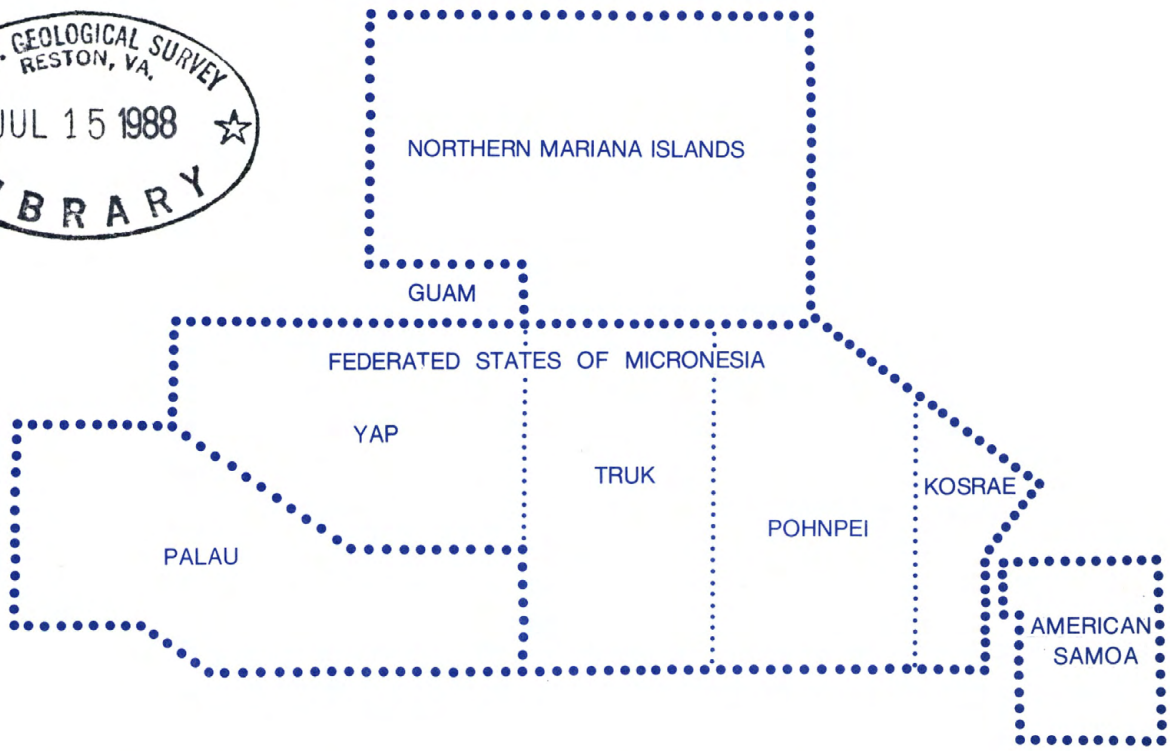
Water Resources Data Hawaii and other Pacific Areas Water Year 1986

Volume 2. Guam, Northern Mariana Islands, Federated States of Micronesia, Palau, and American Samoa



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT HI-86-2
Prepared in cooperation with the Governments of Guam, Northern Mariana Islands, Federated States of Micronesia, Palau, American Samoa, and with other agencies

CALENDAR FOR WATER YEAR 1986

1985

OCTOBER

S	M	T	W	T	F	S
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1986

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AUGUST

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SEPTEMBER

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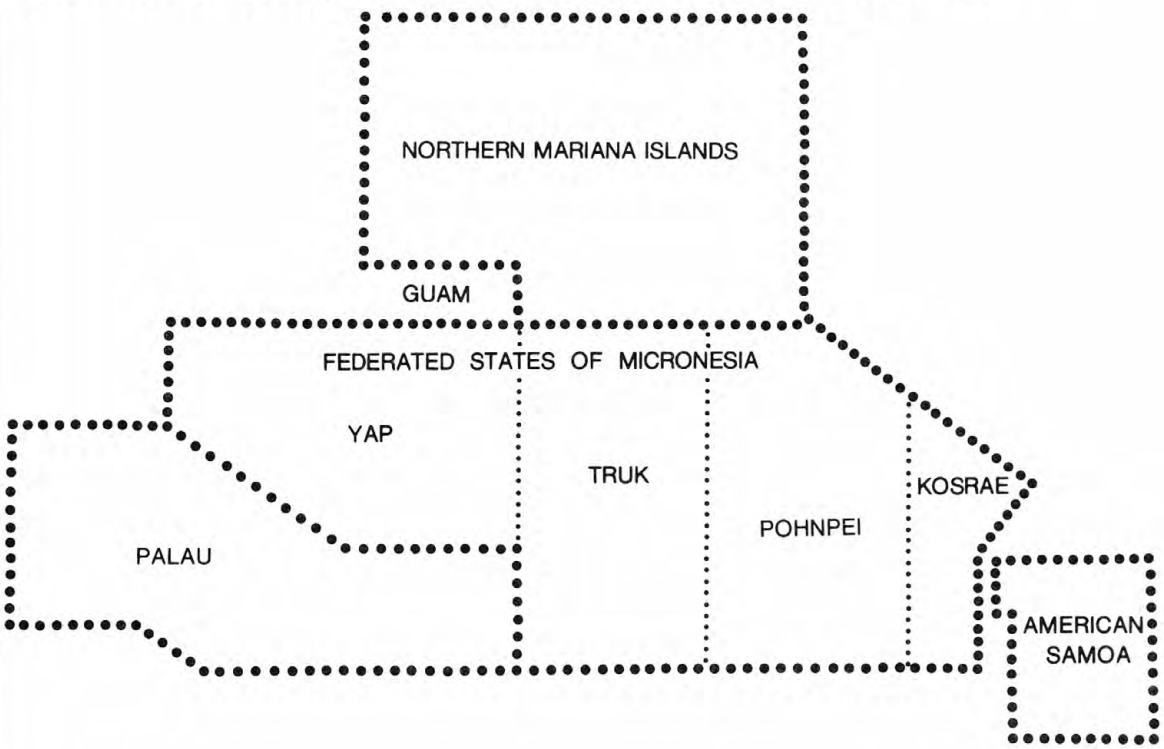
Water Resources Data Hawaii and other Pacific Areas Water Year 1986

Volume 2. Guam, Northern Mariana Islands, Federated States of Micronesia, Palau, and American Samoa

by Salwyn S. Chinn, Grace A. Tateishi, and Johnson J.S. Yee



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT HI-86-2
Prepared in cooperation with the Governments of Guam, Northern Mariana Islands, Federated States of Micronesia, Palau, American Samoa, and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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Honolulu, Hawaii 96850

1988

PREFACE

This volume of the annual hydrologic data report of Hawaii and other Pacific Areas is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Pacific Islands. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Hawaii and other Pacific Areas are contained in two volumes:

Volume 1. Hawaii
Volume 2. Guam, Northern Mariana Islands, Federated States of Micronesia, Palau, and American Samoa.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

Gregg N. Ikehara
Donald Baker
Michael Siguenza
Isao Yamashiro
Lodie T. Celebrado
Vaughn Kunishige
Florentin Yangilmau (Palau)
Adrian Gimed (Yap)
Siongau Esra (Truk)
Waltick Panuel (Pohnpei)
Winner Alik (Kosrae)
Frank Taotoai (American Samoa)

This report was prepared in cooperation with the Governments of Guam, Northern Mariana Islands, Federated States of Micronesia, Palau, American Samoa, and with other agencies under the general supervision of William Meyer, District Chief, Hawaii.

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May 1988

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13. Type of Report & Period Covered
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15. Supplementary Notes

Prepared in cooperation with the Governments of Guam, Northern Mariana Islands, Federated States of Micronesia, Palau Islands, American Samoa, and with other agencies.

16. Abstract (Limit: 200 words)

Volume 2 of water resources data for the 1986 water year for other Pacific areas consists of records of stage, discharge, and water quality of streams and springs; stage of 2 lakes and a reservoir; and water levels and water quality in wells. This report contains discharge records for 29 gaging stations; stage only record for 3 gaging stations; water quality for 8 gaging stations; 5 partial-record stations; water temperature for 28 gaging stations; and water levels for 35 observation wells and water quality for 81 ground-water sites. Also included are 8 low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Governments and Federal agencies in other Pacific areas.

17. Document Analysis a. Descriptors

*Pacific area, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Chemical analyses, Sediments, Reservoirs, Water temperatures, Sampling sites, Water levels.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
No restriction on distribution. This report may be purchased from: National Technical information Service Springfield, VA 22161	UNCLASSIFIED	126
	20. Security Class (This Page) UNCLASSIFIED	22. Price

CONTENTS

ILLUSTRATIONS

Letters after station name designate type of data:
(d) discharge, (e) stage or gage height, (c) chemical,
(t) temperature

Letters after well number designate type of data:
(c) chemical, (t) water temperature, (w) water level

WATER RESOURCES DATA FOR HAWAII AND OTHER PACIFIC AREAS, 1986

Volume 2

INTRODUCTION

Water resources data for the 1986 water year for Hawaii and other Pacific areas consist of records of stage, discharge, and water quality of streams, springs, and reservoir; and water-levels and water quality of wells. This report contains discharge records for 29 gaging stations; stage only records for 3 gaging stations; water quality for 8 gaging stations, 5 partial-record stations, water temperature for 28 stations; and water levels for 35 observation wells and water quality for 81 ground-water sites. Also included are data for 8 low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, Territorial, and Federal agencies in the Pacific areas.

