24	21	2,060	s122	0	--	0	0	--	0
25	8	750	16	0	--	0	0	--	0
26	5	330	4	0	--	0	0	--	0
27	3	340	3	0	--	0	0	--	0
28	2	620	3	88	710	sa800	0	--	0
29	.5	330	(t)	815	3,400	7,480	0	--	0
30	.2	240	(t)	1,010	3,200	8,730	0	--	0
31	0	--	0	1,320	2,950	10,500	--	--	--
Total	4,023.7	--	635,093	3,233	--	27,510	2,055.6	--	30,845

Day	July			August			September		
1	0	--	0	476	65,000	s87,800	520	39,200	s58,300
2	0	--	0	226	54,700	s35,400	305	30,400	25,000
3	0	--	0	100	39,000	10,900	230	23,000	14,300
4	0	--	0	103	33,900	9,780	191	16,000	8,250
5	0	--	0	59	37,400	s7,080	166	13,900	6,230
6	0	--	0	15	34,600	1,450	189	15,800	8,060
7	0	--	0	131	64,800	s31,400	55	8,450	s1,640
8	0	--	0	420	98,300	s121,000	1	--	b2
9	0	--	0	712	77,600	s153,000	.2	--	(bt)
10	0	--	0	880	94,300	s246,000	0	--	0
11	0	--	0	426	66,500	79,300	0	--	0
12	0	--	0	920	74,800	s186,000	0	--	0
13	0	--	0	1,640	38,000	174,000	0	--	0
14	0	--	0	2,290	24,000	148,000	0	--	0
15	0	--	0	692	38,600	s74,200	0	--	0
16	0	--	0	492	59,700	s84,300	0	--	0
17	0	--	0	298	66,800	s59,800	0	--	0
18	0	--	0	442	66,500	s85,900	0	--	0
19	0	--	0	660	74,100	s143,000	0	--	0
20	0	--	0	518	66,800	s104,000	0	--	0
21	0	--	0	996	87,500	s259,000	0	--	0
22	0	--	0	1,630	62,000	283,000	0	--	0
23	0	--	0	2,180	37,000	226,000	0	--	0
24	0	--	0	1,380	42,600	s158,000	0	--	0
25	0	--	0	760	59,500	127,000	0	--	0
26	0	--	0	420	57,000	67,000	0	--	0
27	0	--	0	212	46,000	27,300	0	--	0
28	0	--	0	460	60,300	s89,500	0	--	0
29	295	29,100	s57,100	984	57,000	s160,000	0	--	0
30	1,570	53,200	234,000	1,560	59,300	259,000	0	--	0
31	538	70,200	s108,900	940	55,000	145,000	--	--	--
Total	2,403	--	399,100	23,022	--	3,643,110	1,657.2	--	121,782

Total discharge for year (cfs-days) 36,394.5

Total load for year (tons) 4,857,440

s Computed by subdividing day.

t Less than 0.50 ton.

a Computed from estimated concentration graph.

b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

RIO GRANDE FLOODWAY AT SAN MARCIAL, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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. 10, 1954	10:10 a.m.	382	64	50,100	13,500		70		91		98	100	--				VPWCM
Oct. 20	10:45 a.m.	31	57	2,080	2,560		90		98		99	99	100				SPWCM
May 31, 1955	12:30 p.m.	1,380	72	2,920	3,610		71		91		97	100	--				SPWCM
June 1	11:30 a.m.	1,060	68	4,380	3,960		72		89		96	99	100				SPWCM
June 5	1:30 p.m.	170	65	7,080	3,440		47		73		91	99	100				VPWCM
June 7	5:30 p.m.	280	72	8,070	4,230		43		67		98	100	--				VPWCM
June 12	1:30 p.m.	14	73	577	1,350		84		88		92	94	99		100		SPWCM
July 30	3:40 a.m.	1,810	70	51,400	3,620		72		86		95	99	100				VPWCM
July 30	4:25 p.m.	1,460	83	47,800	4,940		81		98		100	--	--				PWCM
July 31	5:30 p.m.	564	82	81,300	4,290		59		78		96	100	--				VPWCM
Aug. 9	6:15 p.m.	812	80	72,000	4,800		63		82		96	100	--				VPWCM
Aug. 10	5:30 p.m.	924	76	81,900	5,240		64		82		95	99	100				VPWCM
Aug. 13	6:00 a.m.	1,400	71	40,200	5,050		84		97		98	100	--				VPWCM
Aug. 14	8:30 a.m.	2,800	75	25,800	3,720		89		99		99	100	--				VPWCM
Aug. 23	10:30 a.m.	2,270	75	38,400	4,770		87		99		99	100	--				VPWCM
Aug. 25	10:00 a.m.	808	76	60,200	4,140		67		83		95	99	100				VPWCM
Aug. 30	5:30 p.m.	1,620	75	46,900	3,360		73		88		97	100	--				VPWCM

PECOS RIVER AT PUERTO DE LUNA, N. MEX.

LOCATION (revised).--At bridge at Puerto de Luna, Guadalupe County, 9 miles northwest of gaging station near Puerto de Luna which is 17½ miles upstream from Alamogordo Dam.
DRAINAGE AREA.--3,970 square miles, approximately, above gaging station (contributing area).
RECORDS AVAILABLE.--Chemical analyses: July 1939 to September 1941, November 1946 to September 1955.
Water temperatures: June 1949 to September 1954.
Sediment records: January 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum 2,740 ppm May 1-10; minimum, 322 ppm Oct. 6-7.
Hardness: Maximum, 1,860 ppm Feb. 11-20, Apr. 11-30, July 1-10; minimum, 243 ppm Oct. 6-7.
Specific conductance: Maximum daily, 3,050 micromhos May 1, 9, July 1; minimum daily, 473 micromhos Oct. 7.
Sediment concentrations: Maximum daily, 59,200 ppm July 28; minimum daily, 20 ppm Apr. 21-30.
Sediment loads: Maximum daily, 1,510,000 tons Oct. 7; minimum daily, 4 tons Apr. 21-30.
EXTREMES, 1939-41, 1946-55.--Dissolved solids: Maximum, 2,740 ppm May 1-10, 1955; minimum, 287 ppm May 11-16, 18-20, 1941.
Hardness: Maximum, 1,910 ppm Apr. 21-30, 1954; minimum, 200 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 (1949-55): Maximum daily, 59,200 ppm July 28, 1955; minimum daily, 20 ppm Apr. 21-30, 1955.
Sediment loads (1949-55): Maximum daily, 1,510,000 tons Oct. 7, 1954; minimum daily, 4 tons Apr. 21-30, 1955.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 1955 given in WSP 1392. No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 8, 10, 1954.	296	19		464	76	94		178	1,300	131		0.7		2,170	2.95	1,730	1,470	1,320	12	1.1	2,540	7.5
Oct. 6-7	11,050	18		81	10		10	172	113	5.0		.2		322	.44	9,610	243	102	8	.3	478	7.7
Oct. 9	444	13		161	22		37	191	351	33		6.2		717	.98	860	492	336	14	.7	1,000	7.5
Oct. 11-20	133	19		524	85	108		183	1,470	160		.5		2,460	3.35	883	1,660	1,510	12	1.2	2,810	7.7
Oct. 21-31	105	19		572	85	109		182	1,580	160		.3		2,610	3.55	740	1,780	1,630	12	1.1	2,960	7.8
Nov. 1-10	98.2	18		572	85	110		186	1,580	161		.4		2,620	3.56	695	1,780	1,620	12	1.1	2,960	7.8
Nov. 11-20	98.4	17		560	90	112		185	1,600	165		.5		2,640	3.59	701	1,770	1,620	12	1.2	2,960	7.8
Nov. 21-30	94.8	18		560	97	112		169	1,620	161		.4		2,650	3.60	678	1,800	1,660	12	1.1	2,970	7.7
Dec. 1-10	94.3	18		564	88	110		161	1,610	159		.4		2,630	3.58	670	1,770	1,640	12	1.1	2,940	7.7
Dec. 11-20	94.8	20		580	90	75		151	1,590	153		.4		2,580	3.51	660	1,820	1,690	8	.8	2,930	7.4
Dec. 21-31	96.4	21		592	85	81		167	1,590	151		.3		2,600	3.54	677	1,830	1,690	9	.8	2,960	7.6
Jan. 1-10, 1955	93.2	21		580	92	80		156	1,590	161		.3		2,600	3.54	654	1,830	1,700	9	.8	2,960	7.7
Jan. 11-20	92.0	21		584	85	75		144	1,590	159		.4		2,590	3.52	643	1,810	1,690	8	.8	2,930	7.4
Jan. 21-31	92.0	20		592	85	78		155	1,600	152		.1		2,600	3.54	646	1,830	1,700	8	.8	2,930	7.4
Feb. 1-10	85.5	20		588	90	82		164	1,610	150		.5		2,620	3.56	605	1,840	1,700	9	.8	2,960	7.3
Feb. 11-20	85.2	18		596	90	85		177	1,600	153		.2		2,630	3.58	605	1,860	1,710	9	.9	2,980	7.4
Feb. 21-28	92.0	23		552	109	111		157	1,640	155		.4		2,670	3.63	663	1,820	1,700	12	1.1	2,950	7.5

RIO GRANDE BASIN--Continued

PECOS RIVER AT PUERTO DE LUNA, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Mar. 1-10, 1955...	89.5	21		588	90	110		165	1,650	145		0.3		2,690	3.66	650	1,840	1,700	12	1.1	2,970	7.4
Mar. 11-20.....	81.0	20		584	92	109		159	1,650	145		.3		2,680	3.64	586	1,840	1,700	11	1.1	2,970	7.4
Mar. 21-31.....	81.5	20		576	97	109		156	1,640	145		.5		2,660	3.62	585	1,840	1,710	11	1.1	2,950	7.4
Apr. 1-10.....	77.2	23		588	92	107		182	1,650	150		.3		2,700	3.67	563	1,850	1,700	11	1.1	3,020	7.6
Apr. 11-20.....	72.8	25		588	95	110		152	1,660	155		.2		2,710	3.69	533	1,860	1,730	11	1.1	3,000	7.8
Apr. 21-30.....	72.2	25		588	95	110		158	1,670	152		.2		2,720	3.70	530	1,860	1,730	11	1.1	3,030	7.5
May 1-10.....	84.3	21		576	100	115		141	1,710	158		.2		2,740	3.73	624	1,850	1,730	12	1.2	2,970	7.9
May 11-18, 20-21..	109	19		488	83	94		161	1,380	126		.4		2,260	3.07	665	1,560	1,430	12	1.0	2,600	7.9
May 19, 22-23.....	151	11		314	47	66		152	841	73		2.2		1,430	1.94	583	977	852	13	.9	1,780	7.9
May 24-31.....	253	15		183	27	32		146	444	43		2.2		812	1.10	555	568	448	11	.6	1,120	7.7
June 1-9.....	179	17		286	46	50		148	740	72		1.2		1,290	1.75	623	902	781	11	.7	1,620	7.7
June 10-20.....	93.6	21		508	81	91		162	1,420	125		.7		2,330	3.17	589	1,600	1,490	11	1.0	2,610	7.5
June 21-30.....	69.0	21		568	83	98		160	1,590	138		.6		2,580	3.51	481	1,760	1,630	11	1.0	2,810	7.7
July 1-10.....	67.5	23		584	97	109		161	1,660	150		.4		2,700	3.67	492	1,860	1,720	11	1.1	2,990	7.8
July 11-15.....	63.8	23		596	88	108		137	1,670	146		.3		2,700	3.67	465	1,850	1,740	11	1.1	2,970	7.9
July 16-17, 22, 30-31.....	1,090	20		171	12	18		229	293	20		.9		648	.88	1,910	476	288	8	.4	905	7.5
July 18-21, 23-24, 29.....	314	22		425	45	63		208	1,050	76		3.5		1,790	2.43	1,520	1,250	1,080	10	.8	2,100	7.2
July 25-28.....	738	21		214	21	32		207	453	40		1.7		885	1.20	1,760	620	451	10	.6	1,180	7.5
Aug. 1-5.....	156	18		417	57	74		162	1,100	98		1.6		1,850	2.52	779	1,280	1,140	11	.9	2,170	7.4
Aug. 6-10.....	930	18		127	17	20		164	258	19		2.5		542	.74	1,360	387	252	10	.4	769	7.4
Aug. 11, 16-20....	661	16		107	12	17		162	189	17		1.8		440	.60	785	316	184	10	.4	644	7.5
Aug. 12-15.....	685	15		214	28	35		164	499	46		1.5		920	1.25	1,700	649	514	10	.6	1,230	7.4
Aug. 21-31.....	581	17		141	17	22		153	298	28		2.2		600	.82	941	422	296	10	.5	876	7.7
Sept. 1-2, 24-27...	688	18		218	28	35		166	523	44		1.3		949	1.29	1,760	659	523	10	.6	1,270	7.7
Sept. 3-10.....	103	22		468	57	80		152	1,270	108		1.1		2,080	2.83	578	1,400	1,280	11	.9	2,420	7.9
Sept. 11-20.....	70.7	20		536	90	96		167	1,560	129		.7		2,510	3.41	479	1,710	1,570	11	1.0	2,830	7.8
Sept. 21-23, 28-30.	124	19		476	59	84		162	1,300	112		1.2		2,130	2.90	713	1,430	1,300	11	1.0	2,490	7.7
Weighted average	239	19		278	40	46		171	700	63		1.0		1,230	1.67	794	858	718	10	0.7	1,490	--

RIO GRANDE BASIN--Continued

PECOS RIVER AT PUERTO DE LUNA, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955

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	144	140	54	98	94	25	96		
2	130	222	78	98	115	30	96	80	21
3	119	164	53	98	124	33	96		
4	112	272	82	98	80	21	96	187	48
5	142	4,500	a 1,700	100	--	e 30	96	172	45
6	10,900	39,000	sa1,500,000	98	111	29	98	264	70
7	11,200	42,600	s1,510,000	96	109	28	96		
8	1,140	17,000	52,300	98	79	21	94	72	18
9	444	5,400	6,470	98	113	30	92		
10	282	1,360	1,040	100	74	20	83		
11	206	331	184	98	103	27	98		
12	152	258	106	98	70	19	98		
13	132	220	78	100	115	31	98	74	20
14	122	211	70	102	86	24	98		
15	124	187	63	102	104	29	98		
16	124	154	52	98	142	38	90		
17	122	161	53	92	108	27	90		
18	119	159	51	98	117	31	92		
19	119	152	49	100	133	36	92	59	15
20	112	139	42	96	146	38	94		
21	112	131	40	98	108	29	94		
22	110	156	46	94	84	21	96	76	20
23	110	221	66	92	150	37	94	163	41
24	110	95	28	98	171	45	94	102	26
25	110	73	22	94	128	32	96	184	48
26	107	102	29	92	117	29	92	142	35
27	100	118	32	90	133	32	92	70	17
28	105	103	29	96	165	43	96	58	15
29	100	100	27	98	181	48	107	89	26
30	100	99	27	96	194	50	105	87	25
31	96	--	e 30	--	--	--	94	72	18
Total	27,105	--	3,072,901	2,914	--	933	2,951	--	759

Day	January			February			March		
1	92	118	29	90			92		
2	92	226	56	83			92		
3	96	189	49	85			92		
4	96	100	26	87			87		
5	96	82	21	87			87		
6	92	121	30	85	100	23	90	102	25
7	92	107	27	87			92		
8	90	58	14	87			90		
9	92	49	12	81			90		
10	94	55	14	83			83		
11	87	45	11	87			83		
12	87	47	11	85			77		
13	92	93	23	85			83		
14	92	41	10	83			81		
15	92			81			77		
16	92			81	45	10	77	104	23
17	94			83			83		
18	96			85			85		
19	94	105	27	90			83		
20	94			92			81		
21	96			92			81		
22	90			94			85		
23	98			92			85		
24	90			90			85		
25	92			92	81	20	79		
26	92			94			79	86	19
27	92			92			85		
28	92	71	17	90			85		
29	90			--	--	--	81		
30	90			--	--	--	77		
31	90			--	--	--	75		
Total	2,864	--	722	2,443	--	490	2,602	--	689

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

Suspended sediment, water year October 1954 to September 1955--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	77			79			242	648	423
2	77			72			229	582	360
3	74			72			214	553	320
4	77	79	16	72			199	491	264
5	74			70	34	7	181	667	326
6	75			70			165	696	310
7	75			70			146	355	140
8	77			74			127	281	96
9	85			101	--	e 80	110	145	43
10	81	92	19	163	--	e 300	102	255	70
11	70			118	--	e 60	100	128	35
12	72			94	55	14	102		
13	75			96			102		
14	74			105			100		
15	74			102	159	44	87	130	29
16	77	39	8	107			79		
17	70			105			68		
18	66			102			65		
19	75			102	362	100	66		
20	75			107	2,580	745	65		
21	74			151	1,530	624	70	139	26
22	70			202	1,450	791	65	150	26
23	75			149	831	334	90	200	49
24	72			155	875	366	81	180	39
25	74	20	4	225	2,750	1,670	72	170	33
26	72			277	2,640	1,970	65		
27	68			316	2,880	2,460	68		
28	70			277	2,150	1,610	65	77	13
29	72			250	1,400	945	59		
30	75			285	1,360	s 1,140	55		
31	--	--	--	242	1,000	653	--	--	--
Total	2,222	--	322	4,410	--	14,175	3,239	--	2,886

Day	July			August			September		
1	55			229	3,400	2,100	221	1,000	597
2	55			290	--	e 6,000	181	622	304
3	56			102	2,090	576	162	375	164
4	59	60	9	83	639	143	132	271	97
5	59			75	390	79	114	196	60
6	59			66	--	e 60	98	--	e 50
7	72	607	s 156	904	16,700	40,800	87	184	43
8	111	1,330	399	2,260	24,300	s 169,000	81	147	32
9	81	650	a 140	543	12,200	17,900	74	--	e 20
10	68	230	42	875	12,900	s 40,500	74	78	16
11	65	186	33	868	13,300	s 35,800	72	561	109
12	65	209	37	1,700	16,000	97,300	74	372	74
13	63	181	31	494	6,250	8,340	68	252	46
14	63	162	28	310	6,000	5,020	66		
15	63	191	32	238	5,250	3,370	65	125	22
16	124	9,030	s 3,330	485	6,750	s 14,200	65	--	e 30
17	222	8,250	s 5,280	445	4,500	5,410	65	217	38
18	242	3,000	1,960	515	9,050	s 14,800	66	276	49
19	174	2,800	1,320	1,090	21,800	s 86,600	66	109	19
20	102	5,750	1,580	564	16,600	25,300	100	2,900	sa 1,200
21	428	15,700	s 29,900	1,270	17,800	s 65,600	72	198	38
22	2,760	31,300	s 308,000	1,100	15,400	45,700	70	155	29
23	301	9,300	7,560	822	9,850	21,900	72	125	24
24	314	5,720	16,000	898	9,070	s 20,700	474	26,100	s 59,100
25	493	19,400	s 40,500	606	4,400	7,200	926	32,900	s 148,000
26	494	10,200	s 27,100	437	3,900	4,600	1,930	40,800	s 260,000
27	277	6,150	4,600	343	2,700	2,500	398	12,800	13,800
28	1,690	59,200	s 311,000	277	1,420	1,060	238	5,750	3,690
29	636	24,200	s 49,800	301	1,810	1,470	165	2,800	1,250
30	1,710	27,700	s 135,000	291	1,810	1,420	124	1,850	619
31	640	10,700	s 21,600	246	1,760	1,170	--	--	--
Total	11,601	--	965,482	18,527	--	746,618	6,400	--	489,566

Total discharge for year (cfs-days) 87,278
Total load for year (tons) 5,295,543

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.

PECOS RIVER AT PUERTO DE LUNA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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)

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. 6, 1954	1:30 p.m.		58	21,400	4,300		4		48		90	96	99		100	--	SPN
Oct. 6	1:30 p.m.		58	21,400	3,880		40		55		90	96	99		100	--	SPWCM
Oct. 6	4:15 p.m.		56	18,900	4,130		37		57		85	95	99		100	--	SPWCM
Oct. 7	9:00 a.m.		55	24,200	4,380		28		43		71	88	97		99	100	SPWCM
Oct. 7	1:10 p.m.		55	29,100	4,360		31		47		77	92	99		100	--	SPWCM
Oct. 7	3:00 p.m.		55	26,200	4,520		36		54		80	94	99		100	--	SPWCM
Oct. 7	4:10 p.m.		55	23,100	3,400		37		53		84	95	99		100	--	SPWCM
Oct. 7	6:15 p.m.		53	26,300	4,130		2		55		86	97	99		100	--	SPN
Oct. 7	6:15 p.m.		53	26,300	4,200		40		60		86	97	99		100	--	SPWCM
Oct. 9	9:00 a.m.		62	11,500	3,960		1		71		88	94	97		99	100	SPN
Oct. 9	9:00 a.m.		62	11,500	3,860		57		72		88	94	97		99	100	SPWCM
May 20, 1955	4:40 p.m.		--	2,440	3,580		39		48		62	80	98		100	--	SPWCM
May 26	5:45 p.m.		72	2,350	4,100		55		72		90	100	--		--	--	SPWCM
July 16	8:00 p.m.		--	17,100	4,020		70		89		99	100	--		--	--	SPWCM
July 17	6:30 p.m.		75	3,780	3,660		74		93		98	100	--		--	--	SPWCM
July 20	8:40 a.m.		78	5,630	5,170		75		94		99	100	--		--	--	SPWCM
July 21	3:15 p.m.		72	5,960	3,210		40		61		94	98	100		--	--	SPWCM
July 21	8:30 p.m.		--	15,800	3,750		63		85		94	98	99		100	--	SPWCM
July 22	1:00 p.m.		70	18,100	3,870		4		56		83	96	100		--	--	SPN
July 22	1:00 p.m.		70	18,100	3,300		41		60		83	96	100		--	--	SPWCM
July 25	1:00 p.m.		70	33,500	3,660		43		64		90	97	100		--	--	SPWCM
July 25	4:15 p.m.		--	30,500	3,670		4		72		93	98	100		--	--	SPN
July 25	4:15 p.m.		--	30,500	3,610		52		73		93	98	100		--	--	SPWCM
July 27	6:35 p.m.		--	4,760	5,000		74		87		98	100	--		--	--	SPWCM
July 29	5:00 a.m.		65	66,300	4,660		36		56		86	96	99		100	--	SPWCM
July 30	5:30 a.m.		67	28,200	3,130		2		48		84	96	99		100	--	SPN
July 30	5:30 a.m.		67	28,200	3,690		32		53		84	96	99		100	--	SPWCM

a Discharge omitted because of lack of correlation of discharges at sampling point and at gaging station.

RIO GRANDE BASIN--Continued

PECOS RIVER AT PUERTO DE LUNA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955--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)

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	
Aug. 1, 1955	5:00 p.m.		84	4,220	4,080		68		83		93	99	100		--	--	SPWCM
Aug. 7	5:00 a.m.		77	19,200	3,960		55		75		98	98	100		--	--	SPWCM
Aug. 8	7:35 a.m.		70	26,800	5,280		31		45		80	95	99		100	--	SPWCM
Aug. 10	9:30 a.m.		78	23,700	5,660		42		61		89	97	100		--	--	SPWCM
Aug. 11	3:00 p.m.		72	18,700	4,290		6		58		94	98	100		--	--	SPN
Aug. 11	3:00 p.m.		72	18,700	4,500		41		62		94	98	100		--	--	SPWCM
Aug. 12	9:35 a.m.		75	20,200	3,940		37		47		81	94	99		100	--	SPWCM
Aug. 16	1:30 p.m.		77	12,100	3,310		38		64		98	100	--		--	--	SPWCM
Aug. 20	5:40 p.m.		78	7,800	3,770		51		74		93	99	100		--	--	SPWCM
Aug. 21	7:00 p.m.		74	22,000	3,200		3		61		88	98	100		--	--	SPN
Aug. 21	7:00 p.m.		74	22,000	3,680		45		65		88	98	100		--	--	SPWCM
Aug. 22	1:05 p.m.		--	15,400	3,760		29		39		74	92	99		100	--	SPWCM
Sept. 24	5:30 p.m.		65	16,900	3,730		5		47		94	99	100		--	--	SPN
Sept. 24	5:30 p.m.		65	16,900	3,810		25		47		94	99	100		--	--	SPWCM
Sept. 25	7:35 p.m.		60	32,800	3,590		26		42		86	98	100		--	--	SPWCM
Sept. 26	1:00 p.m.		62	17,900	4,390		56		78		96	100	--		--	--	SPWCM

a Discharge omitted because of lack of correlation of discharges at sampling point and at gaging station.

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 1955.
EXTREMES, 1954-55.--Dissolved soilds: Maximum, 1,540 ppm July 11-20; minimum, 623 ppm Oct. 11-19.
Hardness: Maximum, 1,050 ppm June 11-20; minimum, 436 ppm Oct. 11-19.
Specific conductance: Maximum daily, 2,120 micromhos Apr. 28; minimum daily, 815 micromhos Oct. 23.
EXTREMES, 1937-55.--Dissolved solids: Maximum, 2,730 ppm May 11-20, 1954; minimum, 435 ppm Oct. 1-8, 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.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-10, 1954 ..	51.9	9.0		181	27	28		116	472	32		2.1		808	1.10	113	562	468	10	0.5	1,100	7.2
Oct. 11-19.....	14.7	10		145	18	22		114	349	21		1.7		623	.85	24.7	436	342	10	.5	881	7.2
Oct. 20.....	91.0	23		242	33	44		132	611	57		3.3		1,080	1.47	265	740	632	11	.7	1,420	7.2
Oct. 21-31.....	67.6	9.0		151	19	23		99	376	25		1.4		653	.89	119	454	382	10	.5	915	7.0
Nov. 1-10.....	7.05	12		177	31	30		107	469	34		1.5		808	1.10	15.4	569	482	10	.5	1,100	7.5
Nov. 11-20.....	3.33	12		185	28	30		109	477	36		1.7		824	1.12	7.41	576	487	10	.5	1,110	7.6
Nov. 21-30.....	3.86	11		202	34	36		116	531	44		1.4		916	1.25	9.55	644	549	11	.6	1,210	7.6
Dec. 1-10.....	3.20	12		216	33	39		119	570	45		1.4		975	1.33	8.42	674	577	11	.7	1,290	7.8
Dec. 11-17.....	2.01	12		224	37	44		121	601	48		1.3		1,030	1.40	5.59	711	612	12	.7	1,350	7.8
Dec. 18-20.....	2.20	14		298	66	78		144	891	88		2.4		1,510	2.05	8.97	1,020	897	14	1.1	1,870	7.8
Dec. 21-31.....	2.28	12		250	43	50		128	686	58		1.2		1,160	1.58	7.14	801	696	12	.8	1,500	7.8
Jan. 1-10, 1955 ..	3.46	20		240	42	51		132	657	57		1.3		1,180	1.54	11.0	772	664	13	.8	1,470	7.6
Jan. 11-19.....	3.42	13		236	40	47		118	646	52		.9		1,090	1.48	10.1	754	657	12	.7	1,410	7.3
Jan. 20-31.....	99.8	11		234	40	45		115	649	51		1.1		1,090	1.48	294	748	654	12	.7	1,400	7.5
Feb. 1-10.....	40.6	8.6		254	49	52		120	728	62		.2		1,210	1.65	133	835	736	12	.8	1,550	7.6
Feb. 11-20.....	1.66	12		282	62	65		136	844	77		.2		1,410	1.92	6.32	958	847	13	.9	1,750	7.5
Feb. 21-28.....	1.39	14		286	60	65		141	830	76		.5		1,400	1.90	5.25	960	844	13	.9	1,770	7.4
Mar. 1-10	24.1	11		284	55	31		129	775	67		.5		1,290	1.75	83.9	934	829	7	.4	1,660	7.7
Mar. 11-20	85.2	9.3		276	43	36		120	733	58		.4		1,210	1.65	278	866	767	8	.5	1,570	7.4
Mar. 21-31	60.4	7.9		280	43	36		119	738	61		.6		1,230	1.67	201	876	778	8	.5	1,590	7.5

RIO GRANDE BASIN--Continued

PECOS RIVER BELOW ALAMOGORDO DAM, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955	76.6	13		280	50	56		121	780	68		0.5		1,300	1.77	269	904	805	12	0.8	1,650	7.9
Apr. 11-20	73.8	12		288	49	56		122	797	68		.8		1,320	1.80	263	920	820	12	.8	1,670	7.6
Apr. 21-30	79.4	12		298	50	66		130	843	76		.4		1,400	1.90	300	949	842	13	.9	1,760	7.7
May 1-10	79.2	9.4		300	51	58		125	848	70		.9		1,390	1.89	297	958	856	12	.8	1,750	7.7
May 11-20	81.4	10		310	55	61		130	876	74		.6		1,440	1.96	316	1,000	893	12	.8	1,780	7.7
May 21-31	87.3	9.6		310	57	63		125	886	76		.6		1,460	1.99	344	1,010	906	12	.4	1,800	7.8
June 1-10	97.4	11		328	53	60		129	900	82		.6		1,500	2.04	394	1,040	931	11	.8	1,840	7.4
June 11-20	668	11		326	57	61		129	904	82		.5		1,510	2.05	2,720	1,050	942	11	.8	1,840	7.6
June 21-30	873	11		326	52	60		130	896	82		.4		1,490	2.03	3,510	1,030	921	11	.8	1,840	7.4
July 1-10	290	12		333	45	61		136	910	79		.6		1,510	2.05	1,180	1,020	904	12	.8	1,860	7.6
July 11-20	586	14		341	44	62		136	926	81		.7		1,540	2.09	2,440	1,030	920	12	.8	1,900	7.5
July 21-31	208	15		300	39	61		139	817	72		.9		1,370	1.86	769	909	795	13	.9	1,730	7.5
Aug. 1-10	97.6	12		256	32	49		118	691	56		1.0		1,160	1.58	306	770	674	12	.8	1,490	7.5
Aug. 11-20	101	12		234	30	43		111	630	48		.8		1,050	1.43	286	708	616	12	.7	1,380	7.5
Aug. 21-31	106	13		198	28	37		112	530	41		.8		903	1.23	258	609	517	12	.7	1,220	7.3
Sept. 1-10	537	12		191	28	37		112	507	41		1.1		872	1.19	1,260	592	500	12	.7	1,190	7.2
Sept. 11-20	963	15		218	28	44		121	586	44		.7		996	1.35	2,590	659	560	13	.7	1,320	7.3
Sept. 21-30	1,028	12		195	26	39		120	515	41		.9		888	1.21	2,460	594	495	13	.7	1,190	7.3
Weighted average	180	12		265	39	50		124	722	61		0.7		1,210	1.65	588	822	720	12	0.8	1,540	--

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 1955.
Water temperatures: May 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 7,730 ppm Aug. 31; minimum, 938 ppm July 15-16.
Hardness: Maximum, 3,330 ppm June 11-16; minimum, 652 ppm July 15-16.
Specific conductance: Maximum daily, 10,900 micromhos Aug. 31.
Water temperatures: Maximum, 95°F July 15; minimum, 35°F Dec. 29.
EXTREMES, 1937-55.--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 (1952-55): Maximum, 95°F July 15, 1955; minimum, 33°F Jan. 4, 1953.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 6, 1954[a]	479	10		433	114	808		86	1,210	1,400		3.4		4,020	5.47	5,200	1,550	1,480	53	8.9	5,920	7.6
Oct. 13-20	184	17		532	114	398		152	1,610	610		2.1		3,360	4.57	1,670	1,800	1,670	33	4.1	4,280	7.6
Oct. 21-31	127	15		500	112	415		151	1,540	625		2.1		3,280	4.46	1,120	1,710	1,580	35	4.4	4,240	7.6
Nov. 1-10	77.3	15		504	121	483		158	1,560	745		2.1		3,510	4.77	733	1,760	1,630	37	5.0	4,600	7.5
Nov. 11-20	52.7	15		572	152	622		150	1,830	975		1.5		4,240	5.77	603	2,050	1,930	40	6.0	5,550	7.6
Nov. 21-30	35.5	13		588	164	677		147	1,890	1,080		2.6		4,490	6.11	430	2,140	2,020	41	6.4	5,890	7.7
Dec. 1-10	28.4	12		603	166	727		157	1,950	1,140		2.2		4,680	6.36	359	2,190	2,060	42	6.8	6,150	7.6
Dec. 11-20	31.8	16		615	171	721		158	1,930	1,180		2.2		4,710	6.41	404	2,240	2,110	41	6.6	6,300	7.6
Dec. 21-31	29.4	16		603	188	763		155	1,950	1,260		3.4		4,860	6.61	386	2,280	2,150	42	6.9	6,590	7.4
Jan. 1-10, 1955	31.3	14		588	183	731		155	1,910	1,200		2.9		4,700	6.39	397	2,220	2,090	42	6.7	6,280	7.5
Jan. 11-20	24.9	15		592	185	775		146	1,930	1,270		2.6		4,840	6.58	325	2,240	2,120	43	7.1	6,530	7.7
Jan. 21-31	31.8	16		576	173	640		148	1,860	1,050		2.6		4,390	5.97	377	2,150	2,030	39	6.0	5,890	7.6
Feb. 1-10	40.2	14		532	142	488		145	1,670	790		2.0		3,710	5.05	403	1,910	1,790	36	4.9	4,950	7.4
Feb. 11-20	26.3	14		548	157	554		143	1,730	920		2.0		4,000	5.44	284	2,010	1,900	37	5.4	5,370	7.3
Feb. 21-28	19.1	14		607	197	759		145	2,010	1,250		1.6		4,910	6.68	253	2,320	2,210	42	6.8	6,630	7.3
Mar. 1-10	17.2	15		631	185	907		132	2,070	1,450		1.4		5,320	7.24	247	2,340	2,230	46	8.2	7,260	7.5
Mar. 11-20	20.3	14		659	162	960		138	2,110	1,480		1.0		5,450	7.41	299	2,310	2,200	47	8.9	6,770	7.6
Mar. 21-31	24.1	12		512	164	597		135	1,810	890		1.1		4,050	5.51	264	1,950	1,840	40	5.9	5,330	7.6

a No flow Oct. 4-5, Sept. 3-7.

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ACME, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Apr. 1-10, 1955...	17.4	17		586	178	621		145	1,920	1,010		2.2		4,410	6.00	207	2,190	2,080	38	5.8	5,800	7.4
Apr. 11-20	14.9	18		625	208	721		139	2,130	1,170		2.1		4,940	6.72	199	2,420	2,300	39	6.4	6,500	7.4
Apr. 21-30	15.6	17		695	232	947		142	2,400	1,510		2.2		5,870	7.98	247	2,690	2,570	43	7.9	7,720	7.4
May 1-9	27.7	13		546	160	589		119	1,830	920		1.5		4,120	5.60	308	2,020	1,920	39	5.7	5,500	7.4
May 10-14	386	16		194	50	124		139	575	174		2.3		1,200	1.63	1,250	690	576	28	2.1	1,740	7.5
May 15-17	38.3	13		341	93	289		124	1,080	450		2.6		2,330	3.17	241	1,230	1,130	34	3.6	3,190	7.4
May 18-31	18.6	18		655	208	577		130	2,070	1,050		2.3		4,640	6.31	233	2,490	2,380	34	5.0	6,070	7.5
June 1-10.....	7.00	21		705	256	832		134	2,420	1,410		2.3		5,710	7.77	108	2,810	2,700	39	6.8	7,430	7.4
June 11-16.....	3.17	20		824	309	1,150		132	2,800	1,990		2.3		7,160	9.74	61.3	3,330	3,220	43	8.7	9,300	7.5
June 17-30.....	674	17		385	75	77		138	1,110	118		1.7		1,850	2.52	3,370	1,270	1,160	12	.9	2,240	7.7
July 1-4.....	670	17		393	69	66		128	1,120	97		.8		1,830	2.49	3,310	1,260	1,160	10	.8	2,180	7.5
July 5-10	349	16		318	57	75		119	906	107		.7		1,540	2.09	1,450	1,030	930	14	1.0	1,940	7.5
July 11-14, 17-20 ..	591	15		381	69	116		226	1,060	140		.6		1,890	2.57	3,020	1,230	1,050	17	1.4	2,330	7.3
July 15-16	204	13		202	36	38		123	530	58		.8		938	1.28	517	652	551	11	.7	1,280	7.5
July 21-26, 30-31..	891	15		365	50	72		143	968	105		.4		1,650	2.24	3,970	1,120	999	12	.9	2,050	7.2
July 27-29	385	13		220	34	66		104	612	78		2.0		1,080	1.47	1,120	689	604	17	1.1	1,430	7.6
Aug. 1-10.....	55.3	20		437	95	227		117	1,330	350		1.8		2,520	3.43	376	1,480	1,380	25	2.6	3,210	7.5
Aug. 11-19	47.2	15		437	95	199		94	1,410	260		2.4		2,460	3.35	314	1,480	1,400	23	2.2	3,060	7.4
Aug. 20	5.0	14		536	119	473		100	1,640	755		2.2		3,590	4.88	48.5	1,830	1,740	36	4.8	4,740	7.6
Aug. 21-24	2.0	18		536	121	301		95	1,760	410		1.6		3,190	4.34	17.2	1,840	1,760	26	3.1	4,250	7.7
Aug. 25-30	1.5	21		663	176	568		95	2,270	830		1.2		4,580	6.23	18.5	2,380	2,300	34	5.1	5,590	7.7
Aug. 31	8.0	16		641	137	1,910		65	2,100	2,890		6.7		7,730	10.5	167	2,160	2,110	66	18	10,900	7.9
Sept. 1-2 [a]	1.0	16		588	147	781		59	2,040	1,130		4.3		4,740	6.45	12.8	2,070	2,020	45	7.5	6,200	7.5
Sept. 8-20	647	17		262	37	63		139	706	66		1.9		1,220	1.66	2,130	806	692	15	1.0	1,570	7.7
Sept. 21-30	2,672	16		234	31	63		139	617	64		1.6		1,090	1.48	7,860	712	598	16	1.0	1,430	7.6
Weighted average.	296	--		--	--	--		--	--	--		--		--	--	--	--	--	--	--	2,130	--

a No flow Oct. 4-5, Sept. 3-7.

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ACME, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, between 3:30 p.m. and 7 p.m./

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

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, revised (contributing area).
RECORDS AVAILABLE.--Water temperatures: September 1951 to September 1955.
Sediment records: September 1951 to September 1955.
EXTREMES, 1954-55.--Water temperatures: Maximum, 78°F on several days during July, August and September; minimum, 60°F Sept. 27.
Sediment concentrations: Maximum daily, 64,400 ppm Aug. 20; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 630,000 tons Oct. 6; minimum daily, 0 tons on many days.
EXTREMES, 1951-55.--Water temperatures: Maximum, 86°F July 24, 25, 1952; minimum 58°F May 18, 1954.
Sediment concentrations: Maximum daily (1951-52, 1953-55), 64,400 ppm Aug. 20, 1955; 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.--No flow during November to December, February to March, and June; tabulation omitted for that period. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Temperature (°F) of water, water year October 1954 to September 1955
Once-daily measurement usually between 11 a.m. and 6 p.m. No flow on many days

Day	Oct.	July	Aug.	Sept.	Day	Oct.	July	Aug.	Sept.	Day	Oct.	July	Aug.	Sept.
1	--	--	70	74	11	--	--	74	--	21	--	--	73	--
2	--	--	78	76	12	--	--	76	--	22	--	a70	74	--
3	--	--	78	76	13	--	--	76	--	23	--	69	73	--
4	--	--	78	76	14	--	--	76	--	24	--	74	73	63
5	--	a68	78	78	15	--	--	78	--	25	--	72	76	67
6	--	b64	74	--	16	--	--	78	--	26	--	72	76	65
7	62	68	--	--	17	--	78	76	--	27	--	66	72	a60
8	a62	78	--	--	18	--	78	76	--	28	--	68	73	--
9	--	78	74	--	19	--	76	71	--	29	--	69	76	--
10	--	--	76	--	20	--	--	73	--	30	--	70	76	--
										31	--	70	74	--
Average											--	72	75	--

a Measurement before 11 a.m. b Measurement after 6 p.m.

Suspended sediment, water year October 1954 to September 1955

Day	October			January			April		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	6	--	e15	0			0		
2	1	--	e2	0			0		
3	34	--	e2,000	0			0		
4	4	--	e6	0			0		
5	0	--	0	0			0		
6	2,740	31,000	sa630,000	0			0		
7	1,440	24,900	s176,000	0			0		
8	104	1,500	s218	0			0		
9	14	550	a21	0			0		
10	33	--	e2,000	0			0		
11	11	--	e100	0			0		
12	7	--	e20	0			0		
13	1	--	e2	0			0		
14	0	--	0	0			0		
15	0	--	0	0			0		
16	0	--	0	0			0		
17	0	--	0	0			0		
18	0	--	0	2			0		
19	0	--	0	0			0		
20	0	--	0	0			0		
21	0	--	0	0			0		
22	0	--	0	0			0		
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	--	0	0			0		
29	0	--	0	2			0		
30	0	--	0	0			30		
31	0	--	0	0			--		
Total	4,395	--	810,384	4		e10	30		e2,100

e Estimated. a Computed from estimated concentration graph.
s Computed by subdividing day.

RIO GRANDE BASIN--Continued

RIO HONDO AT DIAMOND A RANCH, NEAR ROSWELL, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	May			July			August		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	9			0	--	0	23	700	a 43
2	0			0	--	0	32	500	a 43
3	0			0	--	0	48	1,000	a 130
4	0			0	--	0	20	400	a 22
5	0			3	2,030	s 72	5	200	a 3
6	0			89	2,350	s 3,390	2	130	a 1
7	0			42	4,560	s 884	3	150	a 1
8	0			264	22,600	s 23,900	43	8,200	sa 1,200
9	0			77	14,500	3,010	35	6,800	643
10	0			31	8,000	a 670	27	2,900	211
11	0			0	--	0	83	3,050	s 789
12	0			0	--	0	43	850	99
13	0			0	--	0	33	750	67
14	12			0	--	0	39	570	60
15	0			0	--	0	31	240	a 20
16	0			0	--	0	26	160	a 11
17	0			35	16,800	s 3,330	16	120	a 5
18	0			10	29,000	783	8	100	a 2
19	0			2	4,500	24	92	8,950	s 3,340
20	0			0	--	0	222	64,400	s 53,900
21	0			0	--	0	69	17,500	3,260
22	0			303	20,600	s 30,200	69	5,500	1,020
23	0			341	24,700	s 25,100	72	5,600	1,090
24	0			77	4,300	894	72	4,000	778
25	0			48	2,080	s 400	69	700	130
26	0			212	30,500	17,500	60	300	a 49
27	0			772	15,000	s 51,700	30	200	a 16
28	0			1,220	32,200	s 148,000	14	130	a 5
29	0			885	25,300	s 98,600	8	100	a 2
30	0			578	22,700	s 60,200	7	80	a 2
31	0			59	2,100	a 330	20	400	sa 66
Total	21		e 1,100	5,048	--	468,987	1,321	--	67,009

Day	September		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	37	650	a 65
2	17	300	a 14
3	17	320	a 15
4	17	200	a 9
5	10	120	a 3
6	5	--	e 3
7	1	--	e 1
8	0	--	0
9	0	--	0
10	0	--	0
11	0	--	0
12	0	--	0
13	0	--	0
14	0	--	0
15	0	--	0
16	0	--	0
17	0	--	0
18	0	--	0
19	0	--	0
20	0	--	0
21	0	--	0
22	0	--	0
23	0	--	0
24	155	37,400	s 31,500
25	605	59,300	s 131,000
26	98	14,800	3,920
27	46	2,300	286
28	27	500	a 36
29	21	--	e 50
30	4	--	e 3
31	--	--	--
Total	1,060	--	166,905

Total discharge for year (cfs-days) 11,879
Total load for year (tons) 1,516,495

e Estimated.
s Computed by subdividing day.
a Computed from estimated concentration graph.

RIO GRANDE BASIN--Continued

RIO HONDO AT DIAMOND A RANCH, NEAR ROSWELL, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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)

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 5, 1955	2:10 a.m.	50	68	5,440	3,870		7		39		85	93	96		99	100	SPN
July 5	2:10 a.m.	50	68	5,440	3,400		33		63		85	93	96		99	100	SPWCM
July 6	9:45 p.m.	895	64	14,500	4,020		33		57		84	97	99		100	--	SPWCM
July 6	11:15 p.m.	563	64	13,100	3,210		38		61		86	96	99		99	100	SPWCM
July 7	5:00 p.m.	7	68	1,580	4,560		75		92		97	98	100		--	--	SPWCM
July 8	4:00 a.m.	1,110	64	34,900	5,150		61		87		96	99	99		100	--	SPWCM
July 8	4:00 a.m.	1,110	64	34,900	5,620		1		81		96	99	99		100	--	SPN
July 22	5:00 a.m.	797	70	34,800	5,240		48		76		95	98	99		100	--	SPWCM
July 22	10:30 p.m.	1,500	66	48,500	2,850		36		60		93	96	99		100	--	SPWCM
July 26	10:30 p.m.	1,640	66	30,500	3,530		33		49		79	92	97		99	100	SPWCM
July 27	12:30 a.m.	1,050	66	31,900	4,010		30		50		79	91	96		100	--	SPWCM
July 27	2:30 a.m.	2,610	66	31,900	3,660		30		47		76	92	99		100	--	SPWCM
July 27	7:00 a.m.	683	68	10,800	4,570		49		72		86	94	99		100	--	SPWCM
July 28	9:00 a.m.	1,960	66	49,000	6,160		29		48		78	93	98		100	--	SPWCM
July 28	7:30 p.m.	3,240	66	44,800	4,840		23		38		72	87	96		100	--	SPWCM
July 29	9:00 p.m.	3,410	66	50,300	3,690		28		54		82	86	97		99	100	SPWCM
Aug. 12	6:45 p.m.	136	76	1,040	2,910		63		81		92	100	--		--	--	SPWCM
Aug. 19	9:00 a.m.	369	71	13,300	5,780		26		42		67	86	98		100	--	SPWCM
Aug. 20	3:30 a.m.	638	68	107,000	4,220		42		61		89	92	97		99	100	SPWCM
Aug. 20	6:00 p.m.	110	73	56,100	4,380		67		93		98	99	100		--	--	SPWCM
Aug. 21	6:00 p.m.	66	73	11,000	3,480		71		92		98	100	--		--	--	SPWCM
Sept. 24	6:30 p.m.	273	63	61,300	3,750		48		65		88	92	97		100	--	SPWCM
Sept. 25	6:00 a.m.	1,660	--	67,600	3,670		26		42		75	87	97		100	--	SPWCM
Sept. 25	6:00 a.m.	1,660	--	67,600	4,500		2		35		75	87	97		100	--	SPN

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 Penasco, and 17 miles north of McMillan Dam.
DRAINAGE AREA.--15,300 square miles, approximately (contributing area).
RECORDS AVAILABLE.--Chemical analyses: July 1937 to September 1955.
Water temperatures: April 1949 to September 1955.
Sediment records: January 1949 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 14,100 ppm Sept. 9; minimum, 479 ppm Oct. 7-8.
Hardness: Maximum, 3,570 ppm Sept. 9; minimum, 270 ppm Oct. 7-8.
Specific conductance: Maximum daily, 20,700 micromhos Sept. 10; minimum daily, 745 micromhos Oct. 8.
Water temperatures: Maximum, 88°F Aug. 20-21; minimum, 35°F Dec. 29.
Sediment concentrations: Maximum daily, 20,800 ppm July 22; minimum daily, 35 ppm Jan. 1-9.
Sediment loads: Maximum daily, 183,000 tons Sept. 26; minimum daily, 1 ton Aug. 30-31.
EXTREMES, 1937-55.--Dissolved solids: Maximum, 14,100 ppm Sept. 9, 1955; minimum, 479 ppm Oct. 7-8, 1954.
Hardness: Maximum, 3,570 ppm Sept. 9, 1955; minimum, 270 ppm Oct. 7-8, 1954.
Specific conductance: Maximum daily, 20,700 micromhos Sept. 10, 1955; minimum daily, 745 micromhos Oct. 8, 1954.
Water temperatures: 1949-55.--Maximum, 92°F June 30, 1953; minimum, 33°F Jan. 30, 31, Feb. 1, 1951, Dec. 30, 1952, Dec. 24, 1953.
Sediment concentrations (1949-55): Maximum daily, 20,800 ppm July 22, 1955; minimum daily, no flow on many days.
Sediment loads (1949-55): Maximum daily, 183,000 tons Sept. 26, 1955; minimum daily, 0 tons on many days.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 1954...	35.2	26		637	311	1,670		150	2,410	2,750		--		7,880	10.7	749	2,870	2,750	56	14	10,900	6.8
Oct. 6.....	93.0	14		389	174	944		149	1,310	1,540		21		4,460	6.07	1,120	1,690	1,560	55	10	6,620	7.0
Oct. 7-8	14,640	13		85	14	55		136	166	74		4.8		479	.65	18,930	270	158	31	1.5	755	7.5
Oct. 9-11.....	12,410	42		369	50	146		121	989	212		4.0		1,870	2.54	62,660	1,130	1,030	22	1.9	2,380	7.7
Oct. 12-17	893	20		532	140	582		180	1,580	940		4.7		3,890	5.29	9,380	1,900	1,760	40	5.8	5,270	7.3
Oct. 18-31	347	43		619	226	1,100		182	2,140	1,750		3.4		5,970	8.12	5,590	2,470	2,320	49	9.6	7,970	7.4
Nov. 1-10	248	43		599	253	1,150		206	2,150	1,800		2.1		6,080	8.27	4,070	2,450	2,280	50	10	8,140	7.4
Nov. 11-20	202	35		607	247	1,260		210	2,170	2,020		3.6		6,450	8.77	3,520	2,530	2,360	52	11	8,620	7.2
Nov. 21-30	178	36		623	254	1,290		218	2,180	2,080		--		6,570	8.94	3,160	2,600	2,420	52	11	8,910	7.4
Dec. 1-10	160	22		619	269	1,300		225	2,210	2,130		--		6,660	9.06	2,880	2,650	2,470	52	11	9,020	7.9
Dec. 11-20	141	20		592	269	1,320		212	2,110	2,140		--		6,560	8.92	2,500	2,580	2,410	53	11	9,100	7.8
Dec. 21-31	124	25		611	273	1,400		217	2,170	2,260		--		6,850	9.32	2,290	2,650	2,470	53	12	9,490	7.4
Jan. 1-10, 1955..	121	20		600	273	1,400		205	2,150	2,250		--		6,790	9.23	2,220	2,620	2,450	54	12	9,490	7.5
Jan. 11-20.....	121	21		584	280	1,380		191	2,160	2,180		--		6,700	9.11	2,190	2,610	2,450	53	12	9,240	7.7
Jan. 21-31.....	111	20		607	285	1,420		204	2,210	2,260		--		6,900	9.38	2,070	2,690	2,520	53	12	9,520	7.8

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 1-10, 1955 ..	115	16		615	250	1,200		205	2,120	2,000		--		6,300	8.57	1,960	2,560	2,390	50	10	8,850	7.3
Feb. 11-20	112	15		607	238	1,150		199	2,070	1,900		2.5		6,080	8.27	1,840	2,490	2,330	50	10	8,530	7.5
Feb. 21-28	94.1	16		631	262	1,320		196	2,190	2,180		--		6,700	9.11	1,700	2,650	2,490	52	11	9,340	7.4
Mar. 1-10.....	83.7	18		603	307	1,400		182	2,280	2,380		--		7,080	9.63	1,600	2,810	2,660	52	11	9,740	7.4
Mar. 11-20.....	69.5	16		625	327	1,500		169	2,390	2,500		--		7,440	10.1	1,400	2,770	2,620	53	12	10,400	7.4
Mar. 21-31.....	66.6	20		649	322	1,520		177	2,430	2,470		--		7,500	10.2	1,350	2,940	2,800	53	12	10,400	7.3
Apr. 1-10	55.9	19		649	320	1,560		175	2,460	2,490		--		7,580	10.3	1,140	2,940	2,790	54	13	10,600	7.3
Apr. 11-20	54.3	21		680	362	1,780		197	2,630	2,890		--		8,460	11.5	1,240	3,180	3,020	55	14	11,800	7.4
Apr. 21-30	51.4	26		696	350	1,670		184	2,650	2,810		--		8,300	11.3	1,150	3,180	3,020	53	13	11,500	7.4
May 1-10.....	66.6	27		676	339	1,510		190	2,510	2,570		--		7,720	10.5	1,390	3,080	2,920	52	12	10,800	7.3
May 11, 19-20	69.3	25		564	219	1,010		172	1,990	1,620		2.6		5,520	7.51	1,030	2,310	2,170	49	9	7,580	7.5
May 12-18.....	288	18		377	116	414		130	1,250	625		2.9		2,870	3.90	2,230	1,420	1,310	39	5	3,960	7.4
May 21-31.....	49.5	20		603	266	1,230		164	2,220	2,080		--		6,500	8.84	869	2,600	2,460	51	10	9,080	7.3
June 1-10	39.4	23		712	313	1,660		172	2,630	2,710		--		8,130	11.1	865	3,060	2,920	54	13	11,000	7.4
June 11-19	33.0	23		735	336	1,890		176	2,730	3,030		--		8,830	12.0	787	3,220	3,070	56	14	12,000	7.4
June 20-21.....	568	21		512	109	332		162	1,590	455		4.8		3,100	4.22	4,750	1,730	1,590	29	3.5	3,940	7.2
June 22-30.....	635	18		457	83	156		135	1,300	234		2.9		2,320	3.16	3,980	1,480	1,370	20	1.9	2,860	7.4
July 1-10.....	557	18		437	66	176		128	1,250	258		3.7		2,270	3.09	3,410	1,360	1,260	22	2.1	2,830	7.7
July 11-19.....	163	21		472	104	495		121	1,450	785		3.4		3,390	4.61	1,490	1,600	1,510	40	5.4	4,570	7.7
July 20-29, 31	1,028	18		397	47	141		132	1,080	192		5.8		1,950	2.65	5,410	1,180	1,080	21	1.8	2,430	7.7
July 30.....	1,250	16		143	17	65		144	305	95		4.2		716	.97	2,420	427	309	25	1.4	1,070	8.0
Aug. 1-4	260	20		337	57	298		134	930	465		5.6		2,180	2.96	1,530	1,080	966	38	4.0	3,050	8.0
Aug. 5-10	106	24		492	128	659		134	1,580	1,040		3.8		3,990	5.43	1,140	1,750	1,640	45	6.8	5,410	7.8
Aug. 11-20	67.5	21		544	166	892		122	1,850	1,420		4.1		4,960	6.75	904	2,040	1,940	49	8.6	6,740	7.4
Aug. 21-31.....	13.5	24		619	230	1,470		136	2,270	2,310		--		6,990	9.51	255	2,490	2,380	56	13	9,830	7.4
Sept. 1-8.....	6.41	26		629	251	1,580		145	2,390	2,480		--		7,430	10.1	129	2,600	2,480	57	13	10,400	7.2
Sept. 9.....	8.40	24		839	358	3,720		104	3,040	6,050		--		14,100	19.2	320	3,570	3,480	69	27	19,900	7.0
Sept. 10-11.....	264	20		464	100	455		155	1,560	605		5.3		3,290	4.47	2,350	1,570	1,440	39	5.0	4,310	7.7
Sept. 12-20.....	633	19		310	52	133		124	919	168		3.3		1,670	2.27	2,850	988	886	23	1.8	2,180	8.0
Sept. 21-30	2,438	17		326	52	124		124	940	158		4.2		1,680	2.28	11,060	1,030	926	21	1.7	2,150	7.7
Weighted average	444	24		367	80	361		142	1,110	562		--		2,580	3.51	3,090	1,280	1,160	38	4.4	3,450	--

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(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	77	55	46	46	a47	54	56	a70	72	80	80	a75
2	76	53	49	45	48	a50	59	72	a70	80	83	83
3	--	59	50	48	50	62	59	a65	a70	80	a81	84
4	77	a54	a52	53	a44	60	58	73	a69	80	85	80
5	73	58	53	a48	42	a58	60	75	70	79	85	82
6	72	58	50	45	40	50	a58	74	78	82	84	80
7	65	a56	52	a41	47	51	a57	67	75	82	87	78
8	--	a58	51	44	43	58	59	70	84	81	a82	78
9	73	a52	48	42	a44	a56	67	a70	a69	a78	83	76
10	74	a52	47	42	a43	a55	a62	70	72	a75	80	77
11	70	a60	46	a38	44	65	59	68	72	77	75	78
12	70	58	a43	41	a40	a57	55	66	75	a76	85	78
13	66	59	a39	a40	45	a57	a53	a68	a70	83	84	a68
14	65	56	46	45	48	60	65	a68	a75	a77	83	a71
15	a61	a50	44	44	50	a62	70	74	78	80	84	77
16	64	59	45	52	a47	a57	a62	70	69	82	a77	77
17	a57	a56	a39	a45	47	a54	68	a67	b78	82	--	75
18	65	--	a39	a41	a49	56	65	70	81	80	--	76
19	a62	53	43	a40	45	a59	68	a62	a75	75	82	78
20	65	57	44	45	a40	a57	63	a62	78	--	88	77
21	66	53	43	43	40	a50	68	71	75	80	88	77
22	a65	a50	45	40	a41	56	a65	74	a74	75	84	78
23	63	a51	a41	39	42	56	a50	a68	80	82	85	75
24	62	54	44	43	43	56	65	a70	78	80	86	73
25	a62	51	47	45	a50	a50	72	74	80	80	b78	74
26	a60	55	a43	a42	45	48	a65	68	a79	80	84	69
27	58	56	47	a40	a52	a47	68	a69	78	76	85	70
28	60	52	40	43	a50	51	65	69	80	a77	a82	74
29	--	a46	35	45	--	a52	a68	75	81	a78	86	75
30	a55	52	38	46	--	61	76	68	79	80	80	a74
31	58	--	40	48	--	a51	--	77	--	80	80	--
Average	66	55	45	44	45	55	63	70	75	79	83	76

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 1954 to September 1955

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	16	221	10	281	200	152	165	129	57
2	16	442	19	269	213	155	165	112	50
3	21	225	13	261	188	132	164	122	54
4	51	750	sa460	254	211	145	160	104	45
5	72	1,500	sa510	252	145	99	160	80	36
6	93	680	170	244	--	b70	158	88	38
7	7,890	6,000	128,000	242	70	46	157	106	45
8	21,400	2,750	159,000	231	81	51	155	133	56
9	17,600	2,070	98,400	224	90	54	155	93	39
10	15,300	2,210	91,300	219	60	35	155	82	34
11	4,340	2,620	30,700	214	51	29	154	107	44
12	1,820	2,670	13,100	212	153	88	154	113	47
13	1,070	2,520	7,280	208	133	75	154	117	49
14	772	1,860	3,880	204	96	53	152	101	41
15	640	930	1,610	205	105	58	148		
16	553	438	654	203	120	66	136		
17	501	411	556	200	125	68	127	65	23
18	450	333	413	196	126	67	131		
19	429	394	456	192	95	49	130		
20	401	251	272	188	131	66	126		
21	380	205	210	187	184	93	124		
22	361	266	259	187	98	49	124		
23	344	152	141	185	118	59	123		
24	326	222	195	181	148	72	122		
25	330	127	113	180	197	96	122		
26	328	220	195	178	133	64	125	55	18
27	319	208	179	176	176	84	123		
28	306	228	188	172	124	58	123		
29	206	157	125	171	125	58	125		
30	289	376	293	167	135	61	127		
31	284	192	147	--	--	--	122	61	20
Total	77,007	--	538,849	6,283	--	2,252	4,367	--	973