Records of discharge and stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960 (June 30, 1960, for Hawaii and other Pacific Areas), these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. The records for other Pacific areas were contained in one volume entitled "Surface Water Supply of Mariana, Caroline, and Samoa Islands." Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground Water Levels in the United States." Water-supply papers are available in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, Virginia, 22202.

For water years 1961 through 1970, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1971 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report HI-86-2."

In this volume, the spelling of names, drainage areas, and locations for most stations in Palau, Yap, Truk, Ponape, and Kosrae differ from those used in "Water Resources Data for Hawaii and other Pacific Areas", 1968 to 1980. These had been based on 1954 U.S. Army Map Service series W 856 maps with a scale of 1:25,000 and 10-meter contours (International spheroid). The revised names and figures were based on the 1981 USGS maps with 1:10,000 scale and 5-meter contours (Clarke spheroid of 1866).

The water-data reports are for sale, in paper copy or in microfiche, by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161. Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (808) 541-2820.

COOPERATION

The U.S. Geological Survey has had cooperative agreements for the systematic collection of streamflow records with the Government of Guam since 1953, with the Government of American Samoa since 1957, and with the other Pacific Islands since 1968. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Government of Guam, Joseph P. Ada, Governor.
Government of Northern Mariana Islands, P. P. Tenorio, Governor.
Federated States of Micronesia, J. Haglelgam, President.
  State of Yap, Petrus Tun, Governor.
  State of Truk, Gideon Doone, Governor.
  State of Pohnpei, Resio Moses, Governor.
  State of Kosrae, Yosiwo George, Governor.
Republic of Palau, Lazarus Salii, President.
Government of American Samoa, A. P. Lutali, Governor.

Assistance in the form of funds or services was given by the Public Works, U.S. Navy, and the Corps of Engineers, U.S. Army.

SUMMARY OF HYDROLOGIC CONDITIONS

Based on the records at six index streams in the area covered by this volume, as shown in figure 1; the annual mean runoff for 1986 water year was in the normal range at the index stations on Yap, Pohnpei, and Samoa, in the excessive range (flow in the upper 25 percent of record) at the stations on Guam and Kosrae, and deficient (flow in the lower 25 percent of record) at Babelthuap.

Streamflow at the Imong River near Agat, Guam (fig. 2) was excessive for October, December, March through May, July, and August; normal for January, February, June, and September; and deficient for November. Annual mean runoff was 149 percent of the median.

At the Diongradid River (fig. 2) on the island of Babelthuap, Palau Islands, monthly mean was normal for October, November, January through May, and July through September; and deficient for December and June. Annual mean runoff was 85 percent of the annual median.

On the island of Yap, Caroline Islands, streamflow at the Qaringeel Stream (fig. 3) was excessive for December, February, March, and May; normal for October, January, April, and June through September; and deficient for November. Annual mean runoff was 112 percent of the annual median.

Streamflow at the Nanpil River in Pohnpei (fig. 3) was excessive for December, February, March, May, and September; normal for October, November, January, April, and July; and deficient for June and August. Annual mean discharge was 113 percent of the annual median.

On the island of Kosrae, streamflow at the Melo River (fig. 4) was excessive for January through March and September; normal for October through December and April through July; and deficient for August. Annual mean discharge was 117 percent of the annual median.

At Tutuila, American Samoa, streamflow at Aasu (fig. 4) was excessive for October, November, May and September; normal for January through April and June through August; and deficient for December. Annual mean runoff was 109 percent of the annual median.

DEFINITION OF TERMS

Definition of terms related to streamflow, water-quality, and other hydrologic data are defined as follows:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,851 gallons or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies withing 24 hours when incubated at 35°C ± 0.5°C on M-Endoagar (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

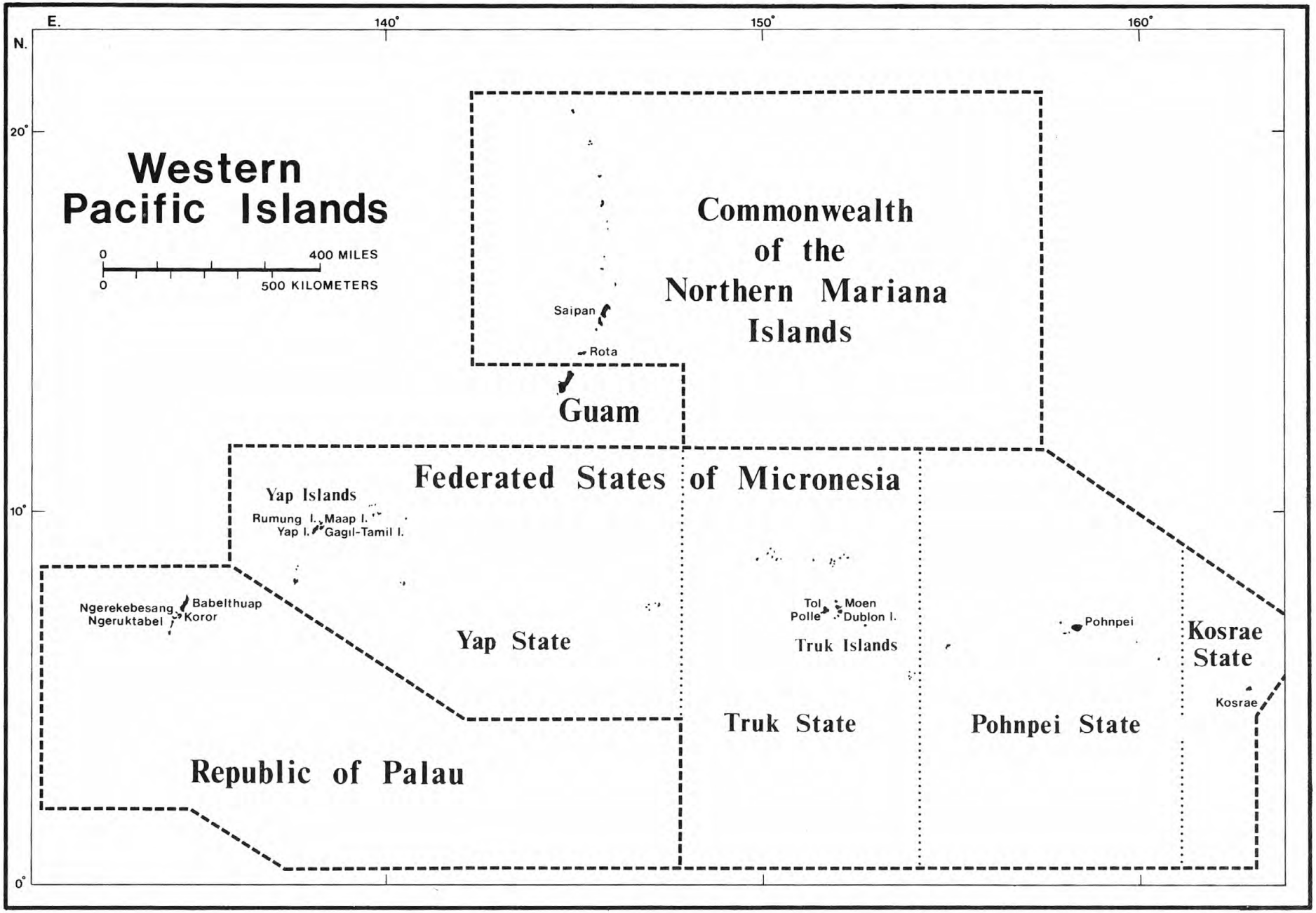


FIGURE 1.--LOCATIONS OF WESTERN PACIFIC ISLANDS.