Day	January			February			March		
1	121			120			92		
2	121			116			90		
3	124			114			90		
4	125			110			90		
5	122	35	11	111	84	26	90	45	10
6	122			113			81		
7	121			113			78		
8	117			112			78		
9	117			120			74		
10	116			120			74		
11	115			123			73		
12	117			128			69		
13	118			117			72		
14	120	85	28	112	82	26	72		
15	124			110			69		
16	126			111			65	41	8
17	130			108			67		
18	126			108			67		
19	122			103			67		
20	110			99			74		
21	108	99	30	101			72		
22	105			96			78		
23	105			94			71		
24	103			94			66		
25	102			92	136	35	63		
26	102			92			59	65	12
27	106			88			73		
28	114	105	32	96			66		
29	123			--			68		
30	126			--			64		
31	123			--			63		
Total	3,631	--	757	3,021	--	818	2,265	--	312

s Computed by subdividing day.
a Computed from partly estimated concentration graph.
b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Suspended sediment, water year October 1954 to September 1955--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	63			60			41		
2	63			64			56		
3	59			62			48		
4	68			74			47	142	17
5	53	59	9	71	75	13	36		
6	55			78			40		
7	53			73			42		
8	49			60			33		
9	46			63			26		
10	40			61			25		
11	41			66			29		
12	48			869	8,360	s19,300	32		
13	39			460	6,800	8,450	36	113	10
14	46			226	4,500	2,750	45		
15	59	87	13	147	2,000	794	30		
16	64			128	387	134	26		
17	60			101	393	107	26		
18	63			83	242	56	38	110	a8
19	65			74	331	66	45	290	sa100
20	56			68	368	68	515	2,200	sa3,200
21	58			71	309	59	621	4,700	7,880
22	52			68	379	70	657	3,350	5,940
23	48			60	511	83	804	3,200	6,950
24	48	115	16	52	492	69	685	2,650	4,900
25	50			42	568	64	650	2,680	4,700
26	51			36	312	30	753	3,870	7,870
27	47			34			605	3,850	6,290
28	50			35			566	3,800	5,810
29	54	72	10	42	142	17	520	3,650	5,120
30	56			51			472	2,800	3,570
31	--	--	--	54			--	--	--
Total	1,616	--	356	3,436	--	32,328	7,539	--	62,550

Day	July			August			September		
	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day	Mean discharge (cfs)	Suspended sediment: Mean concentration (ppm)	Suspended sediment: Tons per day
1	474	3,100	3,970	364	3,000	2,950	3.6		
2	581	3,300	5,180	306			3.6		
3	459	2,450	3,040	211			3.6		
4	445	2,600	3,120	158			4.0		
5	978	4,360	s12,100	128	499	220	4.3	104	2
6	982	5,650	15,000	130			8.0		
7	623	3,100	5,210	110			12		
8	518	3,000	4,200	102			12		
9	318	2,500	2,150	86			8.4		
10	194	2,100	1,100	78			104	479	s223
11	133	2,090	751	72			423	1,800	2,060
12	108	1,900	554	76			472	2,350	2,990
13	106	1,780	509	101			501	2,270	3,070
14	103	1,660	462	123	118	24	530	2,030	2,900
15	89	1,670	401	76			556	1,870	2,810
16	93	1,410	354	59			595	1,830	2,940
17	115	1,750	543	45			664	1,880	3,370
18	210	2,000	1,130	40			864	2,150	5,020
19	513	2,380	s3,570	41			765	2,030	4,190
20	542	2,350	3,440	42			747	1,830	3,690
21	1,680	6,840	s43,500	28			727	1,680	3,300
22	1,370	20,800	s79,600	23			724	1,600	3,130
23	771	11,400	23,700	21			824	1,600	3,560
24	1,890	7,200	36,700	22			1,580	6,190	s24,900
25	852	7,700	17,700	15	107	6	1,670	7,230	s35,500
26	946	6,700	17,100	11			4,030	16,800	183,000
27	628	6,800	s12,200	8.0			6,410	7,100	123,000
28	954	7,000	18,000	6.1			4,250	6,600	75,700
29	1,080	5,200	15,200	4.3			2,340	6,300	39,800
30	1,250	5,360	s20,100	5.1	104	1	1,830	4,500	22,200
31	598	6,400	10,300	5.1			--	--	--
Total	19,603	--	360,884	2,496.6	--	4,798	30,665.7	--	547,371

Total discharge for year (cfs-days) 161,930.3
Total load for year (tons) 1,552,248

s Computed by subdividing day.
a Computed from partly estimated concentration graph.
b Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR ARTESIA, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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)

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. 7, 1954	11:30 a.m.	3,870	65	6,170	3,560		45		68		88	96	100		--		SPWCM
Oct. 7	11:30 a.m.	3,870	65	6,170	3,260		6		69		88	96	100		--		SPN
Oct. 7	5:10 p.m.	4,110	65	5,680	2,370		35		50		60	84	99		100		SPWCM
Oct. 7	5:10 p.m.	4,110	65	5,680	2,220		9		47		60	84	99		100		SPN
Oct. 11	3:00 p.m.	2,490	70	2,500	1,020		58		69		94	99	100		--		SPWCM
Oct. 11	3:00 p.m.	2,490	70	2,500	2,280		30		75		94	99	100		--		SPN
Oct. 13	3:45 p.m.	1,010	66	2,210	2,650		31		65		85	92	100		--		SPWCM
May 12, 1955....	3:50 p.m.	741	--	9,850	4,590		69		94		99	99	100		--		SPWCM
July 5.....	5:10 p.m.	1,160	79	5,890	5,120		62		91		98	99	100		--		SPWCM
July 6	5:35 p.m.	879	82	4,260	3,880		65		92		99	100	--		--		SPWCM
July 21	3:00 p.m.	2,290	80	4,830	4,360		53		82		97	99	100		--		SPWCM
July 21	7:00 p.m.	3,040	80	6,690	3,660		45		73		90	96	100		--		SPWCM
July 22	6:30 p.m.	937	78	17,900	5,400		70		95		99	100	--		--		SPWCM
July 22	6:30 p.m.	937	78	17,900	6,410		2		89		99	100	--		--		SPN
July 24	12:10 p.m.	2,550	80	7,590	3,400		50		74		93	96	100		--		SPWCM
July 24	7:10 p.m.	1,700	80	10,100	3,540		56		83		98	99	100		--		SPWCM
Sept. 25	6:00 p.m.	2,610	73	7,640	2,930		53		71		92	98	100		--		SPWCM
Sept. 25	6:00 p.m.	2,610	73	7,640	3,200		6		69		92	98	100		--		SPN
Sept. 26.....	10:45 a.m.	3,730	67	14,100	3,560		62		85		94	98	100		--		SPWCM
Sept. 26	4:50 p.m.	3,950	69	21,200	3,940		63		83		95	98	100		--		SPWCM
Sept. 27	12:10 p.m.	4,230	71	6,340	4,180		49		67		82	93	100		--		SPWCM
Sept. 27	6:10 p.m.	4,230	--	4,410	3,760		46		64		74	90	100		--		SPWCM
Sept. 28	4:15 p.m.	2,700	75	6,360	3,720		51		78		93	97	100		--		SPWCM
Sept. 29	5:30 p.m.	2,850	75	7,060	3,810		48		70		92	98	100		--		SPWCM
Sept. 29	5:30 p.m.	2,850	75	7,060	3,530		4		65		92	98	100		--		SPN

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 southeast of Artesia, Eddy County.
DRAINAGE AREA.--1,070 square miles, approximately.
RECORDS AVAILABLE.--Sediment records: September 1951 to September 1955.
EXTREMES, 1954-55.--Sediment concentrations: Maximum daily, 30,000 ppm Oct. 7; minimum daily, no flow on many days.
Sediment loads: Maximum daily, 600,000 tons Oct. 7; minimum daily, 0 tons on many days.
EXTREMES, 1951-55.--Sediment concentrations: Maximum daily, 30,000 ppm 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.--A few water temperature observations are available in district office at Albuquerque N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. Revised figures for discharge given in WSP 1512.

Suspended sediment, water year October 1954 to September 1955

Date	Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
Oct. 6, 1954	320	--	e 10,000
Oct. 7	a 7,130	30,000	sb 600,000
Oct. 8	192	5,900	sb 3,700
October Total	a 7,642	--	613,700
July 6, 1955	252	7,490	s 12,800
July 7	4	3,100	33
July 8	413	5,520	s 7,570
July 9	43	5,000	580
July 20	194	--	c 7,000
July 21	20	--	b 250
July 24	101	--	c 500
July 25	2	--	b 10
July 26	7	--	b 70
July 27	321	7,860	s 13,400
July 28	41	4,550	504
July 29	23	--	b 250
July 30	212	8,920	s 8,150
July 31	31	2,000	a 170
July Total	1,664	--	53,287
Sept. 26	175	--	c 7,000
Sept. 27	62	--	c 1,000
Sept. 28	6	--	b 20
September Total	243	--	8,020
Total discharge for year (cfs-days)			a 9,549
Total load for year (tons)			675,007

e Estimated.
s Computed by subdividing day.
a Revised.
b Computed from estimated concentration graph.
c Computed from water-sediment discharge curve.

RIO GRANDE BASIN--Continued

RIO PENASCO AT DAYTON, N. MEX.--Continued

Particle-size analyses of suspended sediment, water year October 1954 to September 1955
(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)

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 6, 1955	5:00 p.m.	128	80	3,630	3,540		82		89	92	95	98	100				SPWCM
July 6	7:00 p.m.	76	80	3,210	3,640		84		96	--	99	100	--				SPWCM
July 6	9:00 p.m.	40	80	4,320	3,480		64		74	--	84	98	100				SPWCM
July 6	11:00 p.m.	23	75	3,880	3,630		74		83	--	90	98	100				SPWCM
July 8	5:00 a.m.	1,250	65	6,070	3,460		58		86	--	93	99	100				SPWCM
July 8	7:00 a.m.	667	65	5,000	4,880		55		91	--	96	99	100				SPWCM
July 8	9:00 a.m.	309	70	3,320	3,400		69		91	96	97	99	100				SPWCM
July 8	1:00 p.m.	516	70	2,880	3,470		71		90	--	94	97	100				SPWCM
July 8	3:00 p.m.	785	82	14,300	6,860		4		58	--	95	99	100				SPN
July 8	3:00 p.m.	785	82	14,300	7,500		50		86	--	95	99	100				SPWCM
July 8	7:00 p.m.	325	82	8,860	4,920		69		95	--	99	100	--				SPWCM
July 8	9:00 p.m.	285	81	6,690	3,760		75		97	--	100	--	--				PWCM
July 8	11:00 p m.	254	78	6,700	3,620		70		97	--	99	100	--				SPWCM
July 9	1:00 a.m.	202	78	6,750	3,690		74		93	--	99	99	100				SPWCM
July 9	3:00 a.m.	128	65	7,030	3,900		71		94	--	99	100	--				SPWCM
July 9	5:00 a.m.	76	65	6,940	4,050		70		91	--	98	100	--				SPWCM
July 27	10:00 a.m.	1,400	72	19,300	5,000		54		85	--	91	91	92		94	100	SPWCM
July 27	1:00 p.m.	915	72	12,700	3,860		6		84	--	96	99	100				SPN
July 27	1:00 p.m.	915	72	12,700	4,410		65		92	--	96	99	100				SPWCM
July 27	5:00 p.m.	360	72	6,100	3,600		74		92	95	98	100	--				SPWCM
July 27	7:00 p.m.	208	70	3,410	3,850		78		95	--	99	--	--				SPWCM
July 27	9:00 p.m.	137	68	3,250	4,120		78		98	--	99	100	--				SPWCM
July 27	11:00 p.m.	106	62	3,760	4,090		76		91	--	95	100	--				SPWCM
July 28	1:00 a.m.	97	60	3,640	4,190		79		96	--	99	100	--				SPWCM
July 30	11:00 a.m.	539	80	15,000	3,480		7		88	--	99	100	--				SPN
July 30	11:00 a.m.	539	80	15,000	3,420		66		75	--	99	100	--				SPWCM
July 30	1:00 p.m.	333	80	13,800	5,220		70		96	--	99	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 1955.
REMARKS.--Samples collected at approximately weekly intervals. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 1955

Date of collection	Mean discharge (cfs)	Bicarbonate (HCO_3)	Chloride (Cl)	Specific conductance (micromhos at 25°C)	pH
Oct. 10, 1954	10,300	131	63	939	--
Oct. 17	288	153	680	4,440	--
Oct. 24	244	161	780	5,020	--
Oct. 31	226	160	780	5,020	--
Nov. 14	204	128	760	4,990	7.9
Nov. 15	201	147	960	5,360	--
Nov. 21	125	154	760	4,990	7.8
Nov. 28	118	156	760	4,990	7.3
Dec. 6	110	156	760	4,980	7.8
Dec. 16	169	148	930	5,450	7.3
Dec. 26	101	130	730	4,900	8.1
Jan. 2, 1955	140	154	740	4,900	7.6
Jan. 10	140	153	850	5,190	7.9
Jan. 18	96	154	840	5,160	8.2
Jan. 23	113	154	840	5,170	7.7
Jan. 30	117	155	820	5,100	7.9
Feb. 13	111	154	810	5,090	7.7
Feb. 20	94	149	710	4,770	7.2
Feb. 27	87	150	720	4,760	7.9
Mar. 6	90	132	710	4,750	8.0
Mar. 8	90	140	720	4,780	7.9
Apr. 18	290	105	1,660	7,820	8.0
May 2	178	147	1,650	7,850	7.1
May 9	72	151	920	5,450	7.1
May 18	62	142	780	4,970	7.4
May 25	56	197	790	4,990	6.9
June 1	356	146	2,060	9,260	7.3
June 8	154	143	1,740	8,230	7.1
June 16	440	146	2,380	10,400	7.1
June 23	240	129	2,380	10,500	7.1
July 1	269	98	635	4,470	7.2
July 13	137	112	265	2,500	6.8
July 21	766	117	36	624	7.4
July 26	59	154	790	5,080	7.6
Aug. 1	67	158	840	5,140	7.6
Aug. 11	352	108	350	3,080	7.4
Aug. 18	368	110	430	3,430	7.3
Aug. 23	408	110	450	3,520	7.3
Sept. 1	286	121	515	3,890	8.2
Sept. 9	258	111	585	4,120	8.2
Sept. 11	255	122	585	4,180	7.2
Sept. 12	255	60	615	4,190	8.2
Sept. 16	258	122	795	4,890	7.9
Sept. 29	65	152	715	4,510	7.8

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 1939 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 7,430 ppm June 21-28; minimum, 701 ppm July 23.
Hardness: Maximum, 3,100 ppm June 11-20; minimum, 452 ppm July 23.
Specific conductance: Maximum daily, 11,100 micromhos June 24; minimum daily, 1,040 micromhos July 23.
EXTREMES, 1939-55.--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 micromhos June 24, 1955; minimum daily, 401 micromhos June 3, 1948.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge furnished by Surface Water Branch, Santa Fe District for water year October 1954 to September 1955. Monthly diversions to canal below Lake Avalon for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 5-6, 11-18 1954 a	112	13		324	44	109		117	849	172		5.1		1,570	2.14	475	990	894	19	1.5	2,060	7.8
Oct. 19-31	162	18		500	114	334		137	1,450	580		2.8		3,070	4.18	1,340	1,720	1,600	30	3.5	4,000	8.0
Nov. 1-10	110	19		546	131	329		132	1,610	590		.7		3,290	4.47	977	1,900	1,790	27	3.3	4,480	7.7
Nov. 11-20	137	20		544	156	456		147	1,700	780		1.4		3,730	5.07	1,380	2,000	1,880	33	4.4	4,890	7.7
Nov. 21-30	90.1	20		576	160	462		156	1,770	800		1.0		3,870	5.26	942	2,100	1,970	32	4.4	5,030	7.7
Dec. 1-10	90.0	22		566	178	451		154	1,810	790		1.1		3,890	5.29	945	2,140	2,020	31	4.2	5,060	7.7
Dec. 11-17 a	85.0	22		586	172	456		158	1,840	790		1.4		3,950	5.37	907	2,170	2,040	31	4.3	5,070	7.7
Jan. 5-10, 1955	67.3	17		576	172	461		155	1,830	790		1.0		3,920	5.33	712	2,140	2,020	32	4.3	5,140	7.7
Jan. 11-20	94.6	18		576	172	460		147	1,820	800		1.3		3,920	5.33	1,000	2,140	2,020	32	4.3	5,150	7.8
Jan. 21-31	101	17		596	160	467		153	1,830	800		1.1		3,950	5.37	1,080	2,140	2,020	32	4.4	5,150	7.7
Feb. 1-10	138	15		576	178	478		149	1,840	830		.9		3,990	5.43	1,490	2,170	2,050	32	4.5	5,210	7.7
Feb. 11-18 a	228	15		576	184	474		151	1,840	640		.9		4,000	5.44	2,460	2,190	2,070	32	4.4	5,230	7.7
Mar. 22-31	214	18		605	202	381		146	1,900	760		3.1		3,940	5.36	2,280	2,340	2,220	26	3.4	5,150	7.6
Apr. 1-10	319	14		615	214	813		151	2,040	1,370		4.2		5,140	6.99	4,430	2,410	2,290	42	7.2	6,960	7.4
Apr. 11-20	338	13		655	244	1,040		161	2,190	1,760		3.0		5,980	8.13	5,460	2,640	2,510	46	8.8	8,200	7.8
Apr. 21-30	182	14		655	250	1,060		144	2,250	1,770		2.8		6,070	8.26	2,980	2,660	2,540	46	8.9	8,310	7.8

a No flow Oct. 1-4, 7-10, Dec. 18 to Jan. 4, Feb. 19 to Mar. 21, May 11-24, Sept. 25-27.

May 1-10, 1955[a]	137	16		675	238	966	141	2,200	1,670		2.0		5,840	7.94	2,160	2,660	2,550	44	8.1	8,070	7.6
May 25-31	261	15		655	214	773	151	2,120	1,320		3.3		5,170	7.03	3,640	2,510	2,390	40	6.7	6,890	7.6
June 1-10	201	17		705	256	1,260	144	2,430	2,050		3.4		6,790	9.23	3,680	2,810	2,690	49	10	9,110	7.4
June 11-20	253	21		754	297	1,350	147	2,620	2,260		6.9		7,380	10.0	5,040	3,100	2,980	49	11	9,910	7.4
June 21-28	188	16		764	285	1,370	125	2,690	2,240		5.9		7,430	10.1	3,770	3,080	2,980	52	12	9,940	7.4
June 29-30	311	18		625	184	724	108	2,050	1,180		4.6		4,840	6.58	4,060	2,300	2,230	40	6.5	6,410	7.5
July 1-12	281	13		480	137	323	104	1,580	520		1.4		3,110	4.23	2,360	1,760	1,680	29	3.4	3,970	7.6
July 13-15	321	12		284	63	112	97	820	195		2.4		1,540	2.09	1,330	968	888	20	1.6	2,100	7.7
July 16-20	220	16		413	88	232	95	1,320	315		1.3		2,430	3.30	1,440	1,390	1,310	22	2.7	2,980	7.7
July 21-22, 30-31, Aug. 4-10	276	14		373	97	270	112	1,230	385		2.3		2,430	3.30	1,810	1,330	1,240	31	3.2	3,100	7.7
July 23	157	5.7		135	28	48	74	370	78		.5		701	.95	297	452	392	19	1.0	1,040	7.0
July 24-29, Aug. 1-3	222	9.5		204	51	114	95	616	175		1.5		1,220	1.66	731	718	640	26	1.9	1,670	7.8
Aug. 11-20	302	16		389	100	310	116	1,260	460		1.7		2,590	3.52	2,110	1,380	1,290	33	3.6	3,200	7.7
Aug. 21-31	300	22		445	62	333	115	1,360	410		1.6		2,690	3.66	2,180	1,370	1,270	35	3.9	3,630	7.6
Sept. 1-10	290	19		480	104	370	119	1,480	560		1.9		3,070	4.18	2,400	1,620	1,530	33	4.0	4,000	7.4
Sept. 11-20	236	20		504	119	457	114	1,600	695		1.7		3,450	4.69	2,200	1,750	1,650	36	4.8	4,490	7.6
Sept. 21-24, 28-30[a]	115	18		441	107	384	103	1,400	590		2.0		2,990	4.07	928	1,540	1,460	35	4.3	3,950	7.3
Weighted average	[b]196	16		535	160	571	131	1,730	941		2.5		4,020	5.47	2,130	1,990	1,890	38	5.6	5,330	--

a No flow Oct. 1-4, 7-10, Dec. 18 to Jan. 4, Feb. 19 to Mar. 21, May 11-24, Sept. 25-27.
b Average for 291 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 1946, July 1951 to September 1955.
Water temperatures: July 1951 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 3,430 ppm Jan. 1-10.
Hardness: Maximum, 1,880 ppm Jan. 1-10.
Specific conductance: Maximum daily, 4,680 micromhos Jan. 5;
Water temperatures: Maximum, 94°F July 1; minimum, 50°F Jan. 16.
EXTREMES, 1937-46, 51-55.--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, 640 micromhos May 22, 1941.
Water temperatures (1951-55): Maximum, 94°F July 1, 1955; minimum, 48°F Jan. 10, 1954.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-6, 1954 ...	43.7	22		369	126	277		182	1,150	490		3.6		2,530	3.44	299	1,440	1,290	29	3.2	3,450	7.5
Oct. 7 a	16,800	--		--	--	--		--	--	36		--		--	--	--	--	--	--	--	549	--
Oct. 8 a	4,370	--		--	--	--		--	--	--		--		--	--	--	--	--	--	--	478	--
Oct. 9 a	2,710	--		--	--	--		--	--	--		--		--	--	--	--	--	--	--	863	--
Oct. 10 a	7,220	--		--	--	--		--	--	73		--		--	--	--	--	--	--	--	790	--
Oct. 11 a	13,700	--		--	--	--		--	--	--		--		--	--	--	--	--	--	--	1,110	--
Oct. 12 a	11,400	--		--	--	--		--	--	--		--		--	--	--	--	--	--	--	1,490	--
Oct. 13 a	5,850	--		--	--	--		--	--	--		--		--	--	--	--	--	--	--	1,810	--
Oct. 14 a	3,320	--		--	--	--		--	--	--		--		--	--	--	--	--	--	--	1,980	--
Oct. 15-20	569	12		355	56	147		118	986	234		3.7		1,830	2.49	2,810	1,120	1,020	22	1.9	2,400	7.5
Oct. 21-31.....	381	16		445	95	307		128	1,290	510		3.3		2,730	3.71	2,810	1,500	1,400	31	3.4	3,600	8.1
Nov. 1-10	91.3	15		405	128	342		149	1,300	570		3.2		2,840	3.86	698	1,540	1,420	33	3.8	3,820	7.9
Nov. 11-20	88.0	20		464	140	377		168	1,450	640		3.5		3,180	4.32	756	1,730	1,600	32	3.9	4,180	8.0
Nov. 21-30	55.2	20		397	143	327		208	1,260	570		3.4		2,820	3.84	420	1,580	1,410	31	3.6	3,820	8.0
Dec. 1-10	47.2	21		377	143	311		164	1,220	565		3.9		2,720	3.70	347	1,530	1,390	31	3.5	3,690	8.0
Dec. 11-20.....	53.8	20		377	140	314		195	1,210	550		4.5		2,710	3.69	394	1,520	1,360	31	3.5	3,690	8.0
Dec. 21-31	103	19		461	159	376		179	1,480	660		3.8		3,250	4.42	904	1,800	1,660	31	3.8	4,330	7.7
Jan. 1-10, 1955 ..	92.9	19		488	162	407		171	1,560	710		3.9		3,430	4.66	860	1,880	1,740	32	4.1	4,540	7.7
Jan. 11-20.....	87.8	21		417	162	339		205	1,370	600		5.2		3,020	4.11	716	1,710	1,540	30	3.6	4,070	7.7
Jan. 21-31.....	68.1	23		397	202	276		195	1,350	605		3.4		2,950	4.01	542	1,820	1,660	25	2.8	4,050	7.8

a Samples collected at Avalon Dam, 5 miles upstream from station.

Feb. 1-10, 1955..	65.5	20		389	133	401	169	1,340	605		3.9		2,970	4.04	525	1,520	1,380	36	4.7	3,970	8.0
Feb. 11-20.....	46.6	17		377	121	414	135	1,330	595		3.6		2,920	3.97	367	1,440	1,330	38	5.1	3,920	7.7
Feb. 21-28	19.9	16		393	131	387	176	1,320	595		3.3		2,930	3.98	157	1,520	1,380	36	4.3	3,940	7.4
Mar. 1-10	33.3	17		377	112	345	161	1,200	545		2.4		2,680	3.64	241	1,400	1,270	35	4.0	3,640	7.6
Mar. 11-20	35.2	17		365	109	346	175	1,170	530		1.4		2,620	3.56	249	1,360	1,220	36	4.1	3,590	7.9
Mar. 21-31	38.5	17		369	114	342	171	1,190	535		1,7		2,650	3.60	275	1,390	1,250	35	4.0	3,610	7.6
Apr. 1-10.....	35.2	17		363	122	338	176	1,180	545		1.5		2,650	3.60	252	1,410	1,260	34	3.9	3,620	7.7
Apr. 11-20	37.5	13		363	118	324	160	1,210	498		1.5		2,610	3.55	264	1,390	1,260	34	3.8	3,670	7.8
Apr. 21-30.....	34.8	19		385	131	397	171	1,270	638		2.0		2,930	3.98	275	1,500	1,360	37	4.5	4,020	7.5
May 1-10	37.6	22		377	145	352	181	1,240	610		4.0		2,840	3.86	288	1,540	1,390	33	3.9	3,880	7.8
May 11-20	34.1	21		381	135	352	186	1,260	620		3.9		2,880	3.92	265	1,580	1,420	33	3.9	3,930	7.9
May 21-31	29.5	21		373	138	330	171	1,220	570		1.1		2,740	3.73	218	1,500	1,360	32	3.7	3,790	7.7
June 1-10	34.1	31		369	138	325	181	1,220	550		1.5		2,720	3.70	250	1,490	1,340	32	3.7	3,740	7.5
June 11-20.....	33.6	28		377	139	393	183	1,270	630		1.8		2,930	3.98	266	1,510	1,360	36	4.4	3,950	7.4
June 21-30.....	32.6	23		385	140	370	170	1,260	630		1.2		2,890	3.93	254	1,540	1,400	32	3.7	3,970	7.5
July 1-10	29.0	22		373	136	315	190	1,300	470		2.4		2,710	3.69	212	1,490	1,330	31	3.5	3,770	7.6
July 11-20	39.0	21		365	131	329	176	1,220	530		2.8		2,690	3.66	283	1,450	1,300	33	3.8	3,590	7.7
July 21-31	59.8	17		318	100	242	151	1,020	385		2.5		2,160	2.94	349	1,200	1,080	30	3.0	2,920	7.7
Aug. 1-10	33.1	21		357	116	342	300	1,120	495		2.5		2,600	3.54	232	1,370	1,120	35	4.0	3,390	7.9
Aug. 11-20	33.8	21		365	133	367	202	1,280	535		2.8		2,800	3.81	256	1,460	1,290	35	4.2	3,600	7.8
Aug. 21-31.....	37.1	22		371	130	334	172	1,210	555		2.4		2,710	3.69	271	1,460	1,320	33	3.8	3,700	7.7
Sept. 1-10	35.4	25		381	131	355	188	1,250	570		2.7		2,810	3.82	269	1,490	1,340	34	4.0	3,800	7.7
Sept. 11-20	34.1	24		381	128	353	190	1,240	565		2.7		2,790	3.79	257	1,480	1,320	34	4.0	3,770	7.7
Sept. 21-30	34.3	22		363	122	353	188	1,200	545		2.7		2,700	3.67	250	1,410	1,250	35	4.1	3,670	7.8
Weighted average	244	--		--	--	--	--	--	--		--		--	--	--	--	--	--	--	1,730	--

RIO GRANDE BASIN--Continued

PECOS RIVER AT CARLSBAD, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually between 3 p. m. and 7 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	83	65	62	55	61	71	74	80	78	94	88	86
2	83	62	67	56	58	70	73	78	85	93	85	86
3	80	62	67	56	62	72	68	81	88	90	90	85
4	84	70	69	66	59	74	73	82	84	88	90	80
5	83	70	64	60	60	65	72	80	83	90	90	82
6	76	68	65	58	58	65	70	85	87	92	90	85
7	--	70	67	58	59	70	70	85	88	88	87	85
8	--	66	66	58	53	73	70	78	87	90	88	85
9	--	70	64	55	62	70	70	a78	78	86	90	85
10	--	68	63	55	59	72	73	80	85	82	85	85
11	--	66	65	55	55	70	73	76	83	83	85	85
12	--	67	60	58	58	72	74	83	85	90	83	85
13	--	69	63	57	62	75	75	85	87	90	85	84
14	--	69	65	60	63	73	75	76	88	92	87	90
15	70	65	65	55	63	72	77	82	89	90	83	88
16	70	64	a56	50	65	65	78	82	88	80	88	88
17	--	65	57	54	60	70	80	82	85	90	85	90
18	--	67	60	55	67	a68	75	75	89	85	83	85
19	75	70	65	54	54	73	78	78	82	82	80	87
20	65	69	66	54	66	65	78	77	88	80	88	88
21	73	68	62	55	55	63	76	80	86	80	85	87
22	70	69	65	56	55	63	76	80	87	83	88	88
23	70	71	65	54	57	63	80	85	90	85	90	85
24	71	70	65	58	60	71	76	85	88	88	88	84
25	80	65	58	60	60	62	80	83	85	83	--	85
26	73	68	64	59	63	60	80	78	85	80	88	78
27	70	65	60	60	63	60	80	82	80	83	86	82
28	70	67	55	58	70	65	76	82	88	85	88	83
29	65	63	53	58	--	70	75	83	90	85	90	87
30	66	65	55	61	--	70	82	83	90	88	85	86
31	66	--	55	61	--	65	--	82	--	83	87	--
Average	--	67	62	57	60	68	75	81	86	86	87	85

a Temperature measurement between 1 p. m. and 3 p. m.

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 in dam in sec. 11, T. 23 S., R. 28 E.)

Date of collection	Bicarbonate (HCO_3)	Carbonate (CO_3)	Chloride (Cl)	Specific conductance (micromhos at 25°C)	pH
Oct. 7, 1954	--	--	570	3,790	--
Oct. 14	--	--	125	1,790	--
Oct. 23	--	--	400	3,060	--
Oct. 28	--	--	580	3,990	--
Nov. 4	--	--	685	4,320	--
Nov. 11	--	--	685	4,290	--
Nov. 18	158	0	725	4,590	7.9
Nov. 25	--	--	780	4,810	--
Dec. 2	--	--	750	4,800	--
Dec. 9	--	--	750	4,580	--
Dec. 16	--	--	725	4,470	--
Dec. 23	--	--	715	4,440	--
Dec. 30	--	--	695	4,420	--
Jan. 6, 1955	175	0	750	4,740	7.8
Jan. 13	172	0	805	4,990	8.0
Jan. 20	208	0	685	4,350	7.9
Jan. 27	215	0	725	4,590	7.6
Feb. 3	209	0	720	4,500	7.9
Feb. 10	212	0	715	4,500	7.3
Feb. 17	206	0	715	4,490	7.7
Feb. 28	30	0	755	4,460	7.1
Mar. 3	146	0	850	4,950	7.0
Mar. 10	130	0	795	4,700	7.4
Mar. 17	123	0	770	4,600	7.2
Mar. 24	118	0	755	4,540	7.4
Mar. 31	124	0	775	4,640	7.1
Apr. 7	116	0	815	4,820	7.0
Apr. 14	144	0	730	4,420	7.0
Apr. 21	125	0	755	4,530	7.4
Apr. 28	143	0	785	4,700	7.8
May 5	156	0	725	4,350	7.6
May 12	159	0	820	4,780	7.8
May 19	143	0	860	4,750	7.2
May 26	127	0	805	4,750	7.5
June 2	--	--	790	4,690	--
June 9	--	--	810	4,760	--
June 16	--	--	830	4,850	--
July 7	--	--	810	4,790	--
July 14	--	--	810	4,740	--
July 21	--	--	730	4,500	--
Aug. 4	--	--	580	3,690	--
Aug. 11	--	--	570	3,580	--
Aug. 18	--	--	415	2,710	--
Sept. 1	--	--	700	4,290	--
Sept. 8	--	--	790	4,700	--
Sept. 15	--	--	800	4,710	--

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.
DRAINAGE AREA.--19,190 square miles, approximately, above gaging station (contributing area).
RECORDS AVAILABLE.--Chemical analyses: July 1937 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 7,580 ppm July 1-7; minimum, 407 ppm Oct. 8, 11.
Hardness: Maximum, 2,750 ppm June 1-10; minimum, 262 ppm Oct. 8, 11.
Specific conductance: Maximum daily, 11,400 micromhos May 30, Sept. 20; minimum daily, 530 micromhos Oct. 8.
EXTREMES, 1937-55.--Dissolved solids: Maximum, 7,710 ppm Aug. 11-22, 1954; 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, 11,400 micromhos May 30, Sept. 20, 1955; minimum daily, 450 micromhos Sept. 21, 1941.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 1955 given in WSP 1392. No appreciable inflow between sampling point and gaging station.

Chemical analyses, in parts per million, water year October 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 1954	62.0	28		500	183	915		177	1,670	1,490		6.3		4,880	6.64	817	2,000	1,860	50	8.9	6,810	7.9
Oct. 6	806	19		284	87	350		177	854	560		3.8		2,240	3.05	4,870	1,070	921	42	4.7	3,250	7.7
Oct. 8, 11	11,650	12		85	12	32		140	154	36		6.7		407	.55	12,800	262	147	21	.9	634	7.9
Oct. 9-10, 12	6,940	11		121	21	92		117	285	137		4.8		730	.99	13,680	388	292	34	2.0	1,140	8.0
Oct. 13-16	3,988	13		298	37	133		119	809	170		6.8		1,530	2.08	16,470	896	798	24	1.9	2,000	7.7
Oct. 17-20	284	16		401	75	391		140	1,160	590		6.9		2,710	3.69	1,930	1,310	1,190	39	4.7	3,690	7.7
Oct. 21-31	431	18		433	114	463		151	1,350	725		5.7		3,180	4.32	3,700	1,550	1,430	39	5.1	4,300	7.8
Nov. 1-10	139	19		504	128	614		151	1,560	970		5.1		3,870	5.26	1,450	1,780	1,660	43	6.3	5,220	7.9
Nov. 11-20	146	16		496	150	596		164	1,600	955		5.0		3,900	5.30	1,540	1,850	1,720	41	6.0	5,240	7.6
Nov. 21-30	89.0	18		516	188	640		155	1,700	1,100		5.8		4,240	5.77	1,020	2,080	1,930	40	6.1	5,810	7.4
Dec. 1-10	71.6	19		516	195	638		170	1,710	1,100		5.9		4,270	5.81	825	2,090	1,950	40	6.1	5,830	7.7
Dec. 11-20	50.4	20		548	195	712		174	1,790	1,210		6.3		4,570	6.22	622	2,170	2,030	42	6.6	6,240	7.7
Dec. 21-31	79.1	19		496	204	686		194	1,670	1,180		8.4		4,360	5.93	931	2,080	1,920	42	6.5	5,980	7.8
Jan. 1-10, 1955	94.4	18		508	190	588		198	1,640	1,030		7.2		4,080	5.55	1,040	2,050	1,890	38	5.7	5,570	7.7
Jan. 11-20	89.3	18		528	192	611		181	1,730	1,050		6.2		4,220	5.74	1,020	2,110	1,960	39	5.8	5,690	7.8
Jan. 21-31	75.8	19		496	188	616		164	1,630	1,060		8.3		4,110	5.59	841	2,010	1,860	40	6.0	5,600	7.8
Feb. 1-9	51.8	19		512	200	612		187	1,680	1,080		7.5		4,200	5.71	587	2,100	1,950	39	5.8	5,700	7.8
Feb. 10-20	32.6	19		544	212	833		184	1,820	1,410		6.7		4,930	6.70	434	2,230	2,080	45	7.7	6,810	7.7
Feb. 21-28	21.1	19		556	228	1,080		179	1,920	1,790		6.6		5,690	7.74	324	2,320	2,180	50	9.7	7,960	7.6
Mar. 1-10	24.4	21		548	231	1,150		175	1,960	1,860		5.4		5,860	7.97	386	2,320	2,170	52	10	8,340	7.7
Mar. 11-20	29.0	16		528	226	1,140		160	1,930	1,830		5.0		5,750	7.82	450	2,250	2,120	52	10	8,200	7.4
Mar. 21-31	30.5	15		540	219	1,160		155	1,940	1,850		4.6		5,800	7.89	478	2,250	2,120	53	11	8,220	7.4

Apr. 1-10, 1955..	43.9	12		520	221	1,020	143	1,900	1,650		3.1		5,400	7.34	640	2,210	2,090	50	9.5	7,590	7.5
Apr. 11-20.....	21.5	19		580	223	1,460	174	2,020	2,340		--		6,730	9.15	391	2,360	2,220	57	13	9,690	7.6
Apr. 21-30	20.2	21		582	249	1,580	183	2,100	2,540		--		7,160	9.74	391	2,480	2,330	58	14	10,400	7.5
May 1-10	29.2	28		540	233	1,350	188	1,890	2,210		--		6,340	8.62	500	2,310	2,150	56	12	9,080	7.7
May 11-20	24.9	25		590	280	1,620	185	2,150	2,660		--		7,420	10.1	499	2,620	2,470	57	14	10,600	7.7
May 21-31.....	20.5	29		609	279	1,610	201	2,100	2,710		--		7,440	10.1	412	2,670	2,500	57	14	10,800	7.7
June 1-10.....	29.5	30		633	284	1,430	192	2,000	2,570		--		7,040	9.57	561	2,750	2,590	53	12	10,400	7.3
June 11-20.....	53.2	21		556	252	1,010	149	1,950	1,750		11		5,620	7.64	807	2,420	2,300	48	9.0	7,820	7.2
June 21-30.....	22.6	27		572	262	1,240	169	1,950	2,150		--		6,280	8.54	383	2,500	2,370	52	11	9,100	7.2
July 1-7	18.7	32		601	277	1,750	127	2,140	2,740		--		7,580	10.3	383	2,430	2,280	61	15	10,700	7.7
July 8-10	48.3	26		548	162	1,000	170	1,750	1,590		8.6		5,170	7.03	674	2,030	1,890	52	9.7	7,170	7.6
July 11-20	23.3	36		580	223	1,460	162	1,960	2,390		--		6,730	9.15	423	2,360	2,230	57	13	9,520	8.0
July 21-31	94.7	18		453	190	773	144	1,600	1,280		3.8		4,390	5.97	1,120	1,910	1,790	47	7.7	6,100	7.8
Aug. 1-11.....	25.7	26		524	294	1,240	173	1,780	2,020		--		5,880	8.00	408	2,150	2,000	56	12	8,360	7.6
Aug. 12-19.....	91.4	22		437	176	759	156	1,510	1,250		2.5		4,230	5.75	1,040	1,810	1,690	48	7.8	5,940	7.6
Aug. 20-31.....	24.2	30		532	228	1,430	178	1,870	2,330		--		6,510	8.85	425	2,260	2,120	58	13	9,250	7.5
Sept. 1-10	23.7	31		577	256	1,600	185	2,010	2,640		--		7,200	9.79	461	2,490	2,340	58	14	10,300	7.6
Sept. 11-22	28.9	31		594	251	1,650	195	2,060	2,690		--		7,370	10.0	575	2,510	2,350	59	14	10,500	7.6
Sept. 27-30.....	201	16		230	81	362	142	686	610		4.5		2,060	2.80	1,120	907	790	46	5.2	3,120	7.5
Weighted average[a]	296	14		236	58	246	138	667	392		5.6		1,680	2.28	1,340	828	714	39	3.7	2,390	--

a No samples for Oct. 7, Sept. 23-26; computation for these periods in weighted average made from analyses at downstream station at Pierce Canyon Crossing.

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 1955.
Water temperatures: October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 12,700 ppm May 21-31, Sept. 11-23; minimum, 332 ppm Oct. 8.
Hardness: Maximum, 2,880 ppm May 21-31; minimum, 232 ppm Oct. 8.
Specific conductance: Maximum daily, 20,700 micromhos Sept. 21; minimum daily, 514 micromhos Oct. 8.
Water temperatures: Maximum, 88°F July 14; minimum, 42°F Dec. 29-30.
EXTREMES, 1938-41, 1951-55.--Dissolved solids: Maximum, 23,700 ppm Aug. 11-21, 1954; minimum, 280 ppm Sept. 21, 1941.
Hardness: Maximum, 3,420 ppm Aug. 11-21, 1954; minimum, 202 ppm Sept. 21, 1941.
Specific conductance: Maximum daily, 34,400 micromhos Aug. 2, 1954; minimum daily, 433 micromhos Sept. 21, 1941.
Water temperatures (1952-55): Maximum, 90°F Aug. 3, 1953, July 24, 1954; minimum, 37°F Dec. 24, 1953.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. Records of specific conductance of daily samples available in district office at Albuquerque, N. Mex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392. 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 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-3, 1954 ...	41.7	28		552	288	3,100		190	2,070	4,950		18		11,100	15.1	1,250	2,560	2,410	72	27	16,300	7.9
Oct. 4-5.....	102	28		530	220	1,630		a170	1,810	2,650		18		6,970	9.48	1,920	2,230	2,090	61	15	10,100	--
Oct. 6-7, 10	7,346	13		183	27	116		142	410	194		4.4		1,020	20.24	20,240	568	451	31	2.1	1,540	8.0
Oct. 8	12,000	15		75	11	16		114	126	25		8.3		332	.45	10,760	232	138	13	.5	514	8.1
Oct. 9, 11-12	9,167	13		97	18	64		84	233	92		4.2		568	.77	14,060	316	238	30	1.6	885	8.4
Oct. 13-16.....	4,050	14		296	43	119		92	801	185		5.1		1,510	2.05	16,510	916	840	22	1.7	2,000	7.9
Oct. 17-18, 20-21	293	15		389	107	713		117	1,190	1,150		6.9		3,630	4.94	2,870	1,410	1,310	52	8.3	5,280	7.6
Oct. 19, 22-23, 26-27	250	19		445	147	1,320		156	1,410	2,110		11		5,540	7.53	3,740	1,720	1,590	63	14	8,220	7.7
Oct. 24-25, 28-31	626	16		451	134	640		135	1,400	2,060		6.5		3,770	5.13	6,370	1,680	1,570	45	6.8	5,330	8.0
Nov. 1-10	144	19		508	174	1,310		140	1,690	2,090		--		5,860	7.97	2,280	1,980	1,870	59	13	8,890	7.8
Nov. 11-20	159	18		500	183	1,090		146	1,700	1,750		--		5,320	7.24	2,280	2,000	1,880	54	11	7,660	7.8
Nov. 21-30.....	92.9	18		516	212	1,420		170	1,820	2,280		--		6,350	8.64	1,590	2,160	2,020	59	13	9,200	7.7
Dec. 1-10	80.7	16		516	216	1,450		204	1,820	2,320		--		6,440	8.76	1,400	2,180	2,010	59	14	9,350	7.7
Dec. 11-20	61.3	17		520	221	1,600		178	1,850	2,560		--		6,860	9.33	1,140	2,210	2,060	61	15	9,970	7.8
Dec. 21-31	96.3	16		500	224	1,320		182	1,760	2,160		9.6		6,060	8.27	1,580	2,170	2,020	57	12	8,950	7.6
Jan. 1-10, 1955 ..	115	16		500	195	1,090		185	1,690	1,770		8.8		5,360	7.29	1,660	2,050	1,900	54	10	7,760	7.9
Jan. 11-20.....	111	15		524	209	1,190		179	1,810	1,920		8.0		5,780	7.55	1,730	2,170	2,020	54	11	8,260	7.8
Jan. 21-31.....	87.9	17		500	209	1,140		187	1,740	1,850		5.6		5,550	7.55	1,320	2,110	1,950	54	11	8,120	7.7

a Includes equivalent of 8 parts per million of carbonate (CO_3)

Feb. 1-10, 1955..	54.1	15		496	226	1,390	183	1,780	2,260		--		6,260	8.51	914	2,170	2,020	58	13	9,230	7.5
Feb. 11-20.....	31.0	17		554	243	2,150	175	1,980	3,340		--		8,370	11.4	701	2,380	2,240	66	19	12,200	7.4
Feb. 21-28.....	20.4	16		583	260	2,420	173	2,130	3,900		--		9,390	12.8	517	2,520	2,380	68	21	13,900	7.2
Mar. 1-10	26.4	19		560	260	2,890	155	2,230	4,470		--		10,500	14.3	748	2,470	2,380	72	25	15,400	7.7
Mar. 11-20	31.6	11		552	272	2,830	139	2,200	4,420		--		10,400	14.1	887	2,500	2,380	71	25	15,200	7.7
Mar. 21-31	33.6	11		521	279	2,660	138	2,200	4,130		--		9,870	13.4	895	2,450	2,330	70	23	14,300	7.5
Apr. 1-10.....	45.0	9.6		541	265	2,140	140	2,130	3,380		--		8,530	11.6	1,040	2,440	2,320	66	19	12,700	7.4
Apr. 11-20.....	22.5	9.9		541	274	2,970	144	2,200	4,620		--		10,700	14.6	650	2,480	2,360	72	26	15,700	7.8
Apr. 21-30	24.6	20		580	305	3,410	176	2,380	5,310		--		12,100	16.5	804	2,700	2,560	73	29	18,000	7.7
May 1-10	34.9	24		622	230	3,000	184	2,230	4,650		--		10,800	14.7	1,020	2,500	2,350	72	26	15,800	7.4
May 11-20	28.2	27		690	236	3,230	194	2,190	5,160		--		11,600	15.8	883	2,690	2,530	72	27	17,900	7.6
May 21-31	23.1	23		650	307	3,580	191	2,420	5,660		--		12,700	17.3	792	2,880	2,730	73	29	18,800	7.5
June 1-10.....	29.1	25		611	319	3,140	171	2,330	5,040		--		11,500	15.6	904	2,840	2,700	71	26	17,000	7.6
June 20.....	50.4	24		602	302	2,370	159	2,270	3,840		--		9,480	12.9	1,290	2,740	2,610	65	20	13,900	7.5
June 21-30.....	29.2	20		592	266	2,670	140	2,180	4,250		--		10,000	13.6	788	2,570	2,460	69	23	14,700	7.2
July 1-10	31.8	29		603	292	3,470	170	2,380	5,410		--		12,300	16.7	1,060	2,700	2,570	74	29	17,600	7.5
July 11-20	27.7	28		552	258	3,140	151	2,190	4,870		--		11,100	15.1	830	2,440	2,310	74	28	16,800	7.9
July 21-25.....	163	12		461	204	1,060	106	1,780	1,660		4.3		5,230	7.11	2,300	1,990	1,900	54	10	7,420	7.9
July 26-31.....	51.3	19		467	216	2,070	145	1,800	3,230		--		7,870	10.7	1,090	2,050	1,930	69	20	11,700	7.7
Aug. 1-11.....	28.3	20		501	253	2,860	155	1,990	4,470		--		10,200	13.9	779	2,290	2,160	73	26	15,300	7.9
Aug. 12-15.....	151	19		373	171	1,040	144	1,370	1,660		4.3		4,710	6.41	1,920	1,630	1,520	58	11	7,040	7.9
Aug. 16-20	40.8	22		456	197	2,010	149	1,700	3,130		--		7,590	10.3	836	1,940	1,820	69	20	11,300	7.9
Aug. 21-31	26.0	31		529	217	3,270	169	2,020	5,020		--		11,200	15.2	786	2,210	2,070	76	30	16,600	7.6
Sept. 1-10	27.9	30		572	274	3,600	180	2,240	5,610		--		12,400	16.9	934	2,550	2,410	75	31	18,200	7.9
Sept. 11-23.....	31.8	28		559	264	3,740	183	2,200	5,800		--		12,700	17.3	1,090	2,480	2,330	77	33	18,800	7.4
Sept. 24-25, 28...	1,263	12		238	81	411	123	761	655		4.4		2,220	3.02	7,570	927	826	49	5.9	3,410	7.2
Sept. 26-27, 29-30	219	16		298	119	949	144	1,030	1,490		5.1		3,980	5.41	2,350	1,230	1,120	63	12	6,170	7.5
Weighted average	294	15		243	68	449	122	723	713		5.4		2,280	3.10	1,810	886	786	52	6.6	3,330	--

RIO GRANDE BASIN--Continued

PECOS RIVER AT PIERCE CANYON CROSSING, NEAR MALAGA, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
(Once-daily measurement during daylight hours)

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

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.--19,540 square miles approximately, above gaging station, (contributing area).
RECORDS AVAILABLE.--Chemical analyses: July 1937 to September 1955.
Water temperatures: October 1952 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 15,500 ppm Oct. 1-5; minimum, 487 ppm Oct. 8, 11.
Hardness: Maximum, 3,000 ppm May 1-10, June 1-10; minimum, 288 ppm Oct. 8, 11.
Specific conductance: Maximum daily, 26,000 micromhos Oct. 1; minimum daily, 653 micromhos Oct. 8.
Water temperatures: Maximum, 91°F Aug. 7; minimum, 35°F Dec. 28.
EXTREMES, 1937-55.--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, 33,200 micromhos Sept. 18, 1953; minimum daily, 268 micromhos Sept. 19, 1946.
Water temperatures(1952-55):Maximum daily, 91°F Aug. 7, 1955; minimum, 35°F Dec. 28, 1954.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 1955 given in WSP 1392.
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 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 1954	61.6	15		600	289	4,770		98	2,350	7,460		--		15,500	21.1	2,580	2,690	2,600	79	40	22,400	7.7
Oct. 6	518	19		399	151	1,300		a152	1,370	2,050		--		5,380	7.32	7,520	1,620	1,490	64	14	8,000	--
Oct. 7, 13-16	5,264	13		280	36	161		131	746	218		5.6		1,520	2.07	5,260	846	739	29	2.4	2,060	7.6
Oct. 8, 11	13,810	13		94	13	52		159	169	65		2.6		487	.66	18,160	288	158	28	1.3	767	7.9
Oct. 9-10, 12	7,000	12		118	22	108		139	262	160		9.7		760	1.03	14,360	385	271	38	2.4	1,230	7.8
Oct. 17-18	408	16		397	90	961		159	1,190	1,470		9.8		4,210	5.73	4,640	1,360	1,230	61	11	6,230	7.7
Oct. 19-28	250	17		451	148	1,630		168	1,480	2,540		--		6,360	8.65	4,290	1,730	1,600	67	17	9,390	7.8
Oct. 29-31	1,081	16		470	120	626		155	1,460	975		5.6		3,750	5.10	10,950	1,670	1,540	45	6.7	5,150	7.5
Nov. 1	161	14		522	148	1,110		167	1,660	1,740		11		5,290	7.19	2,300	1,910	1,770	56	11	7,450	8.1
Nov. 2-10	147	17		546	187	2,120		166	1,850	3,310		--		8,120	11.0	3,220	2,130	2,000	68	20	11,700	7.7
Nov. 11-19	172	15		526	189	1,240		149	1,750	2,020		--		5,810	7.90	2,700	2,090	1,970	56	12	8,660	7.4
Nov. 20-27	104	14		563	237	1,800		175	1,890	2,960		--		7,550	10.3	2,120	2,380	2,240	62	16	11,100	7.6
Nov. 28-Dec. 10	83.7	13		563	249	1,890		169	1,960	3,090		--		7,850	10.7	1,770	2,430	2,290	63	17	11,800	7.7
Dec. 11-20	67.9	13		554	260	1,950		172	1,960	3,190		--		8,010	10.9	1,470	2,450	2,310	63	17	12,200	7.7
Dec. 21-31	98.0	15		544	255	1,910		187	1,970	3,090		--		7,880	10.7	2,090	2,410	2,250	63	17	11,700	7.7
Jan. 1-10, 1955	117	14		476	219	1,300		178	1,700	2,130		--		5,930	8.06	1,870	2,090	1,940	58	12	8,750	7.6
Jan. 11-18	114	12		546	232	1,530		173	1,850	2,530		--		6,780	9.22	2,090	2,320	2,170	59	14	9,970	7.7
Jan. 19-31	93.7	11		536	226	1,300		164	1,820	2,180		--		6,150	8.36	1,560	2,270	2,130	56	12	9,000	7.8

a Includes equivalent of 7 parts per million of carbonate (CO_3).

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR RED BLUFF, N. MEX.--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--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)	Chlorids (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Feb. 1-10, 1955	63.8	12		534	213	1,570		158	1,840	2,540		--		6,790	9.23	1,170	2,210	2,080	61	15	10,100	7.2
Feb. 11-20	35.7	10		573	254	2,350		160	2,070	3,760		--		9,100	12.4	877	2,470	2,340	67	21	13,500	7.2
Feb. 21-28	26.4	12		582	301	2,860		162	2,190	4,600		--		10,600	14.4	756	2,690	2,560	70	24	15,700	7.4
Mar. 1-10	28.3	13		583	290	3,550		148	2,380	5,510		--		12,400	16.9	947	2,650	2,530	74	30	18,400	7.3
Mar. 11-20	33.0	8.2		579	314	3,690		128	2,450	5,750		--		12,900	17.5	1,150	2,740	2,630	75	31	18,800	7.3
Mar. 21-31	34.4	8.8		572	295	3,310		125	2,350	5,180		--		11,800	16.0	1,100	2,640	2,540	73	28	17,300	7.4
Apr. 1-10	43.4	9.9		593	290	2,750		132	2,280	4,380		--		10,400	14.1	1,220	2,670	2,560	69	23	15,300	7.3
Apr. 11-20	24.0	9.4		582	301	2,650		133	2,300	4,220		--		10,100	13.7	654	2,690	2,580	68	22	14,700	7.3
Apr. 21-30	22.7	13		620	336	3,840		155	2,520	6,050		--		13,500	18.4	827	2,930	2,800	74	31	19,700	7.0
May 1-10	33.8	22		630	348	3,730		182	2,540	5,900		--		13,300	18.1	1,210	3,000	2,850	73	30	19,500	7.1
May 11-20	27.8	18		611	289	3,530		173	2,330	5,540		--		12,400	16.9	931	2,710	2,570	74	29	18,100	7.2
May 21-31	21.7	11		601	342	4,040		125	2,500	6,370		--		13,900	18.9	814	2,910	2,800	75	33	20,300	7.1
June 1-10	29.3	13		630	348	4,070		114	2,590	6,420		--		14,100	19.2	1,120	3,000	2,910	75	32	20,600	7.0
June 11-20	50.4	18		631	325	3,300		102	2,520	5,240		--		12,100	16.5	1,650	2,910	2,830	71	27	17,600	7.1
June 21-30	28.5	13		562	290	2,450		69	2,290	3,880		--		9,520	12.9	733	2,590	2,540	67	21	13,700	7.1
July 1-11, 22, 30-31	56.6	16		585	279	3,010		68	2,320	4,730		15		11,000	15.0	1,680	2,610	2,550	72	26	15,700	7.3
July 12-17	23.3	19		630	321	4,280		65	2,570	6,700		15		14,600	19.9	918	2,890	2,840	76	35	20,800	7.5
July 18-21, 23-29	76.2	12		433	171	1,170		93	1,550	1,870		11		5,260	7.15	1,080	1,780	1,710	59	12	7,680	7.5
Aug. 1-10	35.4	5.9		451	209	2,080		71	1,750	3,270		16		7,820	10.6	747	1,980	1,930	69	20	11,600	7.3
Aug. 11, 14, 25-31	44.4	11		482	232	2,310		73	1,860	3,670		13		8,610	11.7	1,030	2,160	2,100	70	22	12,700	7.2
Aug. 12, 15-24	47.2	11		393	176	1,310		72	1,480	2,090		14		5,510	7.49	702	1,700	1,640	63	14	8,210	7.4
Aug. 13	271	21		560	265	3,450		175	2,110	5,420		16		11,900	16.2	8,710	2,490	2,340	75	30	17,500	7.3
Sept. 1-10	29.2	11		505	269	3,480		56	2,070	5,470		12		11,800	16.0	930	2,370	2,320	76	31	17,300	7.4
Sept. 11-23	32.2	9.9		537	284	3,610		57	2,150	5,720		12		12,400	16.9	1,080	2,510	2,460	76	31	18,000	7.2
Sept. 24	3,080	13		181	22	122		133	418	186		1.7		1,010	1.37	8,400	542	433	33	2.3	1,560	7.5
Sept. 25-30	356	12		326	126	675		121	1,100	1,100		5.0		3,400	4.62	3,270	1,330	1,230	52	8.0	5,090	7.7
Weighted average	292	13		255	73	566		143	770	884		--		2,630	3.58	2,070	936	819	57	14	3,860	--

RIO GRANDE BASIN--Continued

PECOS RIVER NEAR RED BLUFF, N. MEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurements between 2:30 p. m. and 6 p. m./

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	80	60	60	50	53	58	66	77	--	81	83	79
2	82	55	55	47	--	59	65	75	77	83	82	79
3	82	59	59	50	67	61	65	78	80	85	85	81
4	82	59	56	52	54	60	67	78	78	85	87	80
5	72	60	50	53	45	64	67	77	80	85	85	79
8	73	60	55	56	40	58	67	79	80	85	84	78
7	72	60	56	50	53	58	65	87	82	86	91	80
8	68	60	50	46	53	60	67	76	84	88	88	78
9	72	--	55	50	55	a62	74	75	71	84	89	80
10	75	60	56	47	45	68	70	75	75	81	83	82
11	71	62	50	49	45	--	69	74	76	--	82	--
12	74	60	50	47	50	58	65	78	80	85	83	78
13	72	60	51	47	54	67	b68	75	80	85	79	77
14	68	56	49	48	54	67	69	72	81	86	89	80
15	68	63	--	49	55	65	70	70	84	84	89	80
16	66	59	52	55	53	64	73	74	85	85	88	80
17	68	61	49	44	52	64	72	80	85	84	86	81
18	69	58	58	47	55	62	75	71	83	74	82	81
19	68	58	49	48	53	66	--	65	--	74	85	78
20	69	59	49	47	46	65	73	70	84	77	85	78
21	69	58	46	48	41	69	73	75	83	83	80	81
22	69	57	46	46	45	64	70	77	85	80	84	79
23	68	58	50	46	46	65	71	77	84	80	85	79
24	68	58	49	50	54	64	72	78	84	83	86	69
25	74	58	50	47	50	b60	72	78	85	85	--	80
26	66	65	54	43	50	b45	79	75	87	84	83	74
27	62	58	65	48	60	57	75	72	84	83	83	80
28	64	--	35	50	50	63	75	78	84	80	84	--
29	62	55	43	54	--	60	72	74	85	83	--	81
30	60	55	44	50	--	65	77	77	85	85	80	83
31	63	--	49	54	--	64	--	78	--	--	80	--
Average	70	59	51	49	51	62	70	76	82	83	84	79

a Measurement at 1:30 p. m.
b Measurements between 6 p. m. and 7:30 p. m.

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 near Orla.
DRAINAGE AREA.--20,720 square miles, approximately (contributing area).
RECORDS AVAILABLE.--Chemical analyses: July 1937 to September 1955.
Water temperatures: March 1953 to September 1955.
EXTREMES, 1954-55.--Dissolved solids: Maximum, 10,800 ppm Oct. 4-8; minimum, 2,730 ppm Apr. 1-30.
Hardness: Maximum, 2,010 ppm Oct. 4-8; minimum, 952 ppm Apr. 1-30.
Specific conductance: Maximum daily, 17,400 micromhos Oct. 5; minimum daily, 3,850 micromhos Apr. 23.
Water temperatures: Maximum, 80°F on many days during August; minimum, 46°F Jan. 25.
EXTREMES, 1937-55.--Dissolved solids: Maximum, 15,600 ppm Sept. 17-30, 1953; minimum, 1,090 ppm June 1-2, 1948.
Hardness: Maximum, 3,430 ppm July 1-31, Oct. 1-16, 1953; minimum, 602 ppm June 1-2, 1948.
Specific conductance: Maximum daily, 24,200 micromhos Sept. 28, 30, 1953; minimum daily, 1,610 micromhos June 2, 1948.
Water temperatures (1953-55): Maximum, 80°F on many days during July and August; minimum, 40°F on several days during December 1953.
REMARKS.--Values reported for dissolved solids are sums of determined constituents. 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 1954 to September 1955 given in WSP 1392. 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 1954 to September 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 (sum)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-3, 9-31, 1954	13.9	14		358	131	1,800		120	1,210	2,820		--		6,390	8.69	240	1,430	1,330	73	21	9,970	7.5
Oct. 4-8	15.1	13		467	206	3,220		96	1,790	5,020		--		10,800	14.7	440	2,010	1,930	78	31	16,200	7.4
Nov. 1-30	24.3	14		354	108	1,130		148	1,140	1,750		4.0		4,570	6.22	300	1,330	1,210	65	13	6,940	7.5
Dec. 1-31	28.0	13		352	114	1,030		151	1,150	1,600		3.0		4,340	5.90	328	1,350	1,220	62	12	6,480	8.0
Jan. 1-31, 1955	30.5	12		370	125	1,060		152	1,230	1,650		3.0		4,520	6.15	372	1,440	1,310	62	12	6,790	7.9
Feb. 1-28	29.3	12		374	124	952		154	1,220	1,500		2.5		4,260	5.79	337	1,440	1,320	59	11	6,360	7.7
Mar. 1-31	288	10		316	89	781		144	998	1,200		3.5		3,470	4.72	270	1,150	1,040	60	10	5,110	7.7
Apr. 1-30	399	10		268	69	593		134	826	900		1.8		2,730	3.71	2,940	952	842	58	8.4	4,280	7.5
May 1-31	210	10		298	75	722		138	919	1,100		1.5		3,190	4.34	1,810	1,050	939	60	9.7	4,840	7.7
June 1-30	377	13		303	80	722		133	927	1,120		2.5		3,230	4.39	3,290	1,180	976	59	9.5	5,090	7.6
July 1-31	528	16		306	79	656		131	930	1,020		2.0		3,070	4.18	4,380	1,090	981	57	8.6	4,890	7.6
Aug. 1-31	507	14		340	91	752		121	1,050	1,180		1.5		3,490	4.75	4,780	1,220	1,120	57	9.4	5,320	7.7
Sept. 1-12	320	18		406	94	889		118	1,210	1,400		2.5		4,080	5.55	3,530	1,400	1,300	58	10	6,010	7.7
Sept. 13-30	43.1	17		500	174	1,990		138	1,670	3,140		--		7,560	10.3	880	1,960	1,850	69	19	11,200	7.6
Weighted average	217	13		317	84	743		132	978	1,150		--		3,350	4.56	1,960	1,140	1,030	59	9.6	5,160	--

RIO GRANDE BASIN--Continued

PECOS RIVER BELOW RED BLUFF DAM NEAR ORLA, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955
/Once-daily measurement, usually at 8 a. m./

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

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 1955.
EXTREMES, 1954-55.--Hardness: Maximum, 3,590 ppm Jan. 1-31; minimum, 840 ppm Oct. 7.
Specific conductance: Maximum daily, 20,600 micromhos June 22; minimum daily, 4,760 micromhos Oct. 7.
EXTREMES, 1939-42, 1946-55.--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 1954 to September 1955 given in WSP 1392.