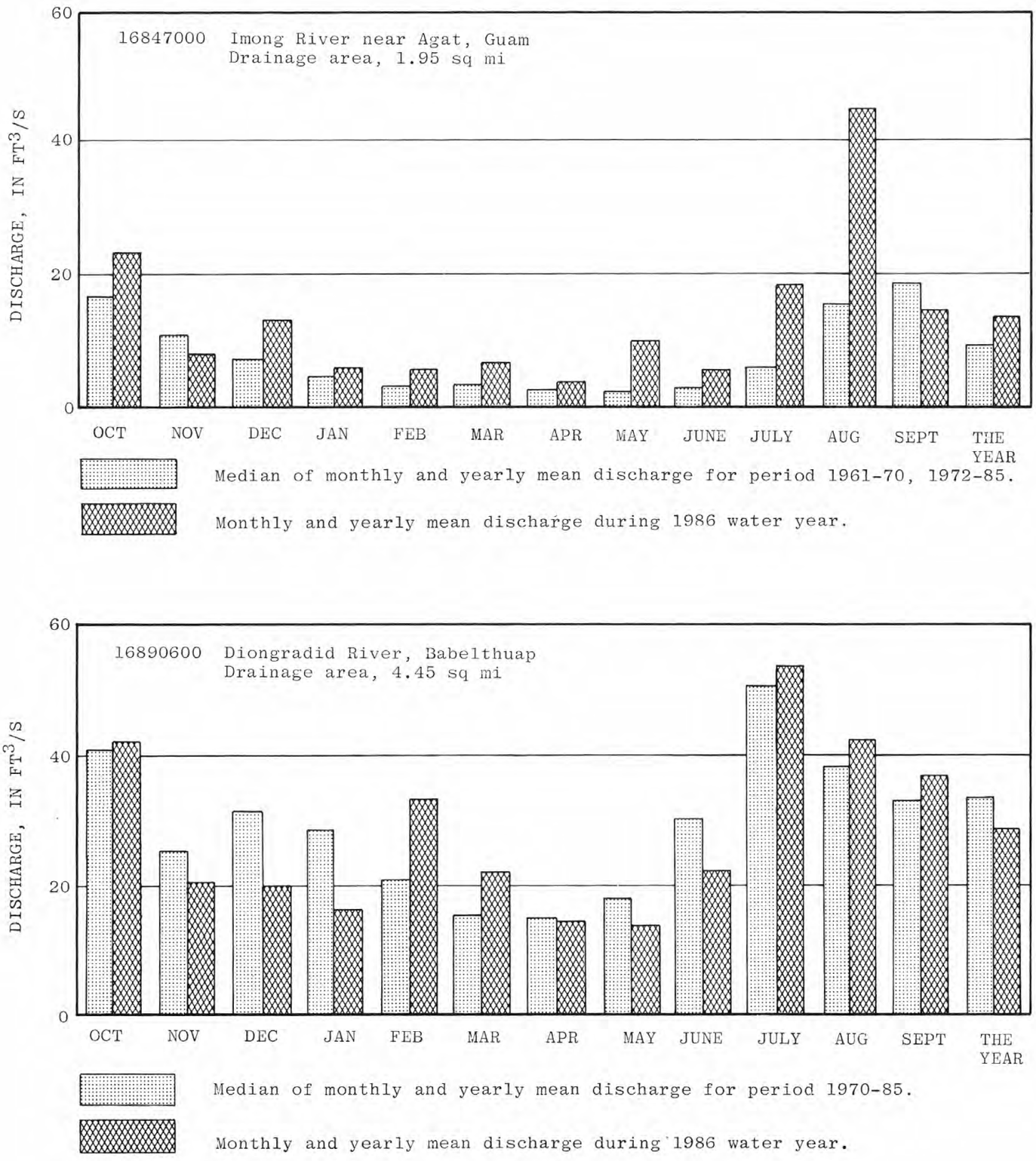


FIGURE 2.--DISCHARGE DURING 1986 WATER YEAR COMPARED WITH MEDIAN DISCHARGE FOR REPRESENTATIVE STREAMS ON GUAM AND BABELTHUAP.

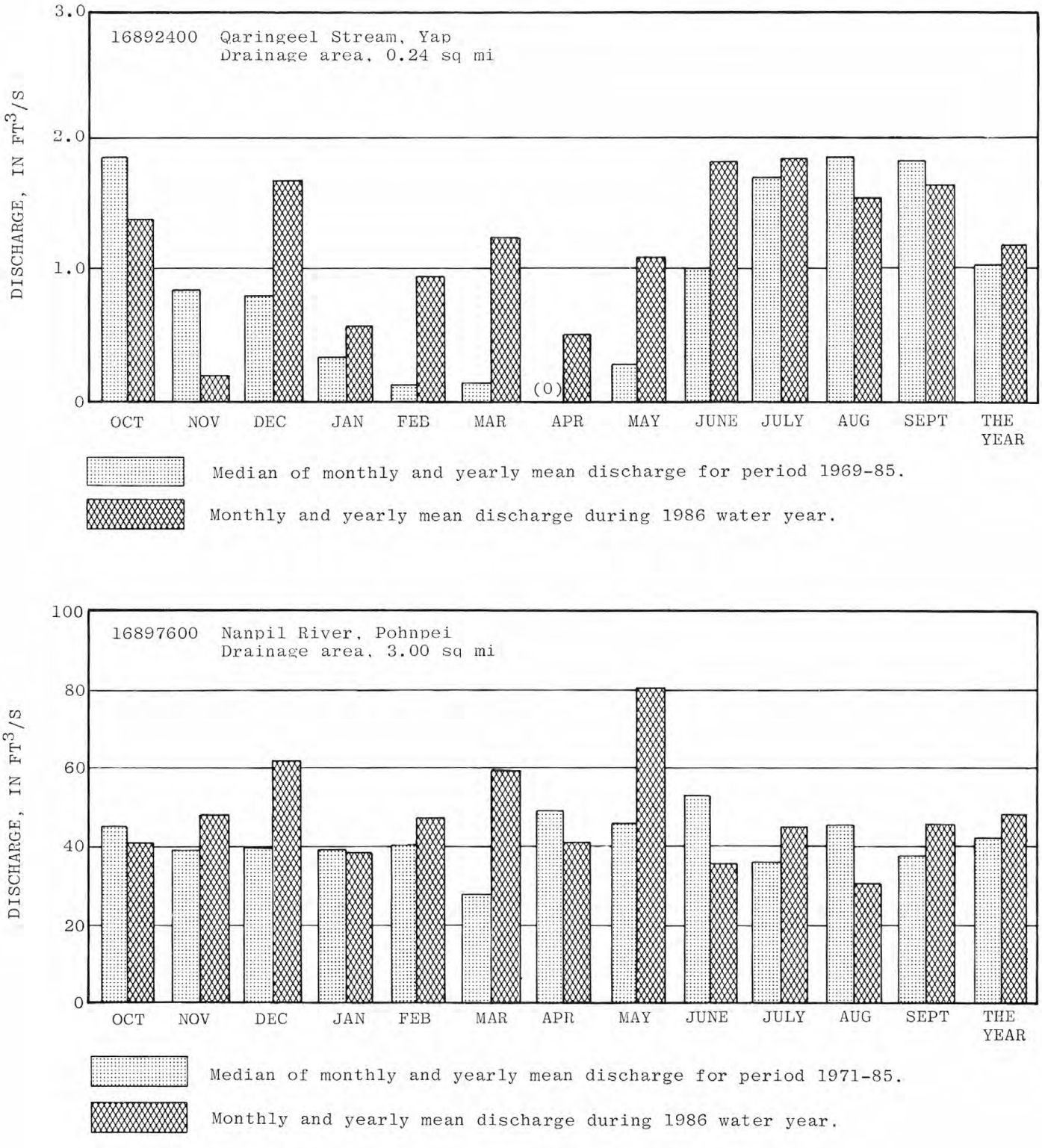
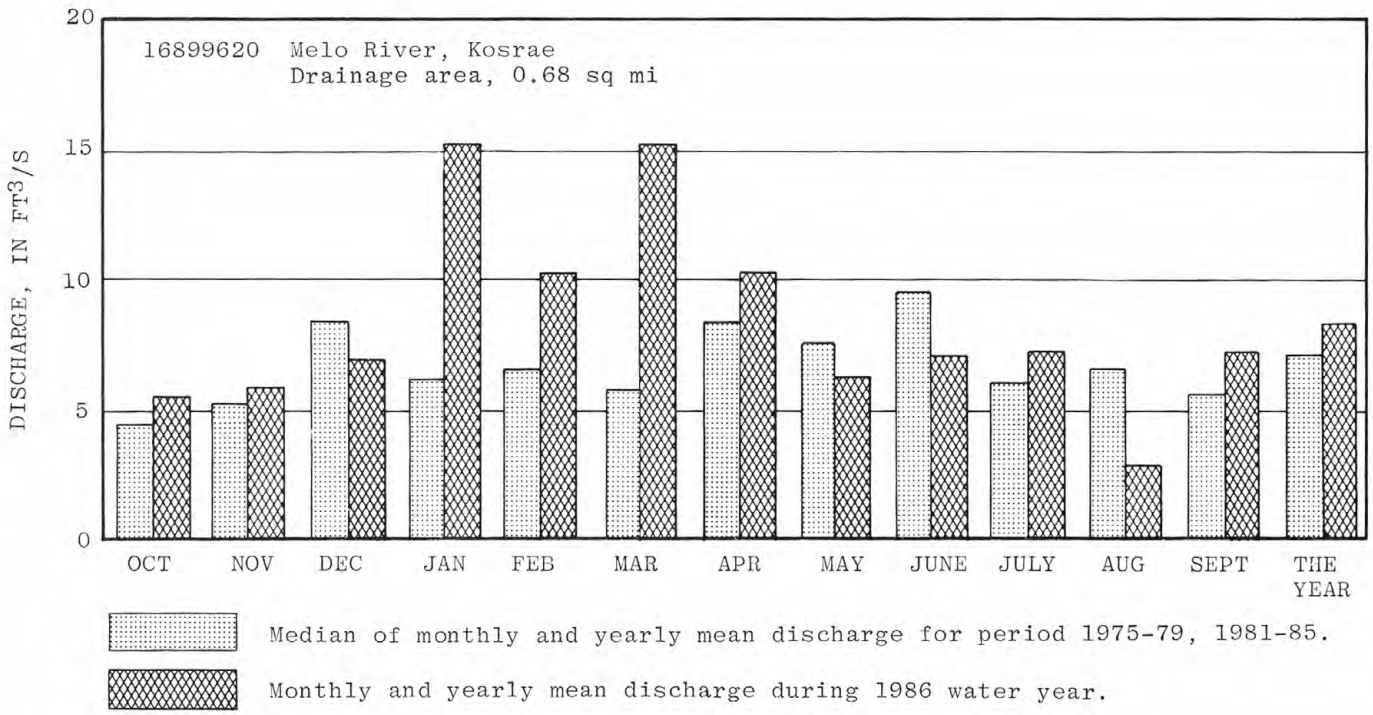


FIGURE 3.--DISCHARGE DURING 1986 WATER YEAR COMPARED WITH MEDIAN DISCHARGE FOR REPRESENTATIVE STREAMS ON YAP AND POHNPEI.