Chemical analysis, in parts per million, water year October 1954 to September 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 (residue at 180°C)			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 14-31,1954	10.8					2,810		147	3,070	4,600							3,500	3,380	62	21	16,100	7.3
Oct. 6, 8-13	49.0					1,460		127	1,570	2,380							1,860	1,760	62	15	9,070	7.5
Oct. 7	58	15				703		85	677	1,180		4.0		3,150			840	770	63	11	4,760	7.9
Nov. 1-30	10.6					2,740		162	2,930	4,520							3,380	3,250	62	20	16,000	7.6
Dec. 1-31	12.9					2,870		174	2,990	4,720							3,460	3,320	63	21	16,200	8.0
Jan. 1-31, 1955	17.9					3,150		186	3,020	5,140							3,590	3,440	66	23	17,600	7.6
Feb. 1-28	23.2					2,690		160	2,700	4,370							3,140	3,010	65	21	15,200	7.7
Mar. 1-31	17.5					2,590		145	2,680	4,080							3,160	3,040	64	20	14,800	7.5
Apr. 1-30	13.7					2,910		140	2,950	4,690							3,570	3,460	64	21	16,600	7.5
May 1-31	12.4					2,740		136	2,850	4,380							3,280	3,170	64	21	15,600	7.5
June 1-30	11.1					2,820		130	2,950	4,540							3,480	3,370	64	21	16,300	7.4
July 1-20	15.2					2,330		102	2,470	3,780							2,880	2,800	64	19	13,900	7.7
July 21-31	42.5					1,300		130	1,490	2,080							1,740	1,630	62	14	8,340	7.6
Aug. 1-31	17.2					1,950		112	2,160	3,190							2,470	2,380	63	17	11,800	7.8
Sept. 1-30	29.4					1,780		118	2,060	2,890							2,370	2,270	62	16	10,900	7.5
Weighted average	17.6					2,380		140	2,500	3,850							2,920	2,810	64	19	13,800	--

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 Girvin, Pecos County, 6½ miles downstream from Comanche Creek and 7.8 miles downstream from regular gaging station.
DRAINAGE AREA.--29,560 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 1955.
Water temperatures: October 1953 to September 1955.
EXTREMES, 1954-55.--Hardness: Maximum, 4,260 ppm May 1-31; minimum, 1,240 ppm Oct. 6-8.
Specific conductance: Maximum daily, 23,400 micromhos July 23; minimum daily, 2,230 micromhos Oct. 7.
Water temperatures: Maximum, 89°F June 23; minimum, 41°F Feb. 11-12.
EXTREMES, 1939-41, 1946-47, 1953-55.--Hardness: Maximum, 4,360 ppm Sept. 1-30, 1954; minimum, 640 ppm June 16-18, 1954.
Specific conductance: Maximum daily, 23,400 micromhos July 23, 1955; minimum daily, 1,480 micromhos May 29, 1941.
Water temperatures (1953-55): Maximum, 93°F June 1, 1954; minimum, 41°F Dec. 25, 1953, Feb. 11-12, 1955.
REMARKS.--Records of specific conductance of daily samples available in district office at Austin, Tex. Records of discharge for water year October 1954 to September 1955 given in WSP 1392.

Chemical analyses, in parts per million, water year October 1954 to September 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			Hardness as $CaCO_3$		Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
														Parts per million	Tons per acre-foot	Tons per day	Calcium, magnesium	Noncarbonate				
Oct. 1-5, 23-31, 1954	17.6					3,490		113	3,530	5,410							3,710	3,620	71	25	18,600	7.5
Oct. 6-8	658					82		75	1,200	108							1,240	1,180	12	10	2,260	7.2
Oct. 9-13	52					1,500		115	1,650	2,400							1,840	1,750	63	15	9,190	7.5
Oct. 14-22	25.4					2,550		148	2,420	3,830							2,650	2,530	69	22	13,800	7.7
Nov. 1-30	22.9					3,690		129	3,780	5,850							4,000	3,890	65	25	19,900	7.4
Dec. 1-31	24.5					3,560		154	3,680	5,670							3,960	3,830	65	25	19,000	7.8
Jan. 1-31, 1955	28.2					3,450		177	3,510	5,480							3,990	3,840	65	24	18,900	7.7
Feb. 1-28	33.7					3,520		171	3,430	5,580							3,910	3,770	66	24	18,800	7.7
Mar. 1-31	30.0					3,310		148	3,350	5,140							3,730	3,610	66	24	18,000	7.3
Apr. 1-30	19.1					3,700		128	3,800	5,740							4,120	4,020	66	25	19,900	7.7
May 1-31	18.4					3,940		104	3,970	6,140							4,260	4,180	67	26	20,800	7.4
June 1-30	20.5					3,720		73	3,830	5,800							4,140	4,080	66	25	20,000	7.2
July 1-29	29.1					3,700		60	3,870	5,820							4,160	4,110	66	25	20,400	7.1
July 30-31	67					1,520		92	1,660	2,480							1,900	1,820	63	15	9,330	7.8
Aug. 1-9	25.4					1,210		75	1,460	1,880							1,530	1,470	63	13	7,690	7.7
Aug. 10-31	27.8					1,970		64	2,270	3,060							2,470	2,420	63	17	11,800	7.1
Sept. 1, 6-10	31.3					1,390		44	1,900	2,220							2,060	2,020	59	13	8,820	6.9
Sept. 2-5, 11-30	34.4					2,390		48	2,600	3,810							2,830	2,790	65	20	13,800	7.1
Weighted average	31.5					2,640		108	2,920	4,150							3,180	3,090	64	20	14,800	--

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RIO GRANDE BASIN--Continued

PECOS RIVER NEAR GIRVIN, TEX.--Continued

Temperature (°F) of water, water year October 1954 to September 1955

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

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO

Chemical analyses, in parts per million, water year October 1954 to September 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: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
HAGERMAN CANAL AT DEXTER																						
Dec. 15, 1954								256		1,730											7,120	--
Jan. 31, 1955								246		1,410											6,100	--
Mar. 7								221		1,430											6,220	7.6
Apr. 18								251		1,310											6,060	7.2
May 31								221		1,390											6,090	7.2
July 12								--		1,380											6,030	8.2
Aug. 23								250		1,300											6,000	7.4
PECOS RIVER (KAISER CHANNEL) NEAR LAKEWOOD																						
Aug. 24, 1955		--		--	--	--		137	--	1,820		--		--	--		--	--	--	--	8,200	7.3
Aug. 24		--		--	--	--		180	--	1,730		--		--	--		--	--	--	--	8,090	7.5
Sept. 11		--		--	--	--		105	--	2,380		--		--	--		--	--	--	--	10,200	8.0
Sept. 12		--		--	--	--		97	--	310		--		--	--		--	--	--	--	2,950	8.2
Sept. 13-14		20		318	59	148		52	986	204		1.5		1,760	2.39		1,040	994	24	2.0	2,270	--
Sept. 15-18		19		316	51	99		131	864	146		1.2		1,560	2.12		998	890	18	1.4	2,040	--
Sept. 24		11		330	55	157		165	919	211		1.0		1,760	2.39		1,050	914	24	2.1	2,310	8.0
Sept. 28-30		12		335	41	138		94	953	166		1.3		1,690	2.30		1,000	928	23	1.9	2,160	7.8
LAKE McMILLAN AT McMILLAN DAM NEAR LAKEWOOD																						
Oct. 18, 1954								98		220											2,360	
PECOS RIVER BELOW LAKE McMILLAN DAM NEAR LAKEWOOD																						
Nov. 9, 1954								133		970											5,180	--
Dec. 16								148		1,240											6,180	--
Feb. 2, 1955								173		1,650											7,520	--
May 31								135		2,200											9,660	7.7
July 13								71		262											2,920	--
Aug. 24								94		390											3,160	--

RIO GRANDE BASINS--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Chemical analyses, in parts per million, water year October 1954 to September 1955--Continued

Date of collection	Mean discharge (cfs)	Silica (SiO_2)	Iron (Fe)	Calcium (Cn)	Magnesium (Mg)	Sodium (Nn)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre-foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Calcium, magnesium	Hardness as $CaCO_3$: Noncarbonate	Percent sodium	Sodium adsorption ratio	Specific conductance (micromhos at 25°C)	pH
PECOS RIVER AT FORD CROSSING IN MAJOR JOHNSON SPRING AREA NEAR LAKEWOOD																						
Nov. 9, 1954...								174		765											5,010	--
Dec. 16								151		1,140											5,920	--
Feb. 3, 1955 ..								167		1,180											6,220	--
Mar. 8.....								159		700											4,760	--
May 31.....								135		2,170											9,580	7.5
Aug. 24								116		420											3,390	7.5
PECOS RIVER ABOVE CARLSBAD FLUME AT CARLSBAD																						
Nov. 9, 1954 ..								144		710											4,580	
Dec. 16.....								155		745											4,800	
Feb. 1, 1955 ..								156		745											4,800	
Mar. 8.....								130		705											4,630	7.5
BLACK RIVER BELOW MAYES RANCH NEAR WHITE CITY																						
Oct. 26, 1954..								230		12											2,220	--
Nov. 24								226		9											2,210	--
Dec. 23.....								174		10											2,170	7.8
Jan. 26, 1955 .								225		9.0											2,210	7.8
Feb. 16								222		9.0											2,230	7.3
Mar. 23.....								227		6.0											2,230	7.7
Apr. 28								269		8											2,240	7.1
May 24								225		8											2,230	7.4
June 29								224		12											2,230	7.2
July 25								229		9.0											2,220	7.3
Aug. 16								221		12											2,170	7.2
Sept. 20.....								228		10											2,200	7.3
BLACK RIVER AT HARKEY CROSSING SEC. 9, T. 24 S., R. 27 E., NEAR MALAGA																						
Nov. 9, 1954 ..								189		22											1,790	--
Dec. 16								210		27											1,790	--
Mar. 9, 1955 ..								200		23											1,870	7.4
Apr. 19								194		17											1,710	7.4
June 2								181		18											1,710	7.4
July 13.....								92		7.5											1,160	7.3
Aug. 25								149		14											1,290	7.5

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
COCHITI EAST SIDE MAIN CANAL NEAR COCHITI			
July 21, 1954	114	825	254
July 23	79	2,800	597
July 30	90	300	73
Aug. 3	88	279	66
Aug. 5	98	211	56
Aug. 7	61	44,000	7,520
Aug. 10	1.0	804	2.2
Aug. 12	84	27,100	6,150
Aug. 14	91	10,400	2,560
Aug. 17	93	1,140	286
Aug. 19	75	2,770	561
Aug. 21	89	264	63
Aug. 24	75	33,800	7,100
Aug. 26	--	801	--
Aug. 28	--	583	--
Aug. 31	--	611	--
Sept. 2	106	464	133
Sept. 4	81	806	176
Sept. 7	83	4,490	1,010
Sept. 9	--	2,810	--
Sept. 11	61	2,980	491
Sept. 14	76	10,900	2,240
Sept. 16	73	4,750	936
Sept. 18	73	1,240	244
Sept. 21	83	591	132
Sept. 23	80	192	41
Sept. 25	69	141	26
Sept. 28	71	439	84
Sept. 30	92	300	75
Oct. 2	80	348	75
Oct. 5	90	134	33
Oct. 7	77	584	121
Oct. 9	70	7,430	1,400
Oct. 12	87	380	89
Oct. 14	80	183	40
Oct. 16	100	179	48
Oct. 19	61	66	11
Oct. 21	74	86	17
Oct. 23	72	48	9.3
Oct. 26	91	80	20
Oct. 28	78	81	17
Oct. 30	82	56	12
Nov. 2	65	79	14
Mar. 1, 1955	70	360	68
Mar. 3	62	203	34
Mar. 5	63	234	40
Mar. 8	67	385	70
Mar. 10	66	514	92
Mar. 12	68	882	162
Mar. 15	76	346	71
Mar. 17	74	403	81
Mar. 19	70	3,550	671
Mar. 22	64	324	56
Mar. 24	86	239	55
Mar. 25	80	121	26
Mar. 29	83	521	117
Mar. 31	67	335	61
Apr. 2	64	64	11
Apr. 5	80	75	16
Apr. 7	74	68	14
Apr. 9	71	58	11
Apr. 13	77	317	66
Apr. 14	76	236	48

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
COCHITI EAST SIDE MAIN CANAL NEAR COCHITI--Continued			
Apr. 16, 1955	72	133	26
Apr. 19	74	336	67
Apr. 21	90	610	148
Apr. 23	80	255	55
Apr. 26	105	129	37
Apr. 28	90	128	31
Apr. 30	91	162	40
May 3	88	419	100
May 5	74	150	30
May 7	103	1,930	537
May 12	102	4,560	1,260
May 14	84	3,020	685
May 17	89	1,890	454
May 17	102	1,930	532
May 19	85	3,700	849
May 21	93	3,160	793
May 24	99	1,990	532
May 26	94	1,800	457
May 28	75	1,550	314
June 2	103	1,290	359
June 4	86	1,450	337
June 7	91	804	198
June 9	99	277	74
June 11	105	403	114
June 14	101	586	160
June 14	103	219	61
June 16	96	141	37
June 21	95	536	137
June 23	84	530	120
June 28	84	123	28
June 29	99	240	64
June 30	90	134	33
July 1	108	72	21
July 5	103	227	63
July 7	84	283	64
July 8	98	255	67
July 11	84	226	51
July 13	82	11,200	2,480
July 15	78	5,970	1,260
July 18	72	920	179
July 20	74	502	100
July 22	72	485	94
July 25	54	1,210	176
July 25	63	774	132
July 27	--	3,820	--
July 29	62	23,800	3,980
Aug. 1	80	62,500	14,000
Aug. 3	78	16,000	3,370
Aug. 5	62	2,690	450
Aug. 8	59	35,100	5,800
Aug. 8	48	13,900	1,800
Aug. 10	89	17,500	4,210
Aug. 12	58	5,800	908
Aug. 15	93	7,730	1,940
Aug. 17	58	11,200	1,750
Aug. 19	83	6,420	1,440
Aug. 22	89	33,200	8,270
Aug. 22	94	44,700	11,800
Aug. 24	84	10,900	2,470
Aug. 26	99	9,460	2,530
Aug. 29	72	10,200	1,980
Aug. 31	96	5,890	1,530
Sept. 2	103	4,210	1,170
Sept. 5	--	2,380	--
Sept. 7	67	3,540	640
Sept. 9	69	3,050	568
Sept. 12	--	2,750	--

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
COCHITI EAST SIDE MAIN CANAL NEAR COCHITI--Continued			
Sept. 14, 1955	74	1,730	346
Sept. 16	93	1,060	266
Sept. 19	--	705	--
Sept. 21	85	522	120
Sept. 23	64	645	111
Sept. 26	--	1,860	--
Sept. 28	86	733	170
Sept. 30	70	639	121
SILI MAIN CANAL NEAR COCHITI			
July 21, 1954	46	622	77
July 23	36	3,580	348
July 30	35	125	12
Aug. 3	29	225	18
Aug. 5	39	132	14
Aug. 7	20	34,600	1,940
Aug. 10	17	824	38
Aug. 12	25	26,600	1,800
Aug. 14	29	10,800	846
Aug. 17	38	802	82
Aug. 19	24	2,460	159
Aug. 21	34	237	22
Aug. 24	19	34,200	--
Aug. 26	29	732	57
Aug. 28	38	532	55
Aug. 31	11	626	19
Sept. 2	36	420	41
Sept. 4	41	809	90
Sept. 7	34	3,780	347
Sept. 9	36	2,500	243
Sept. 11	26	3,190	224
Sept. 14	36	7,950	773
Sept. 16	34	3,840	353
Sept. 18	38	1,020	105
Sept. 21	31	204	17
Sept. 23	30	90	7
Sept. 25	42	140	16
Sept. 28	6	461	7
Sept. 30	50	221	30
Oct. 2	49	366	48
Oct. 5	44	98	12
Oct. 7	40	3,180	344
Oct. 9	41	7,340	813
Oct. 12	34	347	32
Oct. 14	40	136	15
Oct. 16	40	81	8.7
Oct. 19	35	56	5.3
Oct. 21	40	58	6.2
Oct. 23	40	36	3.9
Oct. 26	34	59	5.4
Oct. 28	35	78	7.4
Oct. 30	36	56	5.4
Nov. 2	38	72	7.4
Mar. 3, 1955	43	172	20
Mar. 5	37	167	17
Mar. 8	40	339	37
Mar. 10	40	680	73
Mar. 12	43	936	109
Mar. 15	41	296	33
Mar. 17	43	340	39
Mar. 19	40	3,450	373
Mar. 22	34	316	29
Mar. 24	38	153	16
Mar. 26	34	143	13
Mar. 29	46	303	38
Mar. 31	44	251	30

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
SILI MAIN CANAL NEAR COCHITI--Continued			
Apr. 2, 1955	42	68	7.7
Apr. 5	40	54	5.8
Apr. 7	40	51	5.5
Apr. 9	40	54	5.8
Apr. 13	40	207	22
Apr. 14	41	111	12
Apr. 16	39	50	5.3
Apr. 19	45	209	25
Apr. 21	45	383	47
Apr. 23	31	139	12
Apr. 26	42	80	9.1
Apr. 28	43	73	8.5
Apr. 30	43	100	12
May 3	45	404	49
May 5	43	104	12
May 7	44	1,460	173
May 12	47	2,960	376
May 14	40	1,380	149
May 17	42	930	105
May 17	42	913	104
May 19	46	1,430	178
May 21	44	1,550	184
May 24	41	1,310	145
May 26	36	1,790	174
May 28	35	922	87
June 2	39	742	78
June 4	40	712	77
June 9	39	142	15
June 11	43	120	14
June 14	43	79	9.2
June 14	41	77	8.6
June 16	42	73	8.3
June 21	44	76	9.1
June 23	43	70	8.2
June 28	41	34	3.8
June 29	38	37	3.8
June 30	41	38	4.2
July 1	40	22	2.4
July 5	43	159	19
July 7	46	231	29
July 8	47	170	22
July 11	44	100	12
July 13	39	11,300	1,190
July 15	37	6,010	600
July 18	43	916	106
July 20	44	408	49
July 22	41	359	40
July 25	22	674	40
July 25	.1	1,130	.3
July 27	.1	3,410	.9
July 29	24	27,300	1,770
Aug. 1	23	64,300	4,140
Aug. 3	29	14,700	1,150
Aug. 5	28	2,650	200
Aug. 12	36	4,860	472
Aug. 15	35	7,160	677
Aug. 17	39	9,600	1,010
Aug. 19	42	5,160	585
Aug. 22	34	24,100	2,210
Aug. 22	32	36,700	3,290
Aug. 24	26	8,420	591
Aug. 26	28	8,820	667
Aug. 29	34	6,880	632
Aug. 31	36	3,080	299

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
SILI MAIN CANAL NEAR COCHITI--Continued			
Sept. 2, 1955	35	2,520	238
Sept. 7	32	792	68
Sept. 9	33	745	66
Sept. 12	28	1,580	119
Sept. 14	25	387	26
Sept. 16	18	229	11
Sept. 19	20	1,100	59
Sept. 21	20	88	4.7
Sept. 23	18	58	2.8
Sept. 26	20	1,480	80
Sept. 28	22	99	5.9
Sept. 30	22	62	3.7
RIO GRANDE AT COCHITI			
Mar. 2, 1954	432	109	127
Mar. 10	408	83	91
Mar. 15	416	187	210
Mar. 23	306	57	47
Mar. 29	480	606	785
Apr. 7	540	290	423
Apr. 12	1,280	2,720	9,400
Apr. 20	704	581	1,100
Apr. 26	497	213	286
May 4	1,190	1,780	5,720
May 10	821	641	1,420
May 20	1,600	2,000	8,640
May 25	1,710	1,560	7,200
June 1	870	425	998
June 8	731	374	738
June 14	659	298	530
June 21	255	143	98
June 29	225	69	36
July 6	98	114	30
July 12	784	1,270	2,690
July 20	683	4,030	7,430
July 28	298	1,020	821
Aug. 3	66	281	50
Aug. 10	264	750	535
Aug. 17	117	1,090	344
Aug. 24	252	2,920	1,990
Aug. 31	175	746	353
Sept. 8	500	3,130	4,230
Sept. 14	561	9,940	15,100
Sept. 23	68	118	22
Sept. 28	255	694	478
Oct. 5	144	186	72
Oct. 11	325	1,520	1,330
Oct. 19	294	182	144
Oct. 25	296	605	484
Nov. 3	205	100	55
Nov. 8	320	968	836
Nov. 17	347	637	597
Nov. 24	316	406	346
Nov. 30	330	1,080	962
Dec. 8	385	601	625
Dec. 15	327	362	320
Dec. 21	481	932	1,210
Dec. 29	464	561	703
Jan. 5, 1955	497	782	1,050
Jan. 11	464	1,030	1,290
Jan. 19	450	500	608
Jan. 26	468	792	1,000
Feb. 1	502	544	737
Feb. 9	503	670	910

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
RIO GRANDE AT COCHITI--Continued			
Feb. 15, 1955	506	543	742
Feb. 23	517	422	589
Feb. 28	550	517	768
Mar. 8	529	540	771
Mar. 17	407	482	530
Mar. 22	414	300	335
Mar. 29	408	600	661
Apr. 6	154	66	27
Apr. 13	296	302	241
Apr. 19	272	261	192
Apr. 28	218	307	181
May 10	1,130	3,450	10,500
May 17	1,040	2,320	6,510
May 23	1,990	3,750	20,100
June 6	1,420	996	3,820
June 14	514	189	262
June 21	410	129	143
June 29	262	28	20
July 5	532	346	497
July 11	420	222	252
July 18	170	615	282
July 25	161	621	270
Aug. 2	193	2,050	1,070
Aug. 8	883	15,700	37,400
Aug. 18	664	14,700	26,400
Aug. 22	1,490	44,700	186,000
Sept. 2	1,160	3,750	11,700
Sept. 6	1,150	3,340	10,400
Sept. 13	666	1,350	2,430
Sept. 19	232	623	390
Sept. 29	144	163	63
RIO GRANDE AT SAN FELIPE			
Mar. 2, 1954	498	471	633
Mar. 10	455	250	307
Mar. 15	475	455	584
Mar. 23	415	308	345
Mar. 29	570	762	1,170
Apr. 7	558	405	610
Apr. 12	1,300	3,220	11,300
Apr. 20	758	790	1,620
Apr. 26	552	379	565
May 4	1,180	1,770	5,640
May 10	938	904	2,290
May 20	1,720	2,010	9,330
May 25	1,940	1,740	9,110
June 1	914	513	1,270
June 8	795	458	983
June 14	750	339	686
June 22	245	131	87
June 29	245	176	116
July 6	264	416	297
July 12	788	1,560	3,320
July 20	534	5,380	7,760
July 28	364	1,390	1,370
Aug. 3	133	538	193
Aug. 13	328	13,500	12,000
Aug. 17	254	8,220	5,640
Aug. 24	348	12,200	11,500
Sept. 1	158	25,400	10,800
Sept. 8	570	4,220	6,500
Sept. 14	922	11,400	28,400
Sept. 23	170	263	121
Sept. 28	308	1,630	1,360
Oct. 5	294	639	510
Oct. 12	341	2,140	1,970

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
RIO GRANDE AT SAN FELIPE--Continued			
Oct. 19, 1954	305	865	712
Oct. 27	234	474	299
Nov. 3	255	656	452
Nov. 8	319	1,130	973
Nov. 17	360	1,280	1,240
Nov. 24	329	741	658
Nov. 30	369	849	846
Dec. 8	414	1,030	1,150
Dec. 15	358	954	922
Dec. 21	437	437	1,400
Dec. 30	393	1,030	1,090
Jan. 5, 1955	503	1,280	1,740
Jan. 11	485	926	1,210
Jan. 19	456	733	902
Jan. 24	422	746	850
Feb. 1	508	720	988
Feb. 9	480	911	1,180
Feb. 15	514	832	1,150
Feb. 28	515	726	1,010
Mar. 7	581	935	1,470
Mar. 17	451	762	928
Mar. 22	480	670	868
Mar. 29	318	351	301
Apr. 6	258	1,500	1,040
Apr. 12	418	681	769
Apr. 23	333	486	437
Apr. 26	317	246	211
May 3	446	636	766
May 9	1,100	3,010	8,940
May 17	1,180	2,370	7,550
May 24	2,130	3,250	18,700
June 2	1,580	3,080	13,100
June 8	899	535	1,300
June 14	584	429	676
June 22	504	228	310
June 29	309	444	370
July 7	546	873	1,290
July 11	453	1,550	1,900
July 19	417	27,700	31,200
July 25	366	38,300	39,300
Aug. 2	292	6,660	5,250
Aug. 9	862	35,700	86,200
Aug. 18	773	14,800	30,900
Aug. 23	700	24,700	46,700
Aug. 31	1,340	7,210	26,100
Sept. 6	1,140	5,670	17,500
Sept. 15	411	825	916
Sept. 19	264	631	450
ALBUQUERQUE MAIN CANAL AT ALGODONES			
Feb. 26, 1954	316	650	555
Feb. 26	320	775	670
Mar. 1	338	593	541
Mar. 3	291	563	442
Mar. 5	264	414	295
Mar. 5	263	246	175
Mar. 8	--	499	--
Mar. 10	319	364	314
Mar. 12	350	3,090	2,920
Mar. 16	330	585	521
Mar. 16	328	308	273
Mar. 17	305	234	193
Mar. 19	271	355	260
Mar. 23	342	430	397

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
ALBUQUERQUE MAIN CANAL AT ALGODONES--Continued			
Sept. 1, 1954	124	4,150	1,390
Sept. 3	90	2,950	717
Sept. 6	257	37,800	19,300
Sept. 8	278	6,310	4,740
Sept. 10	306	1,890	1,560
Sept. 13	178	5,590	2,690
Sept. 15	313	16,700	14,100
Sept. 17	285	2,920	2,250
Sept. 21	178	1,150	553
Sept. 23	107	428	124
Sept. 25	114	1,240	382
Sept. 28	236	2,500	1,590
Sept. 30	184	899	447
Oct. 2	178	632	304
Oct. 5	216	831	485
Oct. 7	342	15,300	14,100
Oct. 9	264	3,780	2,690
Oct. 12	190	2,280	1,170
Oct. 14	209	1,130	638
Oct. 16	190	792	406
Oct. 19	216	874	510
Oct. 21	190	557	286
Oct. 23	184	545	271
Oct. 26	184	556	276
Oct. 28	190	624	320
Oct. 30	184	742	369
Nov. 2	209	790	446
Nov. 4	264	2,160	1,540
Nov. 6	229	1,150	711
Nov. 9	236	1,200	765
Nov. 11	229	1,050	649
Nov. 13	31	1,250	105
Nov. 16	38	1,360	140
Mar. 1, 1955	335	1,430	1,290
Mar. 4	372	1,400	1,410
Mar. 5	396	1,450	1,550
Mar. 8	350	1,120	1,060
Mar. 10	184	1,910	949
Mar. 12	404	3,000	3,270
Mar. 15	396	1,120	1,200
Mar. 17	350	1,280	1,210
Mar. 19	342	8,670	8,010
Mar. 22	358	1,020	986
Mar. 26	335	878	794
Mar. 28	342	629	581
Mar. 30	365	1,180	1,160
Apr. 1	342	779	719
Apr. 4	292	586	462
Apr. 6	216	359	209
Apr. 8	222	555	333
Apr. 11	350	2,360	2,230
Apr. 13	335	948	858
Apr. 15	257	371	257
Apr. 18	285	737	567
Apr. 20	292	893	704
Apr. 22	271	536	392
Apr. 25	271	1,180	864
Apr. 27	257	516	358
Apr. 30	257	13,900	9,650
May 2	222	1,040	623
May 4	292	1,360	1,070
May 6	388	2,810	2,940
May 9	306	1,510	1,250
May 11	358	5,420	5,240
May 13	358	4,420	4,270
May 16	299	4,610	3,720

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
ALBUQUERQUE MAIN CANAL AT ALGODONES--Continued			
Mar. 24	365	592	583
Mar. 26	428	13,200	15,300
Mar. 29	264	1,350	962
Mar. 31	328	1,840	1,630
Apr. 2	342	2,080	1,920
Apr. 5	216	382	222
Apr. 7	365	421	415
Apr. 9	388	1,430	1,500
Apr. 12	358	3,750	3,620
Apr. 14	372	4,140	4,160
Apr. 16	365	3,360	3,310
Apr. 20	388	973	1,020
Apr. 21	388	900	943
Apr. 23	404	651	710
Apr. 26	257	556	386
Apr. 28	388	277	290
Apr. 30	396	261	279
Apr. 30	396	278	297
May 3	250	3,150	2,130
May 4	388	2,140	2,240
May 4	372	2,120	2,130
May 5	388	1,470	1,540
May 6	420	1,290	1,460
May 7	404	1,160	1,270
May 8	--	860	--
May 10	313	1,020	862
May 12	444	2,270	2,720
May 14	404	1,970	2,150
May 17	257	2,930	2,030
May 19	404	3,370	3,680
May 21	428	2,370	2,740
May 24	209	2,130	1,200
May 26	428	1,560	1,800
May 28	372	1,920	1,930
May 31	250	950	641
June 2	372	612	615
June 4	404	548	596
June 7	202	822	448
June 15	--	504	--
June 16	--	571	--
June 18	--	350	--
June 28	--	1,940	--
June 30	--	340	--
July 2	--	107	--
July 10	342	7,670	7,080
July 12	198	2,510	1,330
July 14	278	6,000	4,500
July 16	320	912	788
July 19	196	2,750	1,460
July 21	306	1,580	1,310
July 23	313	5,530	4,670
July 26	313	2,650	2,240
July 28	285	709	546
July 30	229	6,970	4,310
Aug. 11	350	28,700	27,100
Aug. 13	292	16,000	12,600
Aug. 16	278	12,200	9,160
Aug. 18	250	28,900	19,500
Aug. 20	149	3,360	1,350
Aug. 23	178	4,310	2,070
Aug. 25	196	36,000	19,800
Aug. 27	138	3,610	1,350
Aug. 30	178	4,550	2,190

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
ALBUQUERQUE MAIN CANAL AT ALGODONES--Continued			
May 18, 1955	365	2,860	2,820
May 20	365	3,610	3,560
May 23	320	5,450	4,710
May 25	265	2,990	2,140
May 27	285	3,550	2,730
May 30	313	1,820	1,540
June 1	325	1,530	1,340
June 3	364	2,150	2,110
June 7	249	1,520	1,020
June 8	333	812	730
June 10	305	784	646
June 13	350	485	458
June 15	319	314	270
June 17	319	402	346
June 20	279	326	246
June 22	305	204	168
June 24	301	189	154
June 27	105	370	105
July 1	255	387	266
July 5	70	740	140
July 6	325	655	575
July 8	368	552	548
July 11	283	437	334
July 13	135	23,300	8,490
July 15	395	5,940	6,340
July 18	197	1,920	1,020
July 20	161	3,020	1,310
July 22	143	1,120	432
July 25	9.0	37,900	955
July 27	31	34,900	3,030
July 29	307	12,800	10,600
Aug. 1	13	23,700	832
Aug. 1	13	28,000	983
Aug. 3	169	5,500	2,510
Aug. 5	183	41,200	21,200
Aug. 10	267	29,300	21,100
Aug. 12	14	17,800	673
Aug. 15	14	11,100	420
Aug. 17	247	11,600	7,740
Aug. 19	319	14,500	12,500
Aug. 22	157	48,600	21,400
Aug. 24	133	38,500	14,300
Aug. 26	505	8,060	11,000
Aug. 26	508	8,380	11,500
Aug. 29	243	14,600	9,580
Aug. 31	291	8,940	7,020
Sept. 2	317	5,810	4,970
Sept. 2	319	4,980	4,290
Sept. 7	283	4,720	3,610
Sept. 9	65	3,670	679
Sept. 12	91	3,880	953
Sept. 14	145	3,750	1,470
Sept. 16	267	1,780	1,280
Sept. 21	165	946	421
Sept. 23	117	924	292
Sept. 28	153	1,660	686
Sept. 30	155	1,010	423
ARENAL MAIN CANAL AT ATRISCO HEADING AT ALBUQUERQUE			
Aug. 3, 1954	1.0	4,610	12
Aug. 9	55	24,100	3,580
Aug. 11	202	51,400	29,100
Aug. 13	100	14,000	3,780
Aug. 16	3.5	7,660	72
Aug. 18	94	29,700	7,540
Aug. 20	46	3,130	389

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
ARENAL MAIN CANAL AT ATRISCO HEADING AT ALBUQUERQUE--Continued			
Aug. 23, 1954	44	6,920	822
Aug. 30	121	2,730	892
Sept. 1	104	12,800	3,590
Sept. 3	79	4,760	1,020
Sept. 6	102	22,400	6,170
Sept. 10	40	5,200	562
Sept. 13	140	12,400	4,690
Sept. 17	98	15,500	4,100
Sept. 21	3.2	1,770	15
Sept. 25	1.7	670	12
Sept. 30	62	1,060	177
Oct. 2	50	561	76
Oct. 7	132	24,400	8,700
Oct. 9	95	46,100	12,300
Oct. 14	111	2,150	644
Oct. 16	66	1,010	180
Oct. 21	64	630	109
Oct. 23	53	660	94
Oct. 26	42	794	90
Oct. 28	29	213	17
Oct. 30	9.5	171	4.4
Nov. 2	75	766	155
Nov. 4	126	569	194
Nov. 6	112	2,880	871
Nov. 9	162	1,550	678
Nov. 11	171	1,720	794
Nov. 13	166	1,580	708
Nov. 16	3.1	2,090	17
Mar. 2, 1955	16	1,340	58
Mar. 4	109	1,690	497
Mar. 7	123	2,250	747
Mar. 9	157	1,460	619
Mar. 11	171	2,480	1,150
Mar. 14	162	3,320	1,450
Mar. 16	146	1,190	469
Mar. 18	166	1,120	502
Mar. 23	138	864	322
Mar. 25	154	537	223
Mar. 28	117	678	214
Mar. 30	131	671	237
Apr. 1	133	567	204
Apr. 4	136	1,540	565
Apr. 6	45	354	43
Apr. 8	41	227	25
Apr. 11	166	2,120	950
Apr. 13	168	790	358
Apr. 15	60	256	41
Apr. 18	76	376	77
Apr. 20	87	382	90
Apr. 22	52	305	43
Apr. 25	205	1,140	631
Apr. 27	82	252	56
May 2	4	1,440	16
May 4	94	1,190	302
May 6	41	518	57
May 9	207	4,040	2,260
May 11	214	4,600	2,660
May 13	179	5,200	2,510
May 16	182	4,290	2,110
May 20	160	4,890	2,110
May 23	179	6,640	3,210
May 28	173	4,960	2,320
May 30	167	3,310	1,490
June 1	170	1,720	789
June 8	178	1,220	586
June 10	186	463	233
June 13	175	966	456

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
ARENAL MAIN CANAL AT ATRISCO HEADING AT ALBUQUERQUE--Continued			
June 15, 1955	200	328	177
June 17	160	241	104
June 20	192	873	453
June 22	.5	113	.2
June 24	64	53	9.2
June 27	216	198	115
RIO GRANDE AT ALBUQUERQUE			
Mar. 1, 1954	420	1,330	1,510
Mar. 4	274	734	543
Mar. 8	270	659	481
Mar. 11	95	588	151
Mar. 15	448	1,540	1,860
Mar. 19	120	253	82
Mar. 22	170	413	190
Mar. 26	660	2,890	5,150
Mar. 29	562	3,030	4,600
Apr. 2	544	4,140	6,080
Apr. 6	345	2,520	2,350
Apr. 8	129	572	199
Apr. 12	945	3,970	10,100
Apr. 15	1,430	4,900	18,900
Apr. 19	716	2,220	4,290
Apr. 22	427	1,250	1,440
Apr. 26	441	1,060	1,260
Apr. 29	87	147	35
May 3	1,330	3,780	13,600
May 6	660	1,320	2,350
May 10	680	1,240	2,280
May 14	826	2,670	5,950
May 17	1,410	3,190	12,100
May 21	1,290	2,450	8,530
May 24	1,600	2,860	12,400
May 27	1,310	1,700	6,010
June 2	396	523	560
June 4	355	510	489
June 7	490	681	901
June 11	124	384	129
June 14	434	635	745
June 18	67	307	56
June 21	34	41	3.8
June 25	21	34	1.9
June 28	1.0	11	.03
July 6	4	23	.3
July 12	523	5,970	8,430
July 19	516	1,790	2,490
July 27	172	2,970	1,380
Aug. 2	206	17,100	9,510
Aug. 10	236	9,370	5,970
Aug. 16	7	4,180	79
Aug. 24	420	29,300	33,200
Aug. 24	1,040	56,300	164,000
Aug. 30	.8	229	.5
Sept. 7	366	19,600	19,400
Sept. 13	327	11,400	10,100
Sept. 20	9	1,130	27
Oct. 1	1	161	.4
Oct. 4	72	2,390	465
Oct. 11	120	10,100	3,270
Oct. 18	81	1,830	400
Oct. 25	56	1,550	234
Nov. 2	24	525	34
Nov. 10	139	2,190	822
Nov. 16	247	1,780	1,190
Nov. 23	255	1,740	1,200
Nov. 29	269	1,570	1,140
Dec. 7	346	2,340	2,190
Dec. 13	348	1,560	1,470
Dec. 22	366	1,310	1,290
Dec. 27	439	2,160	2,560

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
RIO GRANDE AT ALBUQUERQUE--Continued			
Jan. 4, 1955	590	2,700	4,300
Jan. 10	444	1,720	2,060
Jan. 18	432	1,960	2,290
Jan. 24	242	893	584
Feb. 1	423	1,260	1,440
Feb. 7	349	1,400	1,320
Feb. 14	499	1,600	2,160
Feb. 25	558	2,030	3,060
Feb. 28	526	1,720	2,440
Mar. 7	395	1,260	1,340
Mar. 14	288	2,210	1,720
Mar. 22	293	947	749
Mar. 28	73	376	74
Apr. 4	132	672	240
Apr. 13	110	516	153
Apr. 18	21	55	3.1
Apr. 25	98	653	173
May 2	281	1,630	1,240
May 9	480	4,290	5,560
May 16	894	4,060	9,800
May 24	1,900	5,940	30,500
May 31	902	1,800	4,380
June 7	913	1,530	3,770
June 13	205	1,070	592
June 20	190	397	204
June 27	74	211	42
July 5	438	1,010	1,190
July 11	143	351	136
July 18	137	7,560	2,800
July 25	265	14,600	10,400
Aug. 2	488	40,000	54,700
Aug. 8	979	22,000	58,200
Aug. 11	2,520	49,800	351,000
Aug. 15	249	10,200	6,860
Aug. 23	1,380	39,800	154,000
Aug. 29	1,330	30,500	10,500
Sept. 6	791	3,960	8,460
Sept. 12	537	3,130	4,540
Sept. 19	51	107	15
Sept. 26	353	18,600	17,700
BELEN HIGHLINE CANAL AT ISLETA			
Mar. 2, 1954	84	811	184
Mar. 2	81	809	177
Mar. 3	40	528	57
Mar. 5	113	378	115
Mar. 5	112	426	129
Mar. 8	138	463	173
Mar. 10	150	392	159
Mar. 12	185	828	414
Mar. 15	268	1,010	731
Mar. 17	131	593	210
Mar. 19	163	273	120
Mar. 22	43	124	14
Mar. 24	37	140	14
Mar. 26	144	3,270	1,270
Mar. 29	230	3,020	1,880
Mar. 31	92	709	176
Apr. 2	262	2,460	1,740
Apr. 5	155	758	317
Apr. 7	109	621	183
Apr. 9	108	483	141
Apr. 12	216	3,600	2,100
Apr. 14	208	3,370	1,890
Apr. 16	254	4,010	2,750
Apr. 19	266	1,490	1,070

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MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1954--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
BELEN HIGHLINE CANAL AT ISLETA--Continued			
Apr. 21, 1954	232	1,030	645
Apr. 23	128	494	171
Apr. 26	201	1,010	548
Apr. 28	5	97	1.3
Apr. 30	4	90	1.0
May 3	252	3,020	2,050
May 5	260	1,190	835
May 7	238	632	406
May 10	256	895	619
May 12	184	8,770	4,360
May 14	127	2,090	717
May 17	182	3,110	1,530
May 19	234	7,210	4,560
May 21	281	2,070	1,570
May 24	242	2,580	1,690
May 28	258	1,440	1,000
May 31	250	602	406
June 2	124	281	94
June 4	146	238	94
June 7	153	459	190
June 9	126	248	84
June 16	129	257	90
June 30	32	42	3.6
July 2	29	31	2.4
July 8	9.5	15	.4
July 12	92	5,570	1,380
July 14	88	1,700	404
July 16	7.1	70	1.3
July 19	225	3,930	2,390
July 21	135	1,860	678
July 26	235	14,800	9,390
July 28	41	525	58
Aug. 2	30	47	3.8
Aug. 4	19	213	11
Aug. 6	10	72	1.9
Aug. 9	7.1	33,600	668
Aug. 11	210	50,700	29,800
Aug. 16	26	512	36
Aug. 18	24	738	48
Aug. 20	22	482	29
Aug. 23	87	16,000	3,760
Aug. 25	42	41,600	4,890
Sept. 8	85	13,300	3,050
Sept. 10	--	4,660	--
Sept. 15	138	10,300	3,840
Sept. 17	7.8	28,900	609
Sept. 25	1.6	340	1.5
Oct. 5	69	20,500	3,820
Oct. 7	98	25,900	6,850
Oct. 9	60	26,400	4,280
Oct. 12	85	5,770	1,320
Oct. 14	46	1,240	154
Oct. 16	24	391	25
Oct. 21	34	672	60
Oct. 23	48	1,830	237
Oct. 26	50	402	54
Mar. 2, 1955	170	1,050	482
Mar. 4	204	654	360
Mar. 7	195	1,450	763
Mar. 9	243	729	478
Mar. 11	222	871	522
Mar. 14	203	2,730	1,500
Mar. 16	138	787	293
Mar. 18	12	362	12
Mar. 21	227	3,190	1,960

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
BELEN HIGHLINE CANAL AT ISLETA--Continued			
Mar. 23, 1955	41	755	84
Mar. 25	2.7	95	.7
Mar. 28	123	490	163
Mar. 30	2.7	157	1.1
Apr. 1	78	148	31
Apr. 4	93	692	174
Apr. 6	7.1	51	1.0
Apr. 8	67	62	11
Apr. 11	33	38	3.4
Apr. 13	63	331	56
Apr. 15	24	46	3.0
Apr. 18	38	19	1.9
Apr. 20	38	14	1.4
Apr. 22	37	25	2.5
Apr. 25	36	89	8.7
Apr. 27	35	16	1.5
Apr. 29	.4	29	.03
May 2	93	574	144
May 4	96	404	105
May 6	2.3	63	.4
May 9	168	2,910	1,320
May 11	307	4,630	3,840
May 13	285	393	302
May 16	274	3,720	2,750
May 20	319	4,670	4,020
May 23	293	6,590	5,210
May 25	324	5,490	4,800
May 28	300	5,960	4,830
June 1	319	728	627
June 7	303	829	678
June 8	323	478	417
June 10	143	209	81
June 13	265	470	336
June 15	182	269	132
June 17	65	51	9.0
June 20	66	144	26
June 22, 1955	195	314	165
June 24	4.9	77	1.0
June 28	.4	77	.08
July 1	--	49	--
July 6	101	491	134
July 15	2.2	1,300	7.7
July 18	50	7,950	1,070
July 20	2.2	24,900	148
July 22	2.2	195	1.2
July 25	147	8,820	3,500
July 29	158	16,900	7,210
Aug. 1	234	7,940	5,020
Aug. 3	201	29,500	16,000
Aug. 10	158	22,000	9,390
Aug. 12	174	33,500	16,300
Aug. 15	145	15,400	6,030
Aug. 17	163	12,600	5,550
Aug. 19	70	7,800	1,470
Aug. 22	198	39,800	22,100
Aug. 24	190	25,000	12,800
Aug. 26	192	8,830	4,580
Aug. 29	173	14,000	6,540
Aug. 31	229	11,400	7,050
Sept. 2	53	3,710	531
Sept. 12	47	2,180	277
Sept. 14	51	1,150	158
Sept. 16	41	133	15
Sept. 26	253	23,900	16,300
Sept. 28	66	1,940	346
Sept. 30	13	217	7.6

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
ISLETA EAST SIDE CANAL AT ISLETA			
Mar. 8, 1954	--	372	--
Mar. 10	60	281	46
Mar. 12	85	702	161
Mar. 15	107	940	272
Mar. 19	90	409	99
Mar. 22	88	254	60
Mar. 24	218	215	127
Mar. 26	111	3,770	1,130
Mar. 29	289	3,010	2,350
Mar. 31	256	926	640
Apr. 2	265	2,410	1,720
Apr. 5	219	813	481
Apr. 7	159	594	255
Apr. 9	131	341	121
Apr. 12	130	2,800	983
Apr. 14	187	2,550	1,290
Apr. 16	224	3,150	1,910
Apr. 19	360	1,390	1,350
Apr. 21	240	988	640
Apr. 23	141	623	237
Apr. 26	353	1,180	1,120
Apr. 28	175	195	92
Apr. 30	225	131	80
May 3	406	3,060	3,350
May 5	383	1,320	1,370
May 7	316	689	588
May 10	418	1,200	1,350
May 12	385	7,300	7,590
May 14	386	2,510	2,620
May 17	378	4,220	4,310
May 19	361	7,190	7,010
May 21	344	2,390	2,220
May 24	333	3,270	2,940
May 31	397	738	791
June 2	225	237	144
June 4	211	283	161
June 7	386	585	610
June 9	312	410	345
June 11	258	178	124
June 15	488	311	410
June 16	352	378	359
June 18	140	102	39
June 21	80	36	7.8
June 23	101	36	9.8
June 25	87	29	6.8
July 26	--	11,300	--
July 28	--	432	--
July 30	--	329	--
Aug. 9	--	29,700	--
Aug. 11	--	51,800	--
Oct. 5	120	19,200	6,220
Oct. 7	125	26,100	8,810
Oct. 9	102	26,600	7,330
Oct. 12	125	5,480	1,850
Oct. 14	74	1,340	268
Oct. 16	34	539	49
Oct. 19	80	2,690	581
Oct. 28	1.5	155	.6
Oct. 30	152	50	21
Nov. 2	126	47	16
Nov. 4	76	419	86
Nov. 6	67	1,690	306
Nov. 9	46	1,060	132
Nov. 11	100	1,610	435
Nov. 13	68	1,320	242
Nov. 16	128	2,900	1,000

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
ISLETA EAST SIDE CANAL AT ISLETA--Continued			
Mar. 9, 1955	132	448	160
Mar. 11	142	498	191
Mar. 14	150	1,660	672
Mar. 16	140	696	263
Mar. 18	180	473	230
Mar. 21	228	2,160	1,610
Mar. 23	288	736	572
Mar. 25	225	142	86
Mar. 28	152	380	156
Mar. 30	207	238	133
Apr. 4	120	427	138
Apr. 6	118	36	11
Apr. 8	57	422	65
Apr. 11	50	32	4.3
Apr. 13	162	270	118
Apr. 15	104	38	11
Apr. 25	92	71	18
May 9	294	2,850	2,260
May 11	345	3,450	3,210
May 13	333	3,310	2,980
May 16	294	3,180	2,520
May 18	330	2,060	1,840
May 20	288	3,470	2,700
May 23	366	6,560	6,480
May 25	363	4,640	4,550
May 28	354	6,210	5,940
June 1	378	785	801
June 7	273	833	614
June 8	309	578	481
June 22	270	407	297
July 6	138	526	196
July 15	294	8,330	6,610
July 18	204	8,420	4,640
July 20	300	16,700	13,500
July 22	118	209	67
July 25	150	8,470	3,430
July 29	219	17,900	10,600
Aug. 1	303	8,510	6,960
Aug. 3	360	31,500	30,600
Aug. 10	381	20,300	20,900
Aug. 12	249	31,700	21,300
Aug. 15	276	14,000	10,400
Aug. 17	234	11,900	7,520
Aug. 19	198	6,000	3,210
Aug. 22	288	39,300	31,700
Aug. 24	387	26,100	27,300
Aug. 26	285	8,650	1,660
Aug. 29	180	12,600	6,120
Aug. 31	312	9,590	8,080
Sept. 2	339	4,590	4,200
Sept. 26	306	22,900	18,900
Sept. 28	210	1,260	714
Sept. 30	160	214	92
RIO GRANDE NEAR BELEN			
Mar. 1, 1954	731	1,640	3,240
Mar. 15	619	2,110	3,530
Mar. 22	97	248	65
Mar. 29	462	4,390	5,480
Apr. 6	218	702	413
Apr. 12	820	4,200	9,300
Apr. 19	619	2,010	3,360
Apr. 26	154	367	153

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
RIO GRANDE NEAR BELEN--Continued			
May 5, 1954	395	1,080	1,150
May 10	425	1,480	1,700
May 20	1,050	4,930	14,000
May 24	1,390	2,830	10,600
June 2	200	217	117
June 7	97	178	47
June 14	144	320	124
June 21	87	128	30
June 28	80	149	32
July 7	58	129	20
July 12	48	123	16
July 19	51	121	17
July 27	--	170	--
Aug. 2	65	103	18
Aug. 10	108	14,100	4,110
Aug. 17	48	198	26
Aug. 25	73	12,300	2,420
Aug. 31	50	94	13
Sept. 9	38	92	9.4
Sept. 21	37	68	6.8
Sept. 30	85	950	218
Oct. 12	111	5,270	1,580
Oct. 19	86	1,400	325
Oct. 25	36	62	6.0
Nov. 2	37	43	4.3
Nov. 10	81	339	74
Nov. 16	164	1,460	647
Nov. 23	210	2,110	1,200
Nov. 29	240	421	273
Dec. 7	277	1,940	1,450
Dec. 13	317	1,460	1,250
Dec. 22	402	2,030	2,200
Dec. 27	416	1,700	1,910
Jan. 7, 1955	529	2,230	3,190
Jan. 12	543	1,750	2,570
Jan. 18	486	1,730	2,270
Jan. 25	316	1,240	1,060
Feb. 1	455	1,460	1,790
Feb. 9	454	1,380	1,690
Feb. 16	457	1,740	2,150
Feb. 24	382	1,120	1,160
Mar. 2	438	1,250	1,480
Mar. 9	184	676	336
Mar. 14	186	958	481
Mar. 25	103	267	74
Mar. 30	124	237	79
Apr. 8	132	443	158
Apr. 13	168	796	361
Apr. 22	54	43	6.3
Apr. 25	56	105	16
May 5	48	42	5.4
May 9	49	25	3.3
May 20	459	2,190	2,710
May 24	1,380	4,470	16,700
June 3	438	2,440	2,890
June 6	1,020	1,940	5,340
June 17	87	235	55
June 20	76	123	25
July 1	39	57	6.0
July 5	44	73	8.7
July 14	98	5,300	1,400
July 18	57	185	28
July 29	365	17,000	16,700
Aug. 2	429	8,360	9,680
Aug. 9	651	23,900	42,000

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
RIO GRANDE NEAR BELEN--Continued			
Aug. 16, 1955	235	10,200	6,470
Aug. 23	1,180	27,100	86,400
Aug. 30	1,150	16,600	51,600
Sept. 6	638	5,410	9,320
Sept. 12	290	1,430	1,120
Sept. 20	85	167	38
Sept. 27	257	10,400	7,220
SAN JUAN CANAL AT SAN JUAN HEADING NEAR BOSQUE			
July 28, 1954	53	241	34
July 30	46	127	16
Aug. 2	38	68	7.0
Aug. 4	35	75	7.1
Aug. 6	33	109	9.7
Aug. 9	33	61	5.4
Aug. 11	56	4,360	659
Aug. 13	108	250	73
Aug. 16	33	60	5.3
Aug. 18	34	195	18
Aug. 20	34	177	16
Aug. 23	37	95	9.5
Aug. 25	123	34,700	12,000
Aug. 27	38	115	12
Aug. 30	36	124	12
Sept. 1	36	121	12
Sept. 3	33	114	10
Sept. 6	30	108	8.7
Sept. 8	29	363	28
Sept. 10	29	176	14
Sept. 13	29	120	9.4
Sept. 16	30	74	6.0
Sept. 17	29	84	6.6
Sept. 21	26	380	27
Sept. 23	20	188	10
Sept. 25	20	227	12
Sept. 30	68	632	116
Oct. 2	63	380	65
Oct. 5	70	586	111
Oct. 7	3.5	35,900	352
Oct. 9	52	7,650	1,070
Oct. 12	105	6,380	1,810
Oct. 14	86	326	76
Oct. 16	57	442	68
Oct. 19	92	1,190	296
Oct. 21	43	325	38
Oct. 23	34	163	15
Oct. 26	32	71	6.1
Oct. 28	30	34	2.8
Oct. 30	30	42	3.4
Nov. 2	30	37	3.0
Nov. 4	32	62	5.4
Nov. 6	57	148	23
Nov. 9	78	742	156
Nov. 11	98	846	224
Nov. 13	98	279	74
Nov. 13	98	279	74
Mar. 2, 1955	98	1,160	307
Mar. 4	97	850	223
Mar. 7	96	796	206
Mar. 9	88	460	109
Mar. 11	85	1,270	291
Mar. 14	75	461	93
Mar. 15	90	1,150	279
Mar. 18	79	214	46

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Periodic determinations of suspended-sediment discharge, water years October 1953 to September 1955--Continued

Date	Discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Discharge (tons per day)
SAN JUAN CANAL AT SAN JUAN HEADING NEAR BOSQUE--Continued			
Mar. 21, 1955	70	4,720	892
Mar. 23	87	1,020	240
Mar. 25	131	327	116
Mar. 28	118	179	57
Mar. 30	115	246	76
Apr. 1	63	588	100
Apr. 4	104	225	63
Apr. 6	87	143	34
Apr. 8	90	213	52
Apr. 11	79	149	32
Apr. 13	84	783	178
Apr. 15	74	140	28
Apr. 18	78	180	38
Apr. 20	50	29	3.9
Apr. 22	42	33	3.7
Apr. 25	35	60	5.7
Apr. 27	36	231	22
Apr. 28	35	48	4.5
Apr. 29	34	40	3.7
May 2	32	125	11
May 4	36	59	5.7
May 9	36	42	4.1
May 11	88	598	142
May 13	90	2,880	700
May 16	124	7,330	2,450
May 18	95	1,780	457
May 20	104	1,370	385
May 23	40	5,780	624
May 24	56	4,060	614
May 25	50	3,280	443
May 27	104	4,010	1,130
May 30	95	3,460	887
June 1	110	1,150	342
June 6	110	1,430	425
June 3	115	348	108
June 10	93	257	65
June 13	59	70	11
June 15	60	59	9.6
June 17	55	49	7.3
June 20	58	35	5.5
June 22	56	42	6.4
June 24	55	60	8.9
June 27	44	51	6.1
June 29	36	55	5.3

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955
(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
COCHITI EAST SIDE MAIN CANAL NEAR COCHITI																
July 30, 1954	1:15 p.m.	90	--	300	1,400		41		46		62	88	100		--		VPWCM
Aug. 7	6:45 a.m.	61	69	44,000	2,480		81		93		98	99	100		--		VPWCM
Aug. 10	12:45 p.m.	1.0	73	804	2,220		77		93		96	97	98		100		SPWCM
Aug. 12	1:30 p.m.	84	73	27,100	3,880		67		94		100	--	--		--		PWCM
Aug. 14	7:35 a.m.	91	68	10,400	3,280		56		87		100	--	--		--		PWCM
Aug. 24	1:15 p.m.	75	71	33,800	3,200		72		97		100	--	--		--		PWCM
Aug. 26	7:45 a.m.	--	65	801	1,830		74		92		95	95	97		100		SPWCM
Aug. 28	6:00 a.m.	--	62	583	1,420		73		87		92	92	94		99	100	SPWCM
Sept. 7	4:10 p.m.	83	74	4,490	4,360		45		66		97	100	--		--		VPWCM
Sept. 9	7:55 a.m.	--	65	2,810	2,220		33		49		87	98	100		--		VPWCM
Sept. 11	6:45 a.m.	61	63	2,980	2,940		27		42		88	99	100		--		VPWCM
Sept. 21	2:30 p.m.	83	69	591	1,550		13		22		64	93	99		100		VPWCM
Sept. 23	6:30 a.m.	80	60	192	--		--		--		53	81	93		100		V
Sept. 25	6:35 a.m.	69	62	141	--		--		--		53	66	90		100		V
Oct. 5	3:25 p.m.	90	77	134	652		59		70		83	100	--		--		SPWCM
Oct. 7	8:25 a.m.	77	60	584	1,620		46		62		76	87	100		--		SPWCM
Oct. 9	8:15 a.m.	70	62	7,430	5,200		63		92		99	100	--		--		SPWCM
Oct. 19	2:00 p.m.	61	59	66	--		--		--		79	82	100		--		S
Oct. 21	11:25 a.m.	74	55	86	--		--		--		70	77	100		--		S
Oct. 23	2:45 p.m.	72	59	48	--		--		--		99	100	--		--		S
Nov. 2	2:30 p.m.	65	49	79	--		--		--		72	75	100		--		S
Mar. 8, 1955	11:35 a.m.	67	44	385	2,730		53		67		89	91	94		100		SPWCM
Mar. 10	7:30 a.m.	66	45	514	1,940		56		68		87	90	94		100		SPWCM
Mar. 12	7:30 a.m.	68	43	882	3,220		60		75		98	100	--		--		SPWCM
Mar. 22	1:00 p.m.	64	44	324	1,850		41		55		82	94	98		100		VPWCM
Mar. 24	9:55 a.m.	86	43	239	--		--		--		70	89	94		100		V
Mar. 26	7:30 a.m.	80	40	121	--		--		--		89	99	100		--		S