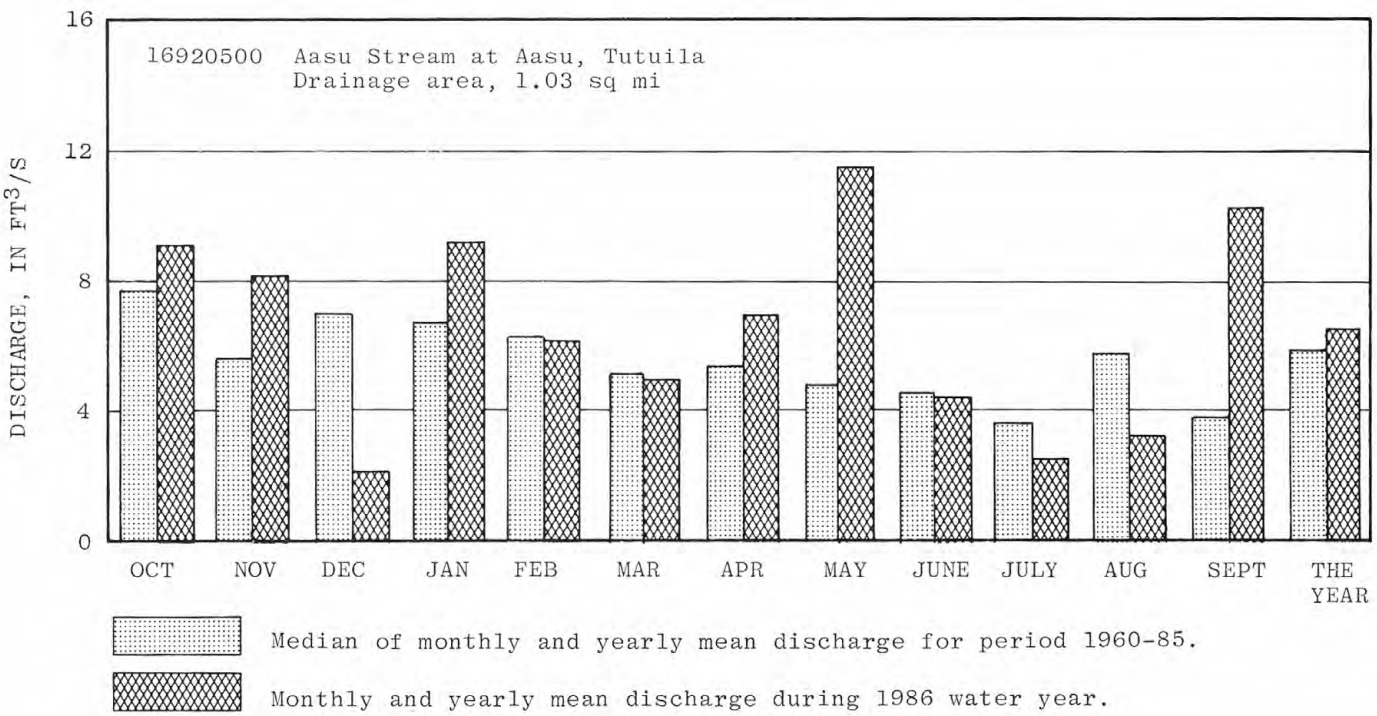


FIGURE 4.--DISCHARGE DURING 1986 WATER YEAR COMPARED WITH MEDIAN DISCHARGE FOR REPRESENTATIVE STREAMS ON KOSRAE AND TUTUILA.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC agar (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliter of of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacterial which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 0.5°C on KF Streptococcus agar (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any time, expressed as the weight per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in g/m^3 (grams per cubic meter), and periphyton and benthic organisms in g/m^2 (grams per square meter).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash, and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters of liters (L).

CFS-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9835 acre-feet, or 646,317 gallons or 2,447 cubic meters.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate or delayed incubation membrane filter method.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuing record station is a specified site which meets one or all conditions listed:

1. When chemical samples are collected daily or monthly for 10 or more months during the water year.

2. When water temperature records include observations taken one or more times daily.

3. When sediment discharge records include those periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic average of individual daily mean discharges during a specified period.

Instantaneous discharge is the discharge at a particular instant of time. If this discharge is reported instead of the daily mean, the heading of the discharge column in the table is "DISCHARGE (CFS)."

Dissolved is that material in a representative water sample which passes through a 0.45 micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Microgram per gram ($\mu g/g$) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Microgram per liter ($\mu G/L$, $\mu g/L$) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligram per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Pesticides are chemical compounds used to control the growth of undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (Pc,pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radio-active disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times milligrams per liter times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weight concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

Suspended recoverable is the amount of a given constituent that is in solution after the part of a respresentative water-suspended sediment sample that is retained on a 0.45 micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituents.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. 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 stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed Nephelometric turbidity units (NTU).

WDR is used as an abbreviation for "Water-Data Reports" in the summary REVISIONS paragraph to refer to previously published State annual basic-data reports.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Records are listed in a downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all main-stream stations are listed before the first main-stream station. Stations on tributaries to tributaries are listed in a similar manner. In the lists of gaging stations and water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification, each gaging station, partial-record station, and water-quality station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and continuous-record gaging stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 16858000 which appears just to the left of the station name includes the 2-digit number "16" plus the 6-digit downstream order number "858000." In this report, the records are listed in downstream order by islands. Locations of the stations are shown in figures 5-13.

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 14.

The local well-numbering system for Pacific Areas was restructured to contain eight digits based on a non-arbitrary, unique one-minute grid system. One-minute parallel lines for both latitude and longitude are drawn on the map resulting in one-minute grids. Each grid is designated by a four-digit number. The first two digits represent minutes of latitude for the grid and the second two digits represent minutes of longitude for that grid.

To distinguish wells within a minute grid, two digits are added following the 4-digit minute-grid numbers with a dash separator. These two-digit numbers are assigned with the oldest well dug within the grid as 01 and increase chronologically, with few exceptions, to the latest dug.

Since it is possible to have a same 6-digit number for wells on different islands, a 2-digit number distinguishing each of the islands or geographic areas is added in front of the 6-digit number with a dash separator. For example, in the number 18-2647-01, the first two digits designate an island of geographic area, then the 4-digit minute-grid numbers followed by a 2-digit sequential number. See figure 15.

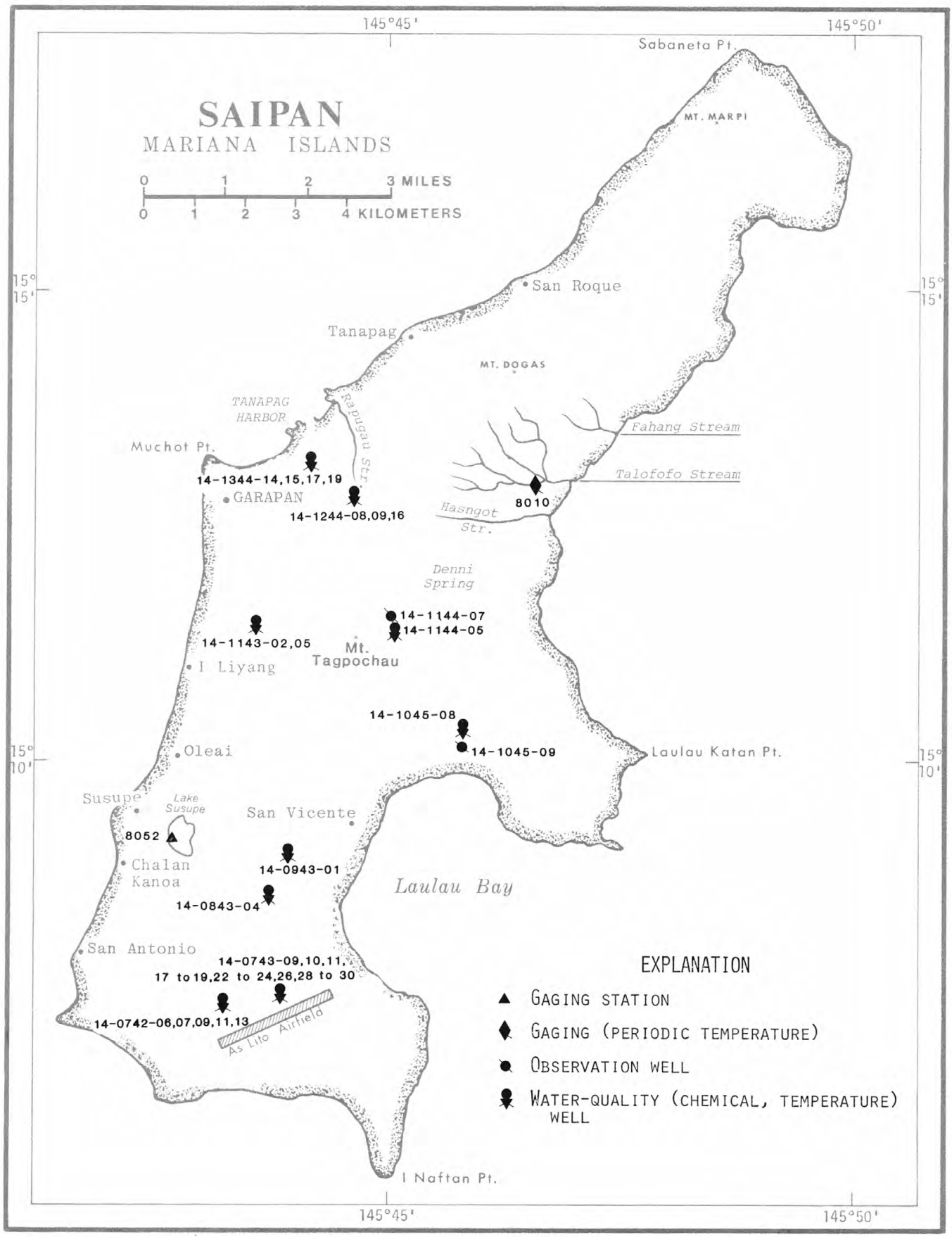


FIGURE 5.--LOCATIONS OF GAGING STATIONS, OBSERVATION WELLS, AND WATER-QUALITY SAMPLING SITES ON SAIPAN.