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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	
COCHITI EAST SIDE MAIN CANAL NEAR COCHITI--Continued																	
Apr. 5, 1955	2:45 p.m.	80	51	75	--		--		--		77	85	91		100		S
Apr. 19	10:30 a.m.	74	52	336	1,680		43		50		72	93	98		100		VPWCM
Apr. 21	7:45 a.m.	90	49	610	2,320		47		53		71	94	97		100		VPWCM
Apr. 23	8:15 a.m.	80	48	255	1,040		54		59		74	93	100		--		SPWCM
May 3	1:30 p.m.	88	59	419	2,840		57		79		94	96	97		100		SPWCM
May 5	7:30 a.m.	74	51	150	--		--		--		71	73	77		100		S
May 7	8:00 a.m.	103	58	1,930	3,880		46		64		91	98	98		100		VPWCM
May 17	12:30 p.m.	102	60	1,930	3,420		23		35		70	97	99		100		VPWCM
May 19	7:00 a.m.	85	48	3,700	3,920		18		29		74	97	99		100		VPWCM
May 21	8:00 a.m.	93	58	3,160	4,595		17		25		72	97	100		--		VPWCM
June 2	6:30 a.m.	103	57	1,290	2,955		21		33		76	100	--		--		VPWCM
June 4	8:30 a.m.	86	59	1,450	1,730		13		19		42	35	99		100		VPWCM
June 14	11:45 a.m.	101	65	586	--		--		--		21	70	100		--		V
June 14	5:15 p.m.	103	68	219	--		--		--		50	89	100		--		V
June 16	8:30 a.m.	96	64	141	--		--		--		56	91	100		--		S
June 28	6:15 a.m.	84	65	123	--		--		--		34	79	99		100		S
June 29	10:40 a.m.	99	60	240	--		--		--		15	50	93		100		S
June 30	7:30 a.m.	90	63	134	--		--		--		32	87	100		--		S
July 1	8:00 a.m.	108	66	72	--		--		--		36	73	100		--		S
July 11	11:45 a.m.	84	75	226	--		--		--		64	84	99		100		V
July 13	8:00 a.m.	82	68	11,200	3,820		76		96		98	100	--		--		VPWCM
July 15	7:00 a.m.	78	67	5,970	3,460		71		94		99	100	--		--		SPWCM
July 25	5:30 a.m.	54	69	1,210	4,280		65		81		99	100	--		--		SPWCM
July 25	1:40 p.m.	63	80	774	2,660		61		76		94	96	100		--		SPWCM
July 27	6:30 a.m.		--	3,820	4,240		24		45		97	99	100		--		VPWCM
July 29	7:30 a.m.	62	--	23,800	4,350		69		92		100	--	--		--		PWCM
Aug. 8	7:00 a.m.	59	69	35,100	5,930		49		70		99	100	--		--		VPWCM

Aug. 8, 1955	3:00 p.m.	48	75	13,900	3,980	48	64	97	100	--	--	VPWCM
Aug. 10	8:00 a.m.	89	72	17,500	4,720	67	89	99	100	--	--	VPWCM
Aug. 12	7:30 a.m.	58	68	5,800	3,870	58	76	97	100	--	--	VPWCM
Aug. 22	12:15 p.m.	94	--	44,700	3,680	53	73	95	100	--	--	VPWCM
Aug. 24	7:00 a.m.	84	69	10,900	4,580	59	69	89	98	100	--	VPWCM
Aug. 26	6:00 a.m.	99	69	9,460	4,160	56	72	88	98	100	--	VPWCM
Sept. 5.....	6:30 a.m.	--	67	2,380	4,540	19	27	80	100	--	--	VPWCM
Sept. 7.....	6:30 a.m.	67	66	3,540	4,590	13	19	54	90	100	--	VPWCM
Sept. 9.....	8:00 a.m.	69	65	3,050	3,220	12	16	48	89	99	100	VPWCM
Sept. 19.....	3:30 p.m.		72	705	2,280	12	15	54	98	100	--	VPWCM
Sept. 21.....	9:45 a.m.	85	60	522	1,250	11	15	38	91	100	--	VPWCM
Sept. 23.....	7:30 a.m.	64	57	645	1,150	7	9	32	95	100	--	VPWCM

SILI MAIN CANAL NEAR COCHITI

July 30, 1954	1:45 p.m.	35	--	125	855	65	84	97	100	--	--	SPWCM
Aug. 7	7:10 a.m.	20	69	34,600	3,800	75	99	100	--	--	--	PWCM
Aug. 10	1:00 p.m.	17	74	824	2,250	77	91	98	98	99	100	SPWCM
Aug. 12	1:00 p.m.	25	73	26,600	5,570	67	95	100	--	--	--	PWCM
Aug. 14	7:00 a.m.	29	68	10,800	4,240	57	89	100	--	--	--	PWCM
Aug. 24	1:30 p.m.	19	72	34,200	4,920	74	99	100	--	--	--	PWCM
Aug. 26	7:15 a.m.	29	65	732	2,010	81	100	--	--	--	--	PWCM
Aug. 28	5:45 a.m.	38	62	532	1,380	82	97	100	--	--	--	PWCM
Sept. 7.....	4:30 p.m.	34	74	3,780	4,060	54	90	100	--	--	--	PWCM
Sept. 9.....	7:15 a.m.	36	65	2,500	2,520	36	56	94	100	--	--	VPWCM
Sept. 11.....	6:00 a.m.	26	63	3,190	2,760	26	38	87	100	--	--	VPWCM
Sept. 21.....	3:00 p.m.	31	69	204	990	37	53	86	98	100	--	SPWCM

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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
SILI MAIN CANAL NEAR COCHITI--Continued																
Sept. 23, 1954	6:00 a.m.	30	60	90	--		--		--		85	99	100				S
Sept. 25	6:15 a.m.	42	62	140	--		--		--		89	99	100				S
Oct. 5	3:45 p.m.	44	77	98	572		70		90		98	100	--				SPWCM
Oct. 7	8:00 a.m.	40	60	3,180	4,870		60		88		100	--	--				PWCM
Oct. 9	7:45 a.m.	41	62	7,340	3,430		64		92		100	--	--				PWCM
Oct. 23	2:15 p.m.	40	59	36	--		--		--		96	100	--				S
Nov. 2	2:45 p.m.	38	50	72	--		--		--		98	100	--				S
Mar. 8, 1955	12:15 p.m.	40	45	339	2,410		57		70		96	100	--				SPWCM
Mar. 10	7:15 a.m.	40	45	680	3,560		66		91		98	100	--				SPWCM
Mar. 12	7:00 a.m.	43	43	936	4,310		62		79		98	100	--				SPWCM
Mar. 22	1:15 p.m.	34	45	316	1,770		46		55		82	100	--				VPWCM
Mar. 24	9:30 a.m.	38	43	153	--		--		--		93	99	100				S
Mar. 26	7:00 a.m.	34	40	143	--		--		--		90	99	100				S
Apr. 5	3:10 p.m.	40	51	54	--		--		--		97	100	--				S
Apr. 19	10:50 a.m.	45	52	209	1,380		68		79		97	100	--				SPWCM
Apr. 21	7:20 a.m.	45	49	383	2,200		73		82		97	100	--				SPWCM
Apr. 23	7:45 a.m.	31	48	139	--		--		--		99	100	--				S
May 3	1:50 p.m.	45	59	404	2,840		62		86		100	--	--				PWCM
May 5	7:00 a.m.	43	51	104	--		--		--		98	99	100				S
May 7	7:45 a.m.	44	58	1,460	3,540		59		82		99	100	--				SPWCM
May 17	12:55 p.m.	42	60	913	4,850		48		68		99	100	--				SPWCM
May 19	6:30 a.m.	46	48	1,430	3,800		36		55		98	100	--				VPWCM
May 21	7:30 a.m.	44	58	1,550	4,090		29		46		95	100	--				VPWCM
June 2	7:00 a.m.	39	57	742	1,890		34		53		99	100	--				SPWCM
June 14	12:00 m.	43	65	79	--		--		--		88	99	100				S
June 14	4:45 p.m.	41	68	77	--		--		--		94	100	--				S
June 16	8:00 a.m.	42	64	73	--		--		--		82	100	--				S
June 21	7:30 a.m.	44	--	76	--		--		--		87	100	--				S

June 28, 1955....	6:35 a.m.	41	65	34	--		--		--		94	99	100			S
June 29.....	10:55 a.m.	38	71	37	--		--		--		87	98	100			S
June 30.....	7:00 a.m.	41	63	38	--		--		--		77	93	100			S
July 1.....	7:30 a.m.	40	66	22	--		--		--		93	100	--			S
July 11.....	12:05 p.m.	44	75	100	--		--		--		98	100	--			S
July 13.....	7:30 a.m.	39	68	11,300	4,160		72		98		100	--	--			PWCM
July 15.....	6:30 a.m.	37	67	6,010	3,960		72		95		100	--	--			PWCM
July 25.....	1:45 p.m.	22	--	674	2,470		65		81		98	99	100			SPWCM
July 25.....	6:00 a.m.	.1	69	1,130	3,960		75		87		100	--	--			PWCM
July 27.....	6:00 a.m.	.1	--	3,410	3,720		27		50		99	100	--			VPWCM
July 29.....	7:30 a.m.	24	--	27,300	4,880		74		96		100	--	--			PWCM
Aug. 12.....	7:00 a.m.	36	68	4,860	3,910		67		86		99	100	--			SPWCM
Aug. 22.....	12:30 p.m.	32	--	36,700	4,360		62		86		100	--	--			PWCM
Aug. 24.....	6:30 a.m.	26	69	8,420	3,230		76		89		100	--	--			PWCM
Aug. 26.....	6:30 a.m.	28	69	8,820	4,130		67		78		98	100	--			VPWCM
Sept. 7.....	7:00 a.m.	32	66	792	1,830		48		66		100	--	--			PWCM
Sept. 9.....	7:30 a.m.	33	65	745	1,600		44		58		97	100	--			SPWCM
Sept. 19.....	3:00 p.m.	20	72	1,100	3,060		15		22		92	100	--			VPWCM
Sept. 21.....	9:00 a.m.	20	60	88	--		--		--		100	--	--			S
Sept. 23.....	8:00 a.m.	18	57	58	--		--		--		99	100	--			S

RIO GRANDE AT COCHITI

Mar. 10, 1954...	12:00 m.	408	54	83	--		--		--		46	48	71		100	V
Mar. 23.....	12:00 m.	306	51	57	--		--		--		81	83	90		99	100	S
Apr. 7.....	11:35 a.m.	540	58	290	2,290		38		56		89	91	94		100	--	VPWCM
Apr. 20.....	11:35 a.m.	704	58	581	4,160		39		54		82	93	99		100	--	VPWCM
May 4.....	10:00 a.m.	1,190	63	1,780	4,540		30		43		78	92	99		100	--	VPWCM
May 20.....	12:10 p.m.	1,600	67	2,000	3,890		17		25		60	88	98		100	--	VPWCM
June 1.....	11:50 a.m.	870	67	425	2,200		15		20		55	86	99		100	--	VPWCM
June 14.....	10:45 a.m.	659	65	298	--		--		--		40	73	97		100	--	V

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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 COCHITI--Continued																	
June 29, 1954	11:30 a.m.	225	--	59	--		--		--		83	93	98		100	--	S
July 12	11:50 a.m.	784	77	1,270	3,640		32		51		88	95	100		--	--	VPWCM
July 28	11:30 a.m.	298	74	1,020	2,320		67		85		92	100	--		--	--	VPWCM
Aug. 10	11:45 a.m.	264	73	750	2,830		31		40		53	62	77		96	100	VPWCM
Aug. 24	11:25 a.m.	252	70	2,920	4,020		76		98		99	99	100		--	--	SPWCM
Sept. 8	11:05 a.m.	500	70	3,130	4,040		31		48		90	96	100		--	--	VPWCM
Sept. 23	12:05 p.m.	68	71	118	610		33		40		69	77	96		100	--	VPWCM
Oct. 5	12:45 p.m.	144	--	186	--		--		--		78	95	100		--	--	V
Oct. 19	12:05 p.m.	294	--	182	--		--		--		41	54	83		100	--	V
Nov. 17	1:30 p.m.	347	--	637	2,170		10		12		40	72	93		100	--	VPWCM
Dec. 15	1:40 p.m.	327	--	362	--		--		--		28	43	82		100	--	V
Dec. 29	3:10 p.m.	464	--	561	--		--		--		32	53	79		100	--	V
Jan. 11, 1955	2:55 p.m.	464	37	1,030	--		--		--		16	30	50		88	100	V
Jan. 26	3:15 p.m.	468	36	792	2,900		12		18		47	68	86		100	--	VPWCM
Feb. 9	3:40 p.m.	503	40	670	1,400		12		15		35	62	83		100	--	VPWCM
Feb. 23	2:45 p.m.	517	37	422	2,680		26		41		72	82	95		100	--	VPWCM
Mar. 8	2:10 p.m.	529	49	540	2,280		37		46		68	75	91		100	--	VPWCM
Mar. 22	3:00 p.m.	414	49	300	1,220		41		53		73	84	95		100	--	VPWCM
Apr. 6	2:50 p.m.	154	53	66	935		66		77		90	95	97		100	--	SPWCM
Apr. 19	1:10 p.m.	272	--	261	1,570		55		69		83	93	100		--	--	SPWCM
May 17	3:30 p.m.	1,040	60	2,320	2,800		21		29		48	74	84		93	100	VPWCM
June 14	10:45 a.m.	514	64	189	--		--		--		41	83	100		--	--	V
June 29	12:05 p.m.	262	73	28	--		--		--		67	82	100		--	--	S
July 11	1:15 p.m.	420	75	222	962		30		46		67	82	99		100	--	VPWCM
July 25	2:25 p.m.	161	81	621	2,660		74		90		99	99	100		--	--	SPWCM
Aug. 8	2:25 p.m.	883	76	15,700	3,940		47		64		96	99	100		--	--	VPWCM
Aug. 22	4:40 p.m.	1,490	71	44,700	3,890		53		78		94	99	99		99	100	VPWCM

Sept. 6, 1955....	11:50 a.m.	1,150	71	3,340	3,250		12		20		48	78	88		98	100	VPWCM
Sept. 19.....	2:10 p.m.	232	74	623	1,920		18		26		78	97	100		--	--	VPWCM

RIO GRANDE AT SAN FELIPE

Mar. 10, 1954...	2:45 p.m.	455	56	250	1,640		15		25		54	70	95		100	--	VPWCM
Mar. 23.....	3:25 p.m.	415	53	308	1,520		18		25		46	59	82		97	100	VPWCM
Apr. 7.....	3:00 p.m.	558	62	405	1,990		30		42		60	73	96		100	--	VPWCM
Apr. 20.....	3:10 p.m.	758	64	790	4,260		28		41		69	84	95		100	--	VPWCM
May 4	1:35 p.m.	1,180	64	1,770	3,860		30		45		76	90	98		100	--	VPWCM
May 20.....	3:15 p.m.	1,720	74	2,010	4,040		19		29		62	90	98		100	--	VPWCM
June 1	3:15 p.m.	914	71	513	2,030		14		19		49	78	98		100	--	VPWCM
June 14	2:45 p.m.	750	68	339	--		--		--		42	67	95		100	--	V
June 29	2:00 p.m.	245	--	176	--		--		--		70	89	98		100	--	V
July 12.....	3:10 p.m.	788	81	1,560	3,420		40		53		70	77	95		100	--	VPWCM
July 28.....	2:20 p.m.	364	74	1,390	5,560		46		65		100	--	--		--	--	PWCM
Aug. 13.....	1:30 p.m.	328	76	13,500	3,400		69		91		97	100	--		--	--	VPWCM
Aug. 24.....	3:25 p.m.	348	73	12,200	4,230		59		80		96	100	--		--	--	VPWCM
Sept. 8.....	2:00 p.m.	570	73	4,220	4,510		38		54		86	98	100		--	--	VPWCM
Sept. 23.....	3:05 p.m.	170	69	263	1,610		32		47		74	84	97		100	--	SPWCM
Oct. 5	3:20 p.m.	294	74	639	2,730		22		27		69	91	99		100	--	VPWCM
Oct. 19	2:45 p.m.	305	60	865	6,110		11		18		57	90	97		100	--	VPWCM
Nov. 3.....	1:05 p.m.	255	52	656	1,600		11		15		38	80	96		100	--	VPWCM
Nov. 17.....	11:20 a.m.	360	44	1,280	2,540		6		9		33	70	88		98	100	VPWCM
Nov. 30.....	10:25 a.m.	369	41	849	1,820		7		9		32	74	95		100	--	VPWCM
Dec. 15.....	11:00 a.m.	358	34	954	--		--		--		24	61	94		100	--	V
Dec. 30.....	2:50 p.m.	393	32	1,030	--		--		--		19	36	75		98	100	V

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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 FELIPE--Continued																	
Jan. 11, 1955	12:05 p.m.	485	36	926	--		--		--		32	54	93		100	--	V
Jan. 24	2:10 p.m.	422	33	746	970		10		10		24	49	93		100	--	VPWCM
Feb. 9	12:10 p.m.	480	32	911	1,120		10		11		34	62	94		100	--	VPWCM
Feb. 28	3:55 p.m.	515	47	726	2,900		14		20		42	63	95		100	--	VPWCM
Mar. 7	2:30 p.m.	581	48	935	2,670		13		20		41	64	91		100	--	VPWCM
Mar. 22	11:20 a.m.	480	42	670	2,180		29		37		53	73	95		100	--	VPWCM
Apr. 6	12:00 m.	258	52	1,500	5,050		10		21		71	96	99		100	--	VPWCM
May 3	11:55 a.m.	446	59	636	3,190		35		48		79	94	100		--	--	VPWCM
May 17	10:50 a.m.	1,180	57	2,370	3,190		18		29		56	82	95		100	--	VPWCM
June 2	12:45 p.m.	1,580	--	3,080	4,880		8		13		31	52	90		100	--	VPWCM
June 14	2:10 p.m.	584	71	429	1,330		14		21		35	61	88		99	100	VPWCM
June 29	3:00 p.m.	309	76	444	2,420		31		46		80	86	92		98	100	VPWCM
July 11	10:10 a.m.	453	71	1,550	1,640		6		8		15	23	37		87	98	VPWCM
July 25	10:05 a.m.	366	71	38,300	3,100		65		88		97	99	100		--	--	VPWCM
Aug. 9	2:05 p.m.	862	84	35,700	4,440		57		82		94	99	100		--	--	VPWCM
Aug. 23	1:30 p.m.	700	78	24,700	4,290		56		77		91	97	100		--	--	VPWCM
Sept. 6	2:30 p.m.	1,140	74	5,670	4,340		9		13		33	58	77		94	100	SPWCM
Sept. 19	11:45 a.m.	264	69	631	--		--		--		30	59	94		100	--	V
ALBUQUERQUE MAIN CANAL AT ALGODONES																	
Mar. 8, 1954	2:50 p.m.	--	52	499	1,460		9		16		34	49	86		100	--	VPWCM
Mar. 10	4:15 p.m.	319	56	364	1,600		7		16		44	56	89		100	--	VPWCM
Mar. 12	10:15 a.m.	350	38	3,090	3,370		38		62		81	87	95		100	--	VPWCM
Mar. 23	11:30 a.m.	342	52	430	2,940		37		46		78	98	100		--	--	VPWCM
Mar. 24	12:30 p.m.	365	48	592	1,970		17		28		47	56	78		100	--	VPWCM
Mar. 26	9:30 a.m.	428	43	13,200	3,880		75		90		94	96	98		100	--	VPWCM
Apr. 5	1:35 p.m.	216	60	382	--		--		--		60	73	94		100	--	V

Apr. 7, 1954	12:50 p.m.	365	60	421	2,330	27	41	64	70	89	100	--	VPWCM
Apr. 9	12:05 p.m.	388	57	1,430	3,170	28	45	64	69	85	98	100	VPWCM
Apr. 20	2:05 p.m.	388	63	973	3,910	21	33	62	75	93	100	--	VPWCM
Apr. 21	11:40 a.m.	388	60	900	3,030	22	28	54	69	90	100	--	VPWCM
Apr. 23	11:05 a.m.	404	62	651	2,800	21	28	53	69	91	100	--	VPWCM
May 3.....	3:25 p.m.	250	60	3,150	4,590	24	37	66	83	94	100	--	VPWCM
May 4.....	12:00 m.	388	--	2,140	6,350	26	41	72	86	98	100	--	VPWCM
May 4.....	5:15 p.m.	372	--	2,120	3,970	25	38	64	78	95	99	100	VPWCM
May 5.....	1:25 p.m.	388	66	1,470	5,520	23	34	62	78	94	99	100	VPWCM
May 6.....	10:25 a.m.	420	--	1,290	3,470	20	30	53	72	89	98	100	VPWCM
May 7.....	11:55 a.m.	404	63	1,160	3,570	18	23	50	70	91	100	--	VPWCM
May 8.....	--	--	--	860	2,860	22	32	59	75	95	100	--	VPWCM
May 17.....	2:55 p.m.	257	67	2,930	4,030	20	29	63	80	92	100	--	VPWCM
May 19.....	2:45 p.m.	404	--	3,370	4,600	20	27	66	85	95	100	--	VPWCM
May 21.....	9:40 a.m.	428	64	2,370	3,750	17	21	57	82	95	100	--	VPWCM
May 31.....	2:40 p.m.	250	69	950	2,040	9	13	36	62	88	100	--	VPWCM
June 2	2:40 p.m.	372	--	612	--	--	--	39	68	94	100	--	V
June 4	2:55 p.m.	404	70	546	--	--	--	42	70	93	100	--	V
June 15	11:40 a.m.	--	67	504	--	--	--	34	51	71	97	100	V
June 16	9:35 a.m.	--	65	571	--	--	--	28	51	69	94	100	V
June 18	10:00 a.m.	--	69	350	--	--	--	36	62	80	97	100	V
June 28	11:20 a.m.	--	76	1,940	5,010	71	85	97	97	100	--	--	VPWCM
June 30	9:15 a.m.	--	70	340	1,900	69	82	100	--	--	--	--	PWCM
July 2	10:00 a.m.	--	74	107	635	65	79	99	99	100	--	--	SPWCM
July 12.....	9:20 a.m.	196	72	2,510	4,060	37	53	70	82	92	99	100	VPWCM
July 14.....	9:05 a.m.	278	72	6,000	3,870	72	88	92	96	98	100	--	VPWCM
July 16.....	10:20 a.m.	320	75	912	2,940	31	43	58	73	89	99	100	VPWCM
July 26.....	12:00 m.	313	78	2,650	4,960	53	69	84	94	98	100	--	VPWCM

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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
ALBUQUERQUE MAIN CANAL AT ALGODONES--Continued																
July 28, 1954	1:50 p.m.	285	85	709	3,350		55		71		84	97	100		--	--	VPWCM
July 30	2:55 p.m.	229	--	6,970	4,410		71		95		99	100	--		--	--	SPWCM
Aug 11	9:45 a.m.	350	68	28,700	3,960		54		79		95	99	100		--	--	SPWCM
Aug. 13	2:45 p.m.	292	76	16,000	4,950		70		92		98	100	--		--	--	SPWCM
Aug. 23	10:30 a.m.	178	71	4,310	4,650		63		81		93	94	100		--	--	VPWCM
Aug. 25	8:15 a.m.	196	--	36,000	4,940		69		93		99	100	--		--	--	VPWCM
Aug. 27	12:00 m.	138	72	3,610	5,390		25		38		78	91	96		99	100	VPWCM
Sept. 6	10:45 a.m.	257	69	27,800	3,370		42		70		95	98	99		100	--	VPWCM
Sept. 8	10:20 a.m.	278	69	6,310	5,850		37		53		85	91	95		99	100	VPWCM
Sept. 10	12:20 p.m.	306	71	1,890	3,510		53		71		98	100	--		--	--	VPWCM
Sept. 21	4:00 p.m.	178	72	1,150	2,190		41		59		76	85	99		100	--	VPWCM
Sept. 23	1:45 p.m.	107	69	428	1,080		28		41		62	72	98		98	100	VPWCM
Sept. 25	5:00 p.m.	114	--	1,240	3,300		78		92		98	99	100		--	--	SPWCM
Oct. 5	2:15 p.m.	216	75	831	3,850		21		31		70	90	94		99	100	VPWCM
Oct. 7	9:05 a.m.	342	--	15,300	4,320		74		91		97	100	--		--	--	VPWCM
Oct. 9	9:55 a.m.	264	67	3,780	3,930		39		51		75	88	97		100	--	VPWCM
Oct. 19	3:30 p.m.	216	60	874	3,820		17		27		69	87	92		99	100	VPWCM
Oct. 21	11:20 a.m.	190	56	557	--		--		--		61	76	95		100	--	V
Oct. 23	9:30 a.m.	184	51	545	--		--		--		63	79	95		100	--	V
Nov. 2	3:45 p.m.	209	53	790	2,510		16		22		50	66	78		100	--	VPWCM
Nov. 4	11:00 a.m.	264	46	2,160	3,360		26		43		71	79	85		96	--	VPWCM
Nov. 6	9:45 a.m.	229	43	1,150	2,620		14		21		54	67	90		100	--	VPWCM
Nov. 16	1:30 p.m.	38	49	1,360	3,040		38		59		69	70	96		100	--	VPWCM
Mar. 8, 1955	1:45 p.m.	350	48	1,120	3,830		17		25		54	72	90		98	100	VPWCM
Mar. 10	3:15 p.m.	184	48	1,910	4,420		17		24		36	66	94		100	--	VPWCM
Mar. 12	11:00 a.m.	404	--	3,000	4,210		36		45		60	78	93		99	100	VPWCM
Mar. 22	1:50 p.m.	358	47	1,020	3,420		21		28		41	60	86		97	100	VPWCM
Mar. 26	9:35 a.m.	335	37	878	3,470		15		23		34	52	89		100	--	VPWCM

Apr. 4, 1955.....	9:30 a.m.	292	40	586	2,440	13	18	32	46	86	100	--	VPWCM
Apr. 6	11:45 a.m.	216	50	359	1,300	28	34	54	72	100	--	--	VPWCM
Apr. 8	9:30 a.m.	222	46	555	2,600	17	25	39	50	89	100	--	VPWCM
Apr. 18	3:40 p.m.	285	64	737	1,840	14	22	39	54	86	100	--	VPWCM
Apr. 20	8:00 a.m.	292	46	893	3,730	15	21	34	46	72	95	100	VPWCM
Apr. 22	5:30 p.m.	271	--	536	2,750	52	59	76	92	99	100	--	VPWCM
May 2	9:50 a.m.	222	56	1,040	3,810	28	40	57	64	84	98	100	VPWCM
May 4	9:20 a.m.	292	58	1,360	3,820	24	36	50	56	68	90	100	VPWCM
May 6	11:30 a.m.	388	60	2,810	3,400	30	44	77	86	89	99	100	VPWCM
May 16	9:20 a.m.	299	57	4,610	3,470	16	22	44	67	90	98	100	VPWCM
May 18	8:45 a.m.	365	55	2,860	3,720	20	29	50	74	93	98	100	VPWCM
May 20	2:45 p.m.	365	63	3,610	3,090	15	23	60	87	96	100	--	VPWCM
May 30	3:25 p.m.	313	72	1,820	2,940	18	27	55	78	93	100	--	VPWCM
June 1.....	9:30 a.m.	325	59	1,530	3,540	8	14	38	66	87	99	100	VPWCM
June 3.....	10:40 a.m.	364	58	2,150	2,850	13	18	44	76	93	99	100	VPWCM
June 13.....	2:20 p.m.	350	69	485	1,190	13	19	39	69	88	100	--	VPWCM
June 15.....	2:30 p.m.	319	76	314	--	--	--	37	73	98	100	--	V
June 17.....	11:45 a.m.	319	67	402	--	--	--	25	41	74	100	--	V
June 27.....	3:45 p.m.	105	83	370	--	--	--	20	47	82	100	--	V
July 1.....	12:45 p.m.	255	73	387	1,840	40	59	74	83	92	99	100	VPWCM
July 11	11:15 a.m.	283	75	437	1,680	23	33	55	72	94	100	--	VPWCM
July 13	10:00 a.m.	135	--	23,300	3,000	56	79	95	99	100	--	--	VPWCM
July 15	2:00 p.m.	395	78	5,940	3,660	56	78	92	98	100	--	--	VPWCM
July 27	2:30 p.m.	31	80	34,900	6,180	56	78	96	99	100	--	--	VPWCM
July 29	2:25 p.m.	307	80	12,800	4,130	43	60	96	99	100	--	--	VPWCM
Aug. 10	10:55 a.m.	267	75	29,300	4,720	64	86	95	99	100	--	--	VPWCM
Aug. 12	2:45 p.m.	14	81	17,800	5,660	54	72	95	99	100	--	--	VPWCM
Aug. 22	12:30 p.m.	157	71	48,600	5,960	43	64	86	96	99	100	--	SPWCM

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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
ALBUQUERQUE MAIN CANAL AT ALGODONES--Continued																
Aug. 24, 1955	11:00 a.m.	133	75	38,500	5,030		51		74		91	97	99		100	--	SPWCM
Aug. 26	10:10 a.m.	505	72	8,060	6,080		41		56		83	96	99		100	--	VPWCM
Aug. 26	10:50 a.m.	508	74	8,380	4,510		38		55		82	96	98		99	100	VPWCM
Sept. 2	11:15 a.m.	317	71	5,810	4,270		15		23		59	88	97		99	100	SPWCM
Sept. 2	11:30 a.m.	319	71	4,980	3,680		17		24		66	92	98		100	--	VPWCM
Sept. 7	9:35 a.m.	283	73	4,720	4,000		12		18		43	79	92		97	100	VPWCM
Sept. 9	11:15 a.m.	65	70	3,870	4,355		14		18		45	83	96		100	--	VPWCM
Sept. 21	11:30 a.m.	165	61	946	1,190		11		14		28	56	90		99	100	VPWCM
Sept. 23	12:30 p.m.	117	70	924	2,260		11		13		24	54	95		100	--	VPWCM
ARENAL MAIN CANAL AT ATRISCO HEADING AT ALBUQUERQUE																
Aug. 9, 1954	10:30 a.m.	55	73	24,100	3,620		79		98		98	99	100		--		VPWCM
Aug. 11	10:30 a.m.	202	74	51,400	4,500		68		92		98	99	100		--		VPWCM
Aug. 13	1:30 p.m.	100	80	14,000	3,870		84		100		--	--	--		--		PWCM
Aug. 23	12:15 p.m.	44	75	6,920	3,250		78		100		--	--	--		--		PWCM
Sept. 6	3:40 p.m.	102	80	22,400	3,720		58		90		98	99	100		--		VPWCM
Sept. 10	12:30 p.m.	40	74	5,200	4,080		66		93		99	100	--		--		SPWCM
Sept. 21	5:15 p.m.	3.2	74	1,770	2,350		76		95		99	100	--		--		SPWCM
Sept. 25	4:00 p.m.	1.7	--	670	2,570		76		97		100	--	--		--		PWCM
Oct. 7	1:00 p.m.	132	67	24,400	4,840		81		97		100	--	--		--		PWCM
Oct. 9	11:10 a.m.	95	68	46,100	3,720		78		95		98	98	100		--		VPWCM
Oct. 21	1:15 p.m.	64	64	630	3,290		56		67		71	73	100		--		VPWCM
Oct. 23	4:40 p.m.	53	64	660	1,200		84		98		100	--	--		--		PWCM
Nov. 2	4:30 p.m.	75	60	766	2,510		59		84		99	100	--		--		SPWCM
Nov. 4	1:30 p.m.	126	55	569	3,870		57		81		96	98	100		--		SPWCM
Nov. 6	3:30 p.m.	112	54	2,880	3,830		10		16		50	79	93		100		VPWCM
Nov. 16	12:15 p.m.	3.1	49	2,090	4,060		47		63		70	74	80		88	91	SPWCM