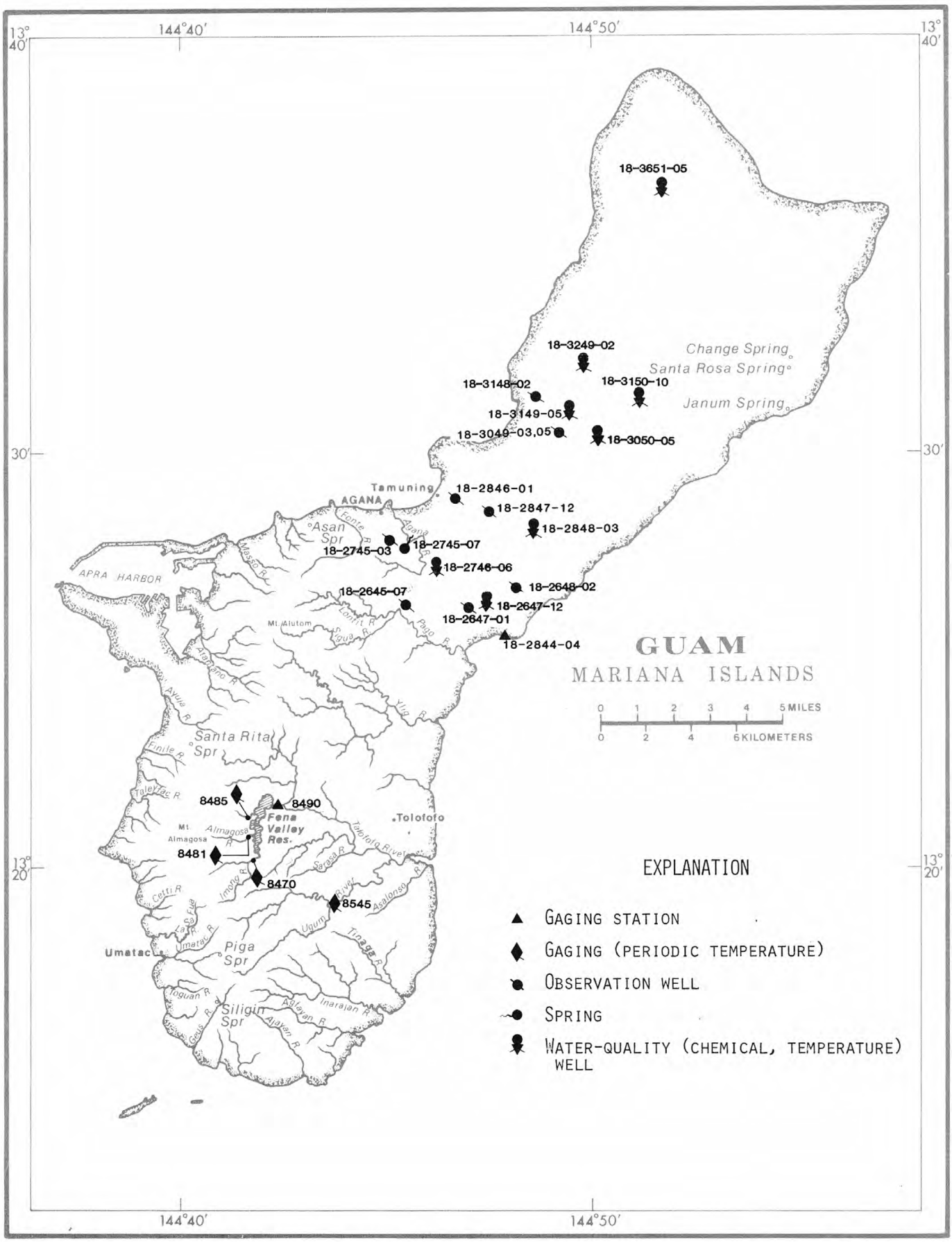


FIGURE 6.--LOCATIONS OF GAGING STATIONS, OBSERVATION WELLS, AND WATER-QUALITY SAMPLING SITES ON GUAM.

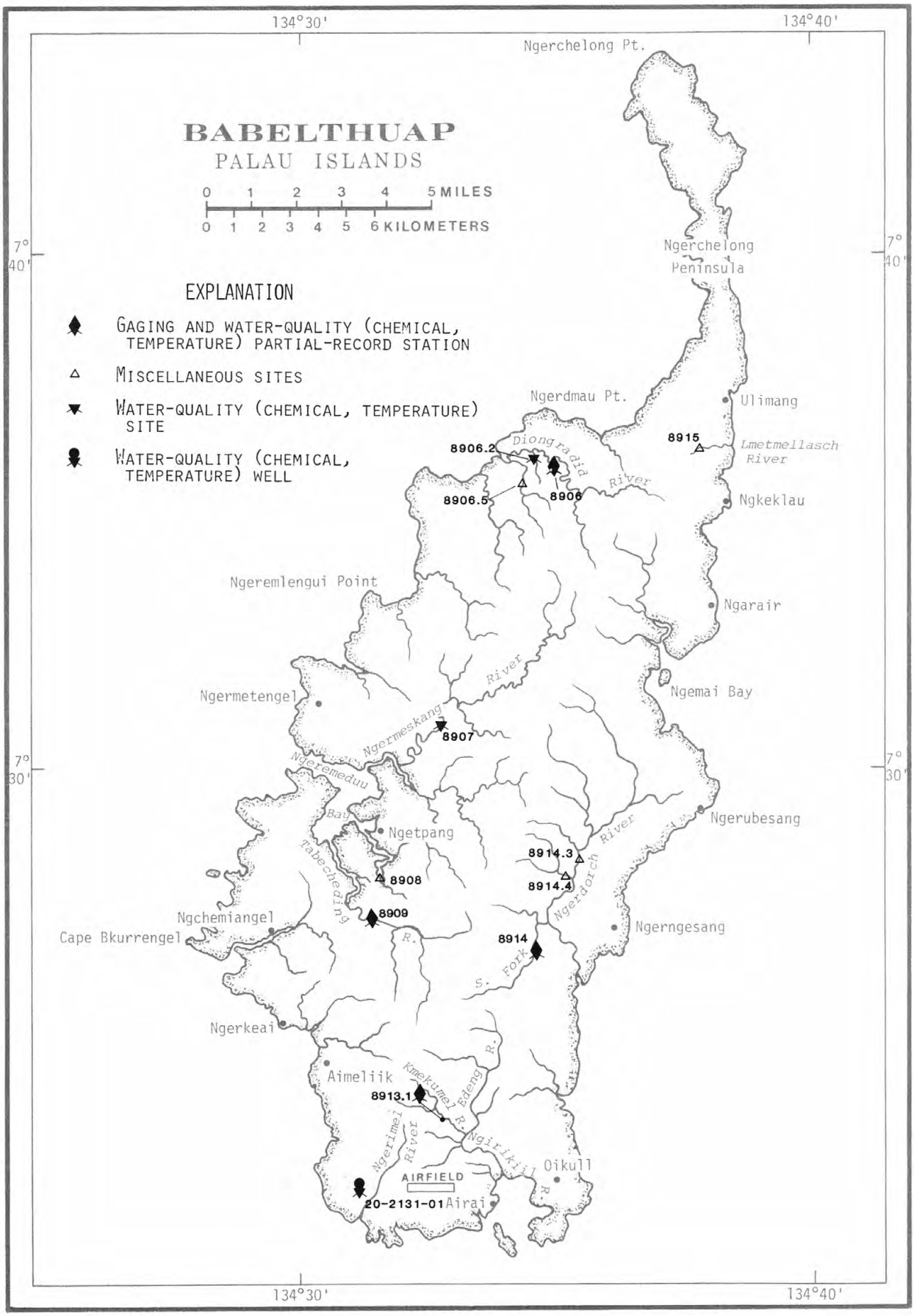


FIGURE 7.--LOCATIONS OF GAGING STATIONS AND WATER-QUALITY SITES ON BABELTHUAP.

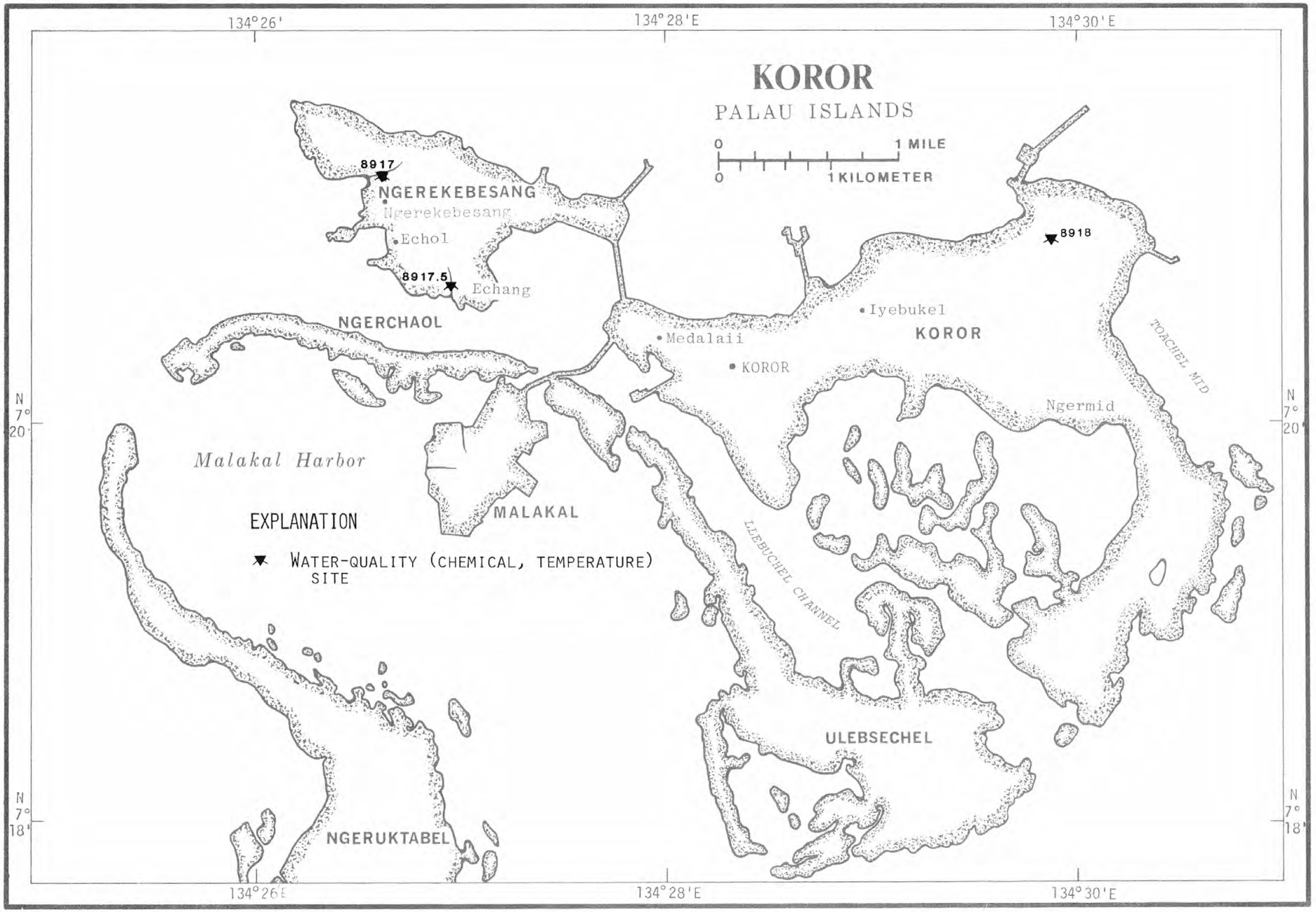


FIGURE 8.--LOCATIONS OF WATER-QUALITY SITES ON KOROR.

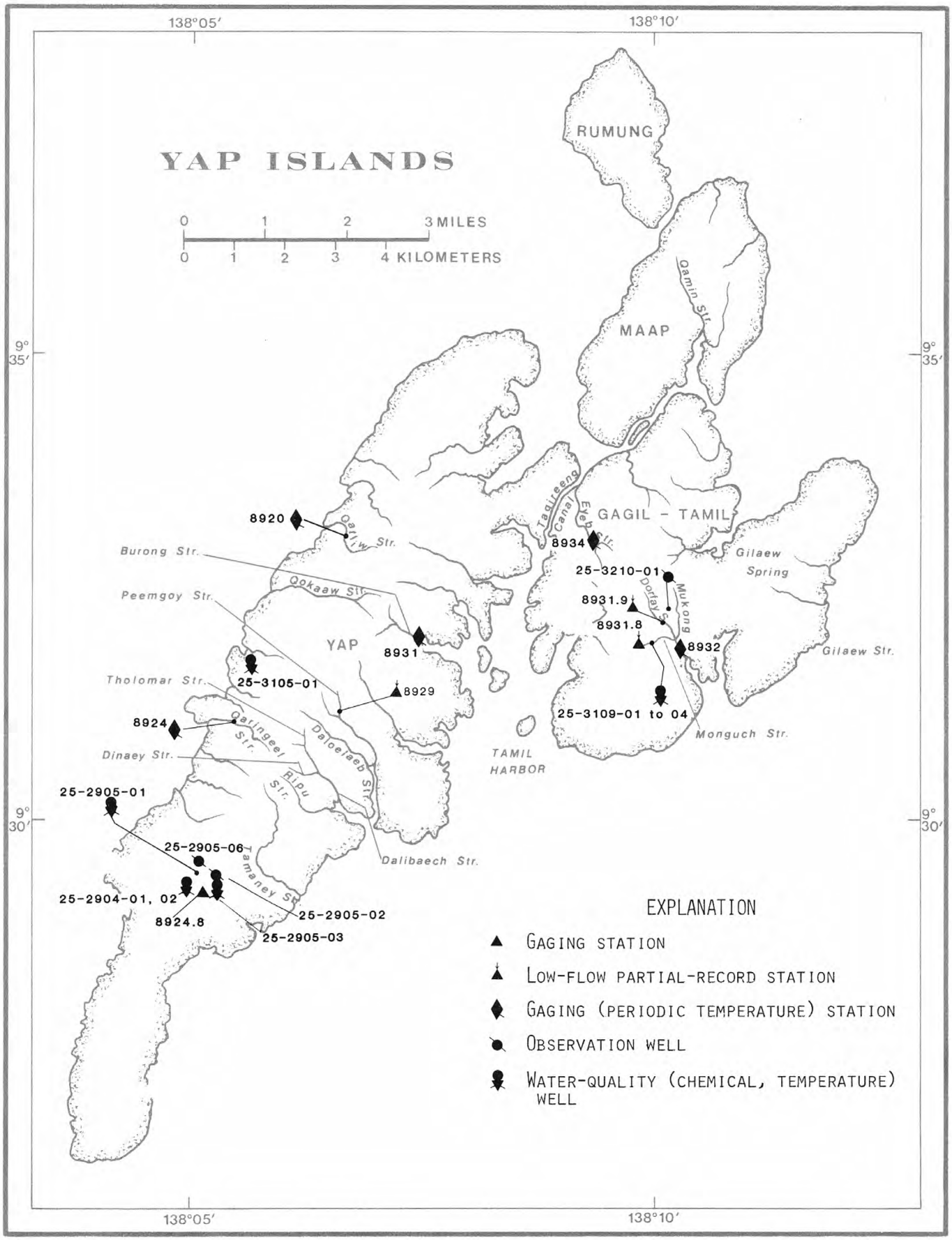


FIGURE 9.--LOCATIONS OF GAGING, LOW-FLOW PARTIAL-RECORD STATIONS, OBSERVATION WELLS AND WATER-QUALITY SITES ON YAP ISLANDS.

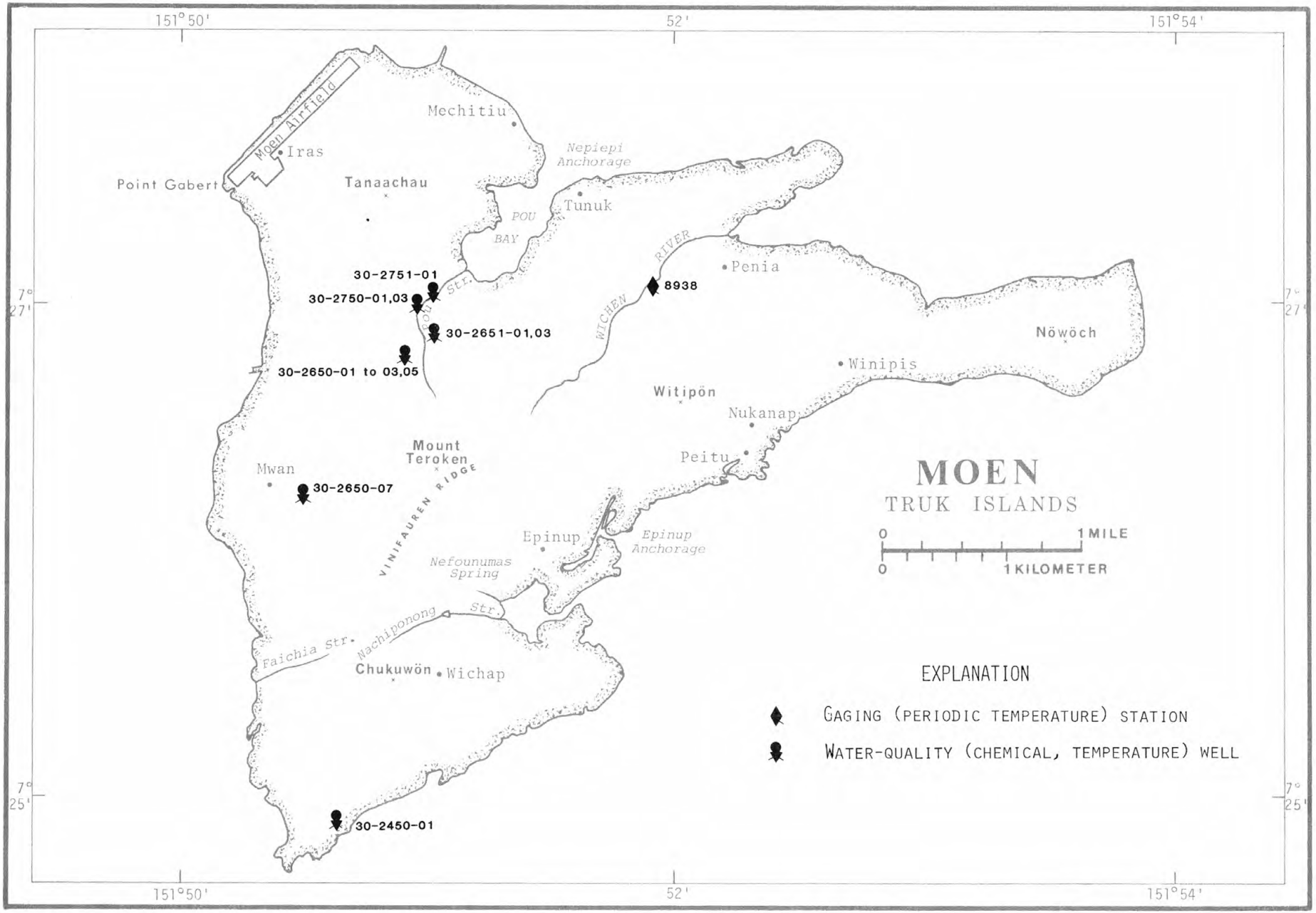


FIGURE 10.--LOCATIONS OF GAGING STATION, WELLS, AND WATER-QUALITY SAMPLING SITES ON MOEN.

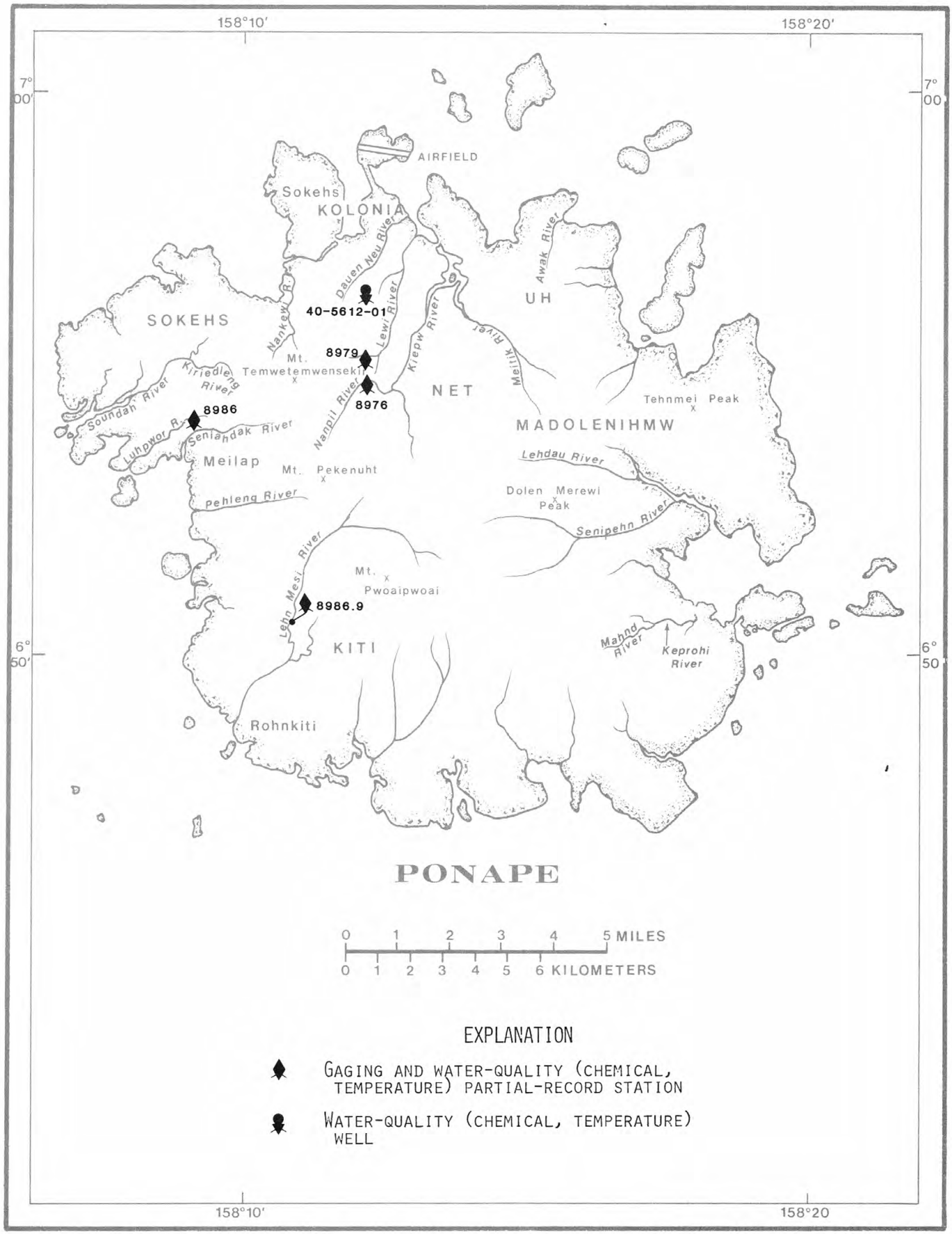


FIGURE 11.--LOCATIONS OF GAGING AND LOW-FLOW PARTIAL-RECORD STATIONS ON PONAPE.

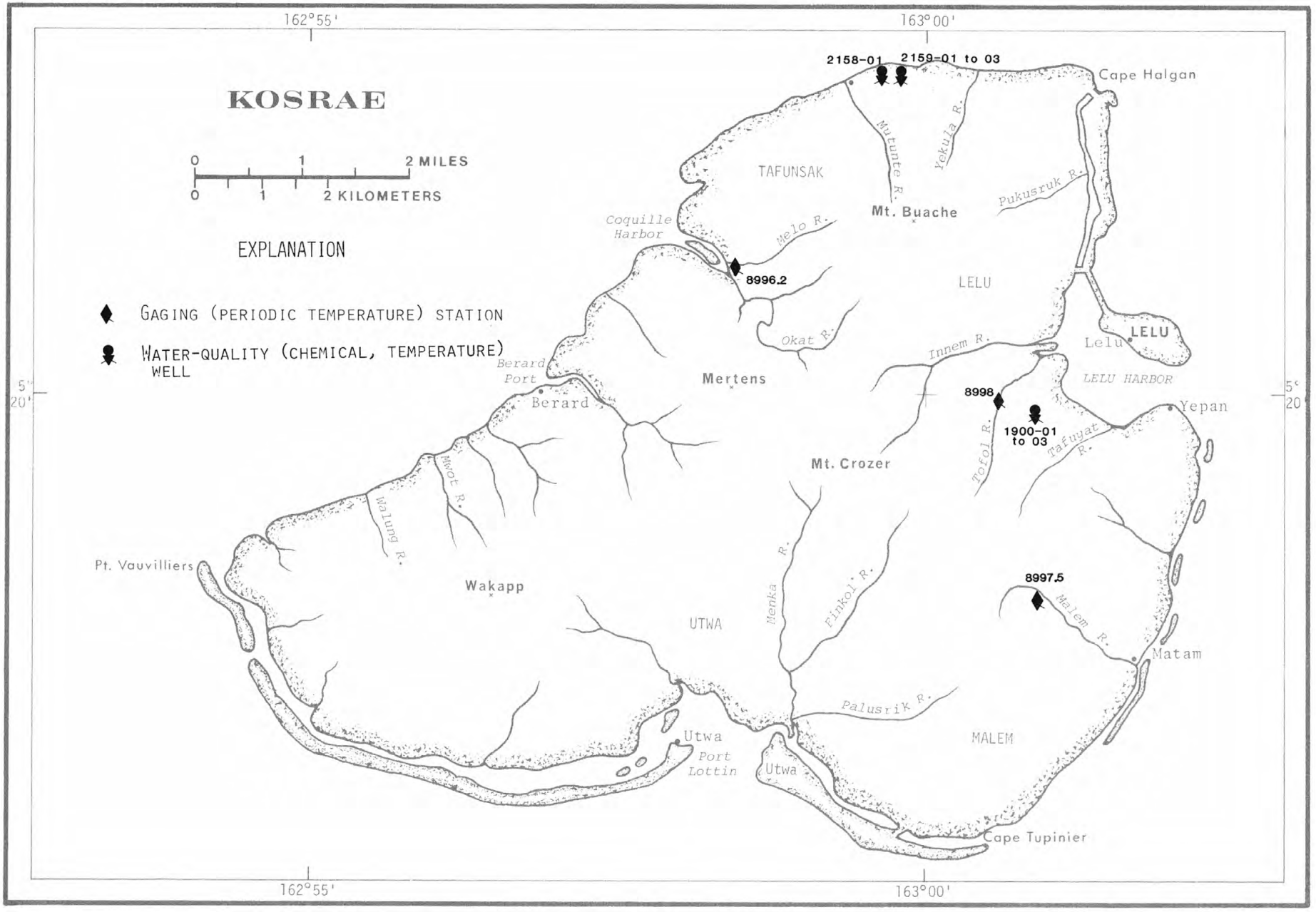


FIGURE 12.--LOCATIONS OF GAGING STATIONS ON KOSRAE.

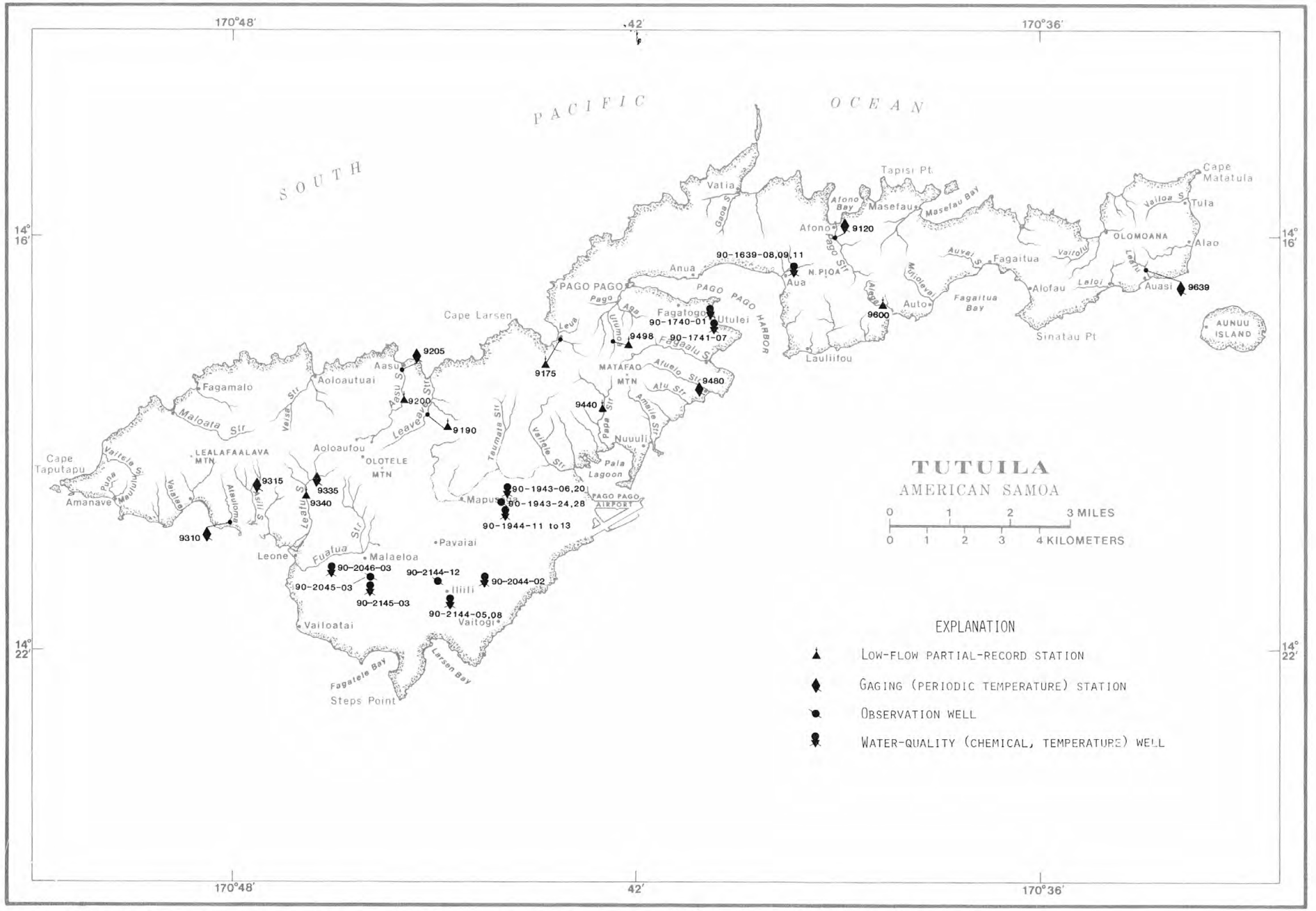


FIGURE 13.--LOCATIONS OF GAGING, LOW-FLOW PAPTIAL-RECORD STATIONS, OBSERVATION WELLS, AND WATER-QUALITY SAMPLING SITES ON TUTUILA.

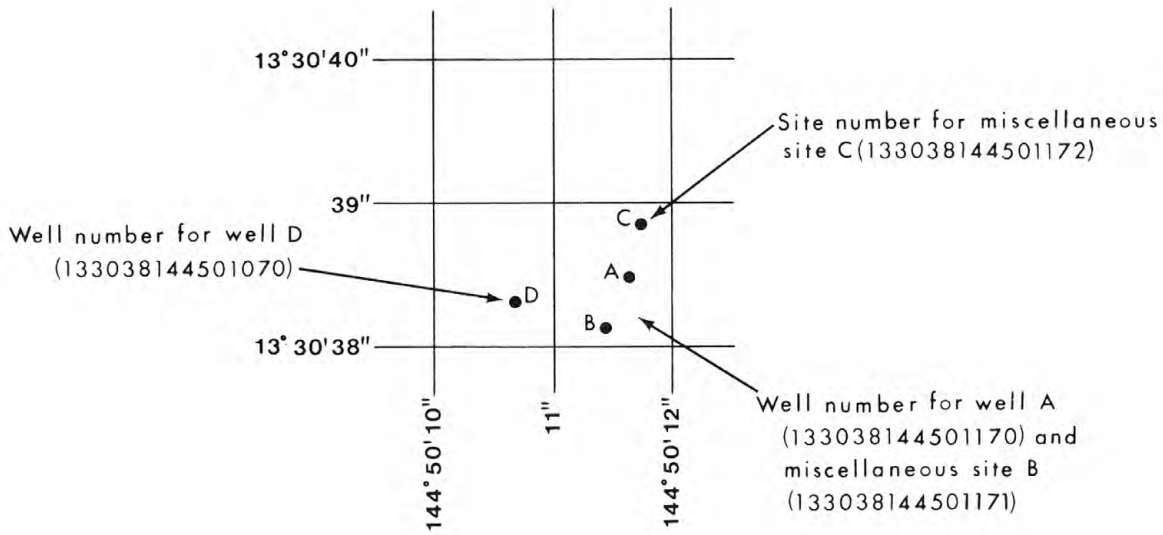


FIGURE 14.--SKETCH SHOWING SYSTEM FOR NUMBERING WELLS AND MISCELLANEOUS SITES.

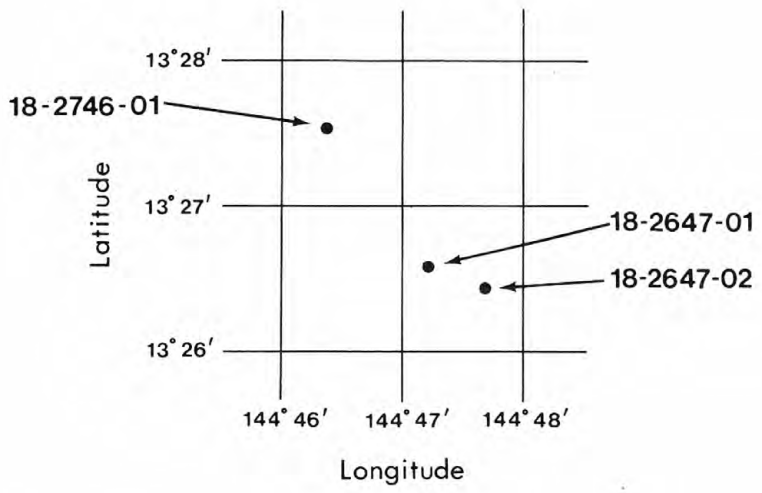


FIGURE 15.--SKETCH SHOWING LOCAL WELL NUMBERING SYSTEM.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharges are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to computed daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations, in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals, a table showing the daily discharge and monthly and yearly discharge is given. For gaging station on lakes and reservoirs, a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharge were revised. If the drainage area has been revised, the report in which the revised figures was first published is given.

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations, peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected.

For most gaging station on lakes and reservoirs, the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of water-data sites not published by the Geological Survey. Information on records available at specific sites can be obtained upon request.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Publications

In each water-supply paper entitled, "Surface Water Supply of the United States" there is a list of numbers of preceding water-supply papers containing streamflow information for the area covered by that report. In addition, there is a list of numbers of water-supply papers containing detailed information on major floods in the area. Records for stations in Hawaii and other Pacific areas for the period October 1959 to September 1965, are in Water-Supply Paper 1937.

Two series of summary reports entitled, "Compilation of Records of Surface Waters of the United States" have been published; the first series covers the entire period of record through September 1950 (June 1950, for