Mar. 7, 1955.....	9:00 a.m.	123	38	2,250	4,000		22		37		57	66	93		100		VPWCM
Mar. 9.....	8:50 a.m.	157	40	1,460	3,420		29		45		65	75	97		100		VPWCM
Mar. 11.....	5:10 p.m.	171	50	2,480	3,540		30		48		73	79	94		100		VPWCM
Mar. 23.....	2:15 p.m.	138	56	864	5,400		51		70		91	97	100		--		VPWCM
Mar. 25.....	2:00 p.m.	154	59	537	3,760		72		93		99	100	--		--		SPWCM
Apr. 4.....	10:45 a.m.	136	43	1,540	5,710		28		40		52	56	96		100		VPWCM
Apr. 6.....	10:30 a.m.	45	49	354	1,350		65		83		95	97	100		--		SPWCM
Apr. 8.....	12:30 p.m.	41	60	227	1,610		72		93		100	--	--		--		PWCM
Apr. 18.....	2:10 p.m.	76	65	376	2,680		60		78		99	100	--		--		SPWCM
Apr. 20.....	9:35 a.m.	87	48	382	2,760		80		91		100	--	--		--		PWCM
Apr. 22.....	11:10 a.m.	52	53	305	2,230		78		90		99	100	--		--		SPWCM
May 4.....	10:35 a.m.	94	59	1,190	2,920		44		56		68	74	91		100		VPWCM
May 6.....	9:05 a.m.	41	58	518	2,220		46		52		58	59	85		100		VPWCM
May 16.....	10:40 a.m.	182	59	4,290	3,480		39		57		86	94	100		--		VPWCM
May 20.....	8:45 a.m.	160	56	4,890	3,460		60		78		85	95	100		--		VPWCM
May 30.....	2:00 p.m.	167	67	3,310	3,230		24		69		80	95	100		--		VPWCM
June 1.....	10:50 a.m.	170	62	1,720	4,250		18		32		69	92	100		--		VPWCM
June 13.....	10:50 a.m.	175	--	966	2,450		19		28		53	70	97		100		VPWCM
June 15.....	9:25 a.m.	200	61	328	1,870		36		53		85	95	98		100		SPWCM
June 17.....	10:30 a.m.	160	67	241	--		--		--		82	91	100		--		S
June 27.....	10:10 a.m.	216	71	198	1,420		44		61		96	98	100		--		SPWCM
RIO GRANDE AT ALBUQUERQUE																	
Mar. 8, 1954.....	9:30 a.m.	270	44	659	2,670		39		61		75	81	98		100	--	VPWCM
Mar. 11.....	10:10 a.m.	95	49	588	4,560		76		92		99	100	--		--	--	SPWCM
Mar. 22.....	10:20 a.m.	170	48	413	2,120		37		56		70	79	99		100	--	VPWCM
Mar. 26.....	10:45 a.m.	660	47	2,890	3,790		41		65		80	87	98		100	--	VPWCM
Apr. 6.....	11:50 a.m.	345	57	2,520	4,260		70		84		91	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 years October 1953 to September 1955--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 ALBUQUERQUE--Continued																	
Apr. 8, 1954	10:10 a.m.	129	51	572	4,860		72		90		95	96	100		--	--	SPWCM
Apr. 19	11:10 a.m.	716	62	2,220	4,350		41		59		74	79	88		97	100	VPWCM
Apr. 22	10:10 a.m.	427	58	1,250	3,840		43		58		74	79	91		100	--	VPWCM
May 3	1:30 p.m.	1,330	--	3,780	4,310		32		48		83	93	100		--	--	VPWCM
May 6	10:30 a.m.	660	63	1,320	3,650		42		59		80	89	99		100	--	VPWCM
May 17	4:20 p.m.	1,410	67	3,190	3,940		34		50		84	93	99		100	--	VPWCM
May 21	10:45 a.m.	1,290	67	2,450	3,770		33		48		76	84	96		100	--	VPWCM
June 2	10:25 a.m.	396	67	523	3,340		30		45		77	93	100		--	--	VPWCM
June 4	11:00 a.m.	355	67	510	3,020		25		37		67	78	96		100	--	VPWCM
June 14	10:00 a.m.	434	67	635	2,070		22		31		60	74	96		100	--	VPWCM
June 18	10:35 a.m.	67	61	307	--		--		--		26	53	98		100	--	VW
June 28	10:25 a.m.	1.0	78	11	--		--		--		94	96	98		100	--	S
July 12	10:25 a.m.	523	81	5,970	3,700		72		91		96	98	100		--	--	VPWCM
July 27	10:00 a.m.	172	82	2,970	3,850		81		93		97	99	100		--	--	SPWCM
Aug. 10	9:00 a.m.	236	70	9,370	3,560		85		99		99	100	--		--	--	SPWCM
Aug. 24	3:45 p.m.	1,040	75	56,300	2,960		61		94		98	99	100		--	--	VPWCM
Sept. 7	10:30 a.m.	366	71	19,600	2,980		59		91		96	97	99		100	--	VPWCM
Sept. 20	5:20 p.m.	9	74	1,130	2,590		93		100		--	--	--		--	--	PWCM
Oct. 4	4:30 p.m.	72	--	2,390	3,970		75		92		96	97	100		100	100	VPWCM
Oct. 18	2:40 p.m.	81	--	1,830	4,070		65		87		97	98	100		--	--	SPWCM
Nov. 2	4:10 p.m.	24	--	525	3,180		66		90		94	96	99		100	--	SPWCM
Nov. 16	11:25 a.m.	247	--	1,780	4,060		55		81		92	95	100		--	--	VPWCM
Nov. 29	3:00 p.m.	269	--	1,570	3,840		44		66		82	86	98		100	--	VPWCM
Dec. 13	2:30 p.m.	348	--	1,560	4,120		42		64		86	91	98		100	--	VPWCM
Dec. 27	3:45 p.m.	439	--	2,160	4,220		60		79		83	89	100		--	--	VPWCM
Jan. 10, 1955	1:05 p.m.	444	37	1,720	4,540		32		52		76	84	98		100	--	VPWCM
Jan. 24	11:50 a.m.	242	34	893	2,840		30		43		69	81	99		100	--	VPWCM
Feb. 7	12:50 p.m.	349	40	1,400	3,850		24		40		78	86	97		100	--	VPWCM
Feb. 25	9:25 a.m.	558	35	2,030	4,220		25		41		64	71	96		100	--	VPWCM

Mar. 7, 1955	1:50 p.m.	395	50	1,260	4,190		35	57	87	93	100	--	--	VPWCM
Mar. 22	1:15 p.m.	293	47	947	2,520		58	72	89	94	100	--	--	VPWCM
Apr. 4	9:50 a.m.	132	--	672	4,780		58	81	96	98	99	100	--	SPWCM
May 2	2:20 p.m.	281	58	1,630	4,510		50	66	85	91	98	100	--	VPWCM
May 16	2:50 p.m.	894	61	4,060	3,710		36	52	87	93	99	100	--	VPWCM
May 31	11:20 a.m.	902	63	1,800	3,480		25	36	74	87	96	100	--	VPWCM
June 13.....	2:00 p.m.	205	--	1,070	2,420		15	20	30	35	48	98	100	VPWCM
June 27.....	12:20 p.m.	74	61	211	1,300		44	55	84	89	98	100	--	SPWCM
July 11	1:45 p.m.	143	72	351	2,510		54	72	88	98	100	--	--	SPWCM
July 25	1:30 p.m.	265	--	14,600	3,910		75	94	96	97	99	100	--	VPWCM
Aug. 8	4:30 p.m.	979	--	22,000	3,760		64	89	100	--	--	--	--	PWCM
Aug. 11	2:00 p.m.	2,520	76	49,800	5,010		47	72	92	95	98	100	--	VPWCM
Aug. 23	11:30 a.m.	1,380	75	39,800	3,700		61	84	97	99	100	--	--	VPWCM
Sept. 6	12:15 p.m.	791	73	3,960	3,760		29	44	75	80	88	97	100	VPWCM
Sept. 19	3:10 p.m.	51	67	107	--		--	--	95	98	100	--	--	S

BELEN HIGHLINE CANAL AT ISLETA

Mar. 8, 1954	2:10 p.m.	138	--	463	2,340		76	97	100	--	--	--	--	PWCM
Mar. 10	9:55 a.m.	150	52	392	4,790		65	89	98	98	98	99	99	SPWCM
Mar. 12	2:50 p.m.	185	45	828	4,980		78	95	100	--	--	--	--	PWCM
Mar. 22	12:50 p.m.	43	--	124	--		--	--	98	99	100	--	--	S
Mar. 24	9:45 a.m.	37	--	140	--		--	--	99	99	100	--	--	S
Mar. 26	10:00 a.m.	144	45	3,270	3,360		79	96	100	--	--	--	--	PWCM
Apr. 5	3:45 p.m.	155	--	758	2,620		71	90	99	100	--	--	--	SPWCM
Apr. 7	2:40 p.m.	109	63	621	2,140		82	93	100	--	--	--	--	PWCM
Apr. 9	2:05 p.m.	108	66	483	2,890		69	87	99	99	100	--	--	SPWCM
Apr. 19	3:15 p.m.	266	68	1,490	3,830		59	81	98	99	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 years October 1953 to September 1955--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
BELEN HIGHLINE CANAL AT ISLETA--Continued																
Apr. 21, 1954	4:10 p.m.	232	68	1,030	4,820		72		91		98	99	100		--	--	SPWCM
Apr. 23	3:25 p.m.	128	68	494	3,460		77		94		100	--	--		--	--	PWCM
May 3	1:20 p.m.	252	63	3,020	4,660		51		76		97	98	100		--	--	VPWCM
May 5	2:30 p.m.	260	72	1,190	5,000		62		85		98	99	100		--	--	SPWCM
May 7	12:55 p.m.	238	70	632	3,630		66		88		99	100	--		--	--	SPWCM
May 17	10:05 a.m.	182	66	3,110	5,780		41		69		98	100	--		--	--	VPWCM
May 19	12:00 m.	234	70	7,210	3,900		77		95		100	--	--		--	--	PWCM
May 21	11:45 a.m.	281	--	2,070	5,010		47		69		94	99	100		--	--	VPWCM
May 31	1:25 p.m.	250	70	602	2,780		48		70		88	90	98		100	--	SPWCM
June 2	11:50 a.m.	124	53	281	--		--		--		84	89	95		99	100	S
June 4	11:50 a.m.	146	70	238	--		--		--		92	97	99		100	--	S
July 12	11:15 a.m.	92	73	5,570	3,870		87		99		100	--	--		--	--	PWCM
July 14	11:00 a.m.	88	72	1,700	4,710		89		98		100	--	--		--	--	PWCM
July 26	4:15 p.m.	235	85	14,800	5,410		80		97		99	100	--		--	--	SPWCM
Aug. 9	11:15 a.m.	7.1	--	33,600	4,520		81		100		--	--	--		--	--	PWCM
Aug. 11	11:45 a.m.	210	77	50,700	3,810		64		92		99	100	--		--	--	SPWCM
Aug. 23	1:15 p.m.	87	72	16,000	3,660		95		99		100	--	--		--	--	PWCM
Aug. 25	10:45 a.m.	42	--	41,600	3,760		82		99		100	--	--		--	--	PWCM
Sept. 8	1:10 p.m.	85	--	13,300	3,240		78		98		100	--	--		--	--	PWCM
Sept. 10	9:15 a.m.	--	67	4,660	3,500		85		99		100	--	--		--	--	PWCM
Sept. 25	1:00 p.m.	1.6	--	340	2,050		96		96		100	--	--		--	--	PWCM
Oct. 5	2:30 p.m.	69	72	20,500	2,060		82		99		100	--	--		--	--	PWCM
Oct. 7	2:55 p.m.	98	68	25,900	3,930		80		98		100	--	--		--	--	PWCM
Oct. 9	3:05 p.m.	60	73	26,400	4,460		71		97		100	--	--		--	--	PWCM
Oct. 21	2:30 p.m.	34	63	672	3,060		51		73		91	97	100		--	--	SPWCM
Oct. 23	11:00 a.m.	48	62	1,830	4,420		60		88		99	99	100		--	--	SPWCM

Mar. 7, 1955	9:00 a.m.	195	40	1,450	3,410	38	67	95	97	99	100	--	SPWCM
Mar. 9	10:50 a.m.	243	46	729	4,860	54	82	94	95	96	100	--	VPWCM
Mar. 11	3:45 p.m.	222	53	871	3,010	64	88	98	98	99	100	--	SPWCM
Mar. 21	11:10 a.m.	227	40	3,190	4,010	68	88	98	99	100	--	--	VPWCM
Mar. 23	3:55 p.m.	41	56	755	4,000	62	82	100	--	--	--	--	PWCM
Mar. 25	3:10 p.m.	2.7	59	95	--	--	--	99	100	--	--	--	S
Apr. 4	12:10 p.m.	93	48	692	3,330	72	92	100	--	--	--	--	PWCM
Apr. 6	3:00 p.m.	7.1	62	51	--	--	--	96	100	--	--	--	S
Apr. 8	1:45 p.m.	67	58	62	--	--	--	98	100	--	--	--	S
Apr. 18	9:05 a.m.	38	52	19	--	--	--	90	98	100	--	--	S
Apr. 20	10:45 a.m.	38	54	14	--	--	--	96	100	--	--	--	S
Apr. 22	12:10 p.m.	37	55	25	--	--	--	97	100	--	--	--	S
May 2	10:00 a.m.	93	53	574	3,660	79	94	99	100	--	--	--	SPWCM
May 4	12:05 p.m.	96	64	404	1,480	87	99	100	--	--	--	--	PWCM
May 6	10:15 a.m.	2.3	57	63	--	--	--	98	100	--	--	--	S
May 16	10:00 a.m.	274	56	3,720	3,610	46	71	95	97	100	--	--	VPWCM
May 20	10:35 a.m.	319	62	4,670	3,480	34	58	90	95	98	100	--	VPWCM
June 1	4:10 p.m.	319	67	728	4,110	55	81	99	99	100	--	--	SPWCM
June 13	9:40 a.m.	265	65	470	3,090	50	78	97	98	100	--	--	SPWCM
June 15	10:25 a.m.	182	70	269	1,850	55	71	94	97	100	--	--	SPWCM
June 17	9:30 a.m.	65	65	51	--	--	--	99	100	--	--	--	S
June 28	11:10 a.m.	.4	76	77	--	--	--	97	99	100	--	--	S
July 1	9:10 a.m.	--	72	49	--	--	--	97	100	--	--	--	S
July 15	9:20 a.m.	2.2	73	1,300	2,450	93	99	100	--	--	--	--	PWCM
July 25	12:40 p.m.	147	79	8,820	3,660	83	97	100	--	--	--	--	PWCM
July 29	10:45 a.m.	158	74	16,900	3,940	78	97	100	--	--	--	--	PWCM
Aug. 10	12:30 p.m.	158	78	22,000	4,120	78	98	100	--	--	--	--	PWCM
Aug. 12	10:00 a.m.	174	73	33,500	4,100	60	86	99	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 years October 1953 to September 1955--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	
BELEN HIGHLINE CANAL AT ISLETA--Continued																	
Aug. 22, 1955	10:00 a.m.	198	72	39,800	7,960		57		80		91	92	97		100	--	VPWCM
Aug. 24	10:15 a.m.	190	72	25,000	3,160		57		84		100	--	--		--	--	PWCM
Aug. 26	10:00 a.m.	192	71	8,830	3,840		77		95		100	--	--		--	--	PWCM
Sept. 26	10:45 a.m.	253	68	23,900	3,400		76		93		99	100	--		--	--	SPWCM
Sept. 30	11:40 a.m.	13	65	217	--		--		--		100	--	--		--	--	S
ISLETA EAST SIDE CANAL AT ISLETA																	
Mar. 8, 1954	2:40 p.m.	--	--	372	2,760		76		93		100	--	--		--	--	PWCM
Mar. 10	10:25 a.m.	60	53	281	3,080		78		97		100	--	--		--	--	PWCM
Mar. 12	2:15 p.m.	85	46	702	3,620		82		97		100	--	--		--	--	PWCM
Mar. 22	11:40 a.m.	88	--	254	--		--		--		84	92	98		99	100	S
Mar. 24	9:30 a.m.	218	--	215	--		--		--		97	98	100		--	--	S
Mar. 26	9:30 a.m.	111	47	3,770	3,940		61		79		91	96	100		--	--	VPWCM
Apr. 5	3:20 p.m.	219	65	813	4,360		67		92		100	--	--		--	--	PWCM
Apr. 7	2:20 p.m.	159	63	594	3,200		82		99		100	--	--		--	--	PWCM
Apr. 9	1:25 p.m.	131	65	341	1,160		86		98		100	--	--		--	--	PWCM
Apr. 19	3:00 p.m.	360	68	1,390	3,520		57		82		97	99	100		--	--	VPWCM
Apr. 21	3:40 p.m.	240	68	988	5,590		67		83		100	--	--		--	--	PWCM
Apr. 23	4:05 p.m.	141	67	623	3,420		62		79		100	--	--		--	--	PWCM
May 3	2:00 p.m.	406	63	3,060	3,580		44		69		92	98	100		--	--	VPWCM
May 5	2:00 p.m.	383	--	1,320	5,980		35		39		92	97	100		--	--	VPWCM
May 7	1:15 p.m.	316	70	689	3,160		61		76		90	96	100		--	--	VPWCM
May 17	11:00 a.m.	378	68	4,220	5,490		27		45		67	75	96		100	--	VPWCM
May 19	12:50 p.m.	361	70	7,190	3,860		66		87		97	98	100		--	--	VPWCM
May 21	1:15 p.m.	344	--	2,390	3,740		36		54		72	84	98		100	--	VPWCM
May 31	12:45 p.m.	397	70	738	3,120		36		57		84	90	100		--	--	VPWCM
June 2	12:30 p.m.	225	54	237	--		--		--		95	97	99		100	--	S

June 4, 1954	12:40 p.m	211	71	283	--	--	--	84	95	99	100	--	VW
June 15	1:55 p.m.	488	--	311	--	--	--	98	99	99	100	--	S
June 16	1:30 p.m.	352	--	378	1,820	45	59	90	97	100	--	--	VPWCM
June 18	2:25 p.m.	140	78	102	--	--	--	91	97	99	100	--	S
July 26	4:00 p.m.	--	85	11,300	3,180	84	98	100	--	--	--	--	PWCM
July 28	2:30 p.m.	--	82	432	2,130	58	76	99	99	99	99	100	SPWCM
July 30	9:40 a.m.	--	74	329	1,480	83	95	100	--	--	--	--	PWCM
Aug. 9	12:00 m.	--	75	29,700	3,540	82	99	100	--	--	--	--	PWCM
Aug. 11	12:45 p.m.	--	77	51,800	4,720	65	94	98	99	100	--	--	SPWCM
Oct. 5	2:00 p.m.	120	72	19,200	3,870	83	99	100	--	--	--	--	PWCM
Oct. 7	2:30 p.m.	125	68	26,100	4,140	80	99	100	--	--	--	--	PWCM
Oct. 9	3:40 p.m.	102	72	26,600	4,170	75	97	100	--	--	--	--	PWCM
Oct. 19	2:15 p.m.	80	64	2,690	4,240	73	95	99	100	--	--	--	SPWCM
Nov. 2	1:40 p.m.	126	56	47	--	--	--	98	100	--	--	--	S
Nov. 4	2:50 p.m.	76	59	419	2,290	81	99	100	--	--	--	--	PWCM
Nov. 6	11:30 a.m.	67	47	1,690	3,320	79	99	100	--	--	--	--	PWCM
Nov. 16	9:15 a.m.	128	43	2,900	3,630	68	92	96	98	100	--	--	SPWCM
Mar. 9, 1955	10:20 a.m.	132	46	448	2,260	68	89	96	98	100	--	--	SPWCM
Mar. 11	4:20 p.m.	142	53	498	2,550	59	75	99	99	100	--	--	SPWCM
Mar. 21	10:10 a.m.	228	40	2,610	3,610	74	93	100	--	--	--	--	PWCM
Mar. 23	3:40 p.m.	288	56	736	3,910	71	93	99	100	--	--	--	SPWCM
Mar. 25	3:40 p.m.	225	59	142	--	--	--	99	100	--	--	--	S
Apr. 4	11:55 a.m.	120	48	427	2,010	81	99	100	--	--	--	--	PWCM
Apr. 6	3:30 p.m.	118	60	36	--	--	--	98	100	--	--	--	S
Apr. 8	2:10 p.m.	57	58	422	--	--	--	81	93	100	--	--	S
May 16	9:20 a.m.	294	55	3,180	3,690	60	89	100	--	--	--	--	PWCM
May 18	11:25 a.m.	330	60	2,060	2,770	53	84	100	--	--	--	--	PWCM
May 20	9:55 a.m.	288	60	3,470	3,560	47	76	100	--	--	--	--	PWCM

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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	
ISLETA EAST SIDE CANAL AT ISLETA--Continued																	
June 1, 1955	3:50 p.m.	378	55	785	2,700		47		74		93	94	100		--	--	SPWCM
July 15	9:10 a.m.	294	73	8,330	4,540		91		100		--	--	--		--	--	PWCM
July 25	12:20 p.m.	150	78	8,470	4,900		80		97		100	--	--		--	--	PWCM
July 29	10:30 a.m.	219	73	17,900	4,000		74		96		100	--	--		--	--	PWCM
Aug. 10	12:10 p.m.	381	77	20,300	4,450		77		97		100	--	--		--	--	PWCM
Aug. 12	9:45 a.m.	249	73	31,700	5,120		61		85		99	100	--		--	--	VPWCM
Aug. 22	9:30 a.m.	288	72	39,300	3,510		60		82		95	98	99		100	--	VPWCM
Aug. 24	9:30 a.m.	387	71	26,100	5,160		51		77		94	98	100		--	--	VPWCM
Aug. 26	9:30 a.m.	285	71	8,650	5,240		72		88		100	--	--		--	--	PWCM
Sept. 26	11:15 a.m.	306	68	22,900	4,880		73		92		97	98	99		100	--	VPWCM
RIO GRANDE NEAR BELEN																	
Mar: 22, 1954	2:05 p.m.	97	55	248	--		--		--		94	99	100		--	--	S
Apr. 6	3:10 p.m.	218	46	702	4,100		74		85		91	93	99		100	--	VPWCM
Apr. 19	3:35 p.m.	619	68	2,010	5,010		64		87		95	98	100		--	--	VPWCM
May 5	6:10 p.m.	395	77	1,080	4,580		64		81		89	94	100		--	--	VPWCM
May 20	12:30 p.m.	1,050	67	4,930	3,520		73		88		93	97	100		--	--	VPWCM
June 2	2:10 p.m.	200	71	217	--		--		--		98	99	100		--	--	S
June 14	1:45 p.m.	144	68	320	--		--		--		55	78	100		--	--	VW
June 28	2:30 p.m.	80	75	149	--		--		--		77	86	98		100	--	S
July 12	3:15 p.m.	48	78	123	510		44		52		78	86	95		100	--	SPWCM
July 27	5:40 p.m.	--	84	170	1,100		74		81		94	95	97		100	--	SPWCM
Aug. 10	1:45 p.m.	108	79	14,100	3,510		83		99		99	100	--		--	--	SPWCM
Aug. 25	2:30 p.m.	73	81	12,300	5,360		84		99		100	--	--		--	--	PWCM
Sept. 21	3:20 p.m.	37	74	68	275		49		75		90	94	100		--	--	SPWCM
Oct. 19	4:25 p.m.	86	--	1,400	3,840		73		90		98	99	100		--	--	SPWCM
Nov. 2	1:45 p.m.	37	--	43	--		--		--		84	100	--		--	--	S
Nov. 16	3:10 p.m.	164	--	1,460	5,350		69		95		99	99	100		--	--	SPWCM

Dec. 13, 1954	11:10 a.m.	317	--	1,460	3,680		69		88		93	94	100	--	--	VPWCM
Dec. 27.....	12:20 p.m.	416	--	1,700	4,820		36		62		82	87	97	100	--	VPWCM
Jan. 12, 1955.....	12:35 p.m.	543	38	1,750	4,660		55		78		85	90	99	100	--	VPWCM
Jan. 25.....	12:10 p.m.	316	40	1,240	4,370		53		75		82	88	99	100	--	SPWCM
Feb. 9.....	1:50 p.m.	454	41	1,380	3,590		50		73		81	87	98	100	--	SPWCM
Feb. 24	2:45 p.m.	382	45	1,120	3,370		48		71		80	86	98	100	--	VPWCM
Mar. 9	4:35 p.m.	184	57	676	2,670		62		79		87	93	100	--	--	VPWCM
Mar. 25	4:00 p.m.	103	60	267	2,040		59		82		91	94	100	--	--	SPWCM
May 20	4:25 p.m.	459	73	2,190	3,450		55		83		93	96	100	--	--	VPWCM
June 3.....	11:15 a.m.	438	--	2,440	2,920		17		26		39	42	68	98	100	VPWCM
June 17.....	12:15 p.m.	87	67	235	--		--		--		87	92	100	--	--	S
July 14	12:45 p.m.	98	78	5,300	3,770		89		96		99	100	--	--	--	SPWCM
July 29	1:20 p.m.	365	74	17,000	4,400		83		98		99	100	--	--	--	VPWCM
Aug. 9	11:45 a.m.	651	76	23,900	4,620		73		97		98	99	100	--	--	VPWCM
Aug. 23	3:20 p.m.	1,180	79	27,100	3,900		69		92		98	99	100	--	--	VPWCM
Sept. 6.....	12:35 p.m.	638	--	5,410	4,310		35		51		58	60	87	99	100	VPWCM
Sept. 27.....	4:20 p.m.	257	70	10,400	3,850		90		98		100	--	--	--	--	PWCM

SAN JUAN CANAL AT SAN JUAN HEADING NEAR BOSQUE

Aug. 11, 1954.....	2:50 p.m.	56	78	4,360	3,440		88		98		100	--	--			PWCM
Aug. 13	3:00 p.m.	108	80	250	1,900		78		98		100	--	--			PWCM
Aug. 23	2:30 p.m.	37	78	95	762		67		94		100	--	--			PWCM
Aug. 25	11:50 a.m.	123	76	34,700	3,840		81		100		--	--	--			PWCM
Aug. 27	3:15 p.m.	38	74	115	1,060		74		98		100	--	--			PWCM
Sept. 6.....	2:00 p.m.	30	85	108	775		64		95		100	--	--			PWCM
Sept. 8.....	3:00 p.m.	29	84	363	2,500		77		97		100	--	--			PWCM
Sept. 10.....	10:45 a.m.	29	70	176	1,410		69		93		100	--	--			PWCM

RIO GRANDE BASIN--Continued

MISCELLANEOUS ANALYSES OF STREAMS IN RIO GRANDE BASIN IN NEW MEXICO--Continued

Particle-size analyses of suspended sediment, water years October 1953 to September 1955--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	
SAN JUAN CANAL AT SAN JUAN HEADING NEAR BOSQUE--Continued																	
Sept. 21, 1954	5:15 p.m.	26	77	380	1,150		86		95		99	100	--				SPWCM
Sept. 23	3:00 p.m.	20	65	188	1,480		81		95		100	--	--				PWCM
Sept. 25	3:00 p.m.	20	--	227	1,690		83		96		100	--	--				PWCM
Oct. 5	3:30 p.m.	70	77	586	4,490		84		100		--	--	--				PWCM
Oct. 7	4:15 p.m.	3.5	--	35,900	3,810		83		100		--	--	--				PWCM
Oct. 9	1:40 p.m.	52	75	7,650	5,370		85		100		--	--	--				PWCM
Oct. 19	2:55 p.m.	92	67	1,190	4,270		74		97		100	--	--				PWCM
Oct. 21	3:30 p.m.	43	69	325	2,160		84		97		100	--	--				PWCM
Oct. 23	1:30 p.m.	34	65	163	812		78		95		100	--	--				PWCM
Nov. 2	3:15 p.m.	30	60	37	--		--		--		95	100	--				S
Nov. 4	3:30 p.m.	32	61	62	--		--		--		99	100	--				S
Nov. 6	1:45 p.m.	57	58	148	--		--		--		100	--	--				S
Mar. 7, 1955	10:25 a.m.	96	44	796	4,490		58		81		90	98	100				SPWCM
Mar. 9	2:30 p.m.	88	55	460	3,690		77		98		99	100	--				SPWCM
Mar. 11	2:30 p.m.	85	54	1,270	3,705		75		98		100	--	--				PWCM
Mar. 21	1:10 p.m.	70	45	4,720	4,010		60		80		88	97	100				VPWCM
Mar. 23	4:25 p.m.	87	52	1,020	3,450		75		93		99	99	100				SPWCM
Mar. 25	2:50 p.m.	131	61	327	2,480		78		97		99	100	--				SPWCM
Apr. 4	10:50 a.m.	104	48	225	1,260		73		97		100	--	--				PWCM
Apr. 6	5:00 p.m.	87	62	143	1,080		74		91		100	--	--				PWCM
Apr. 8	10:00 a.m.	90	54	213	1,540		60		85		97	99	100				SPWCM
Apr. 18	10:25 a.m.	78	60	180	1,240		63		83		99	99	100				SPWCM
Apr. 20	12:00 m.	50	61	29	--		--		--		87	96	100				S
May 2	11:20 a.m.	32	60	125	--		--		--		97	99	100				S
May 4	1:20 p.m.	36	72	59	--		--		--		97	99	100				S
May 16	11:30 a.m.	124	61	7,330	3,960		49		83		90	93	100				VPWCM
May 18	2:00 p.m.	95	62	1,780	3,150		38		54		91	97	100				VPWCM
May 20	1:10 p.m.	104	69	1,370	3,920		69		88		94	97	100				VPWCM
May 30	3:00 p.m.	95	66	3,460	3,980		43		66		95	100	--				VPWCM

June 1, 1955	3:00 p.m.	110	70	1,150	3,910		63		88		99	100	--				SPWCM
June 13	11:05 a.m.	59	67	70	--		--		--		98	100	--				S
June 15	11:50 a.m.	60	75	59	--		--		--		98	99	100				S
June 17	10:45 a.m.	55	66	49	--		--		--		96	100	--				S
June 27	12:05 p.m.	44	81	51	--		--		--		97	100	--				S
June 29	9:45 a.m.	36	69	55	--		--		--		98	99	100				S

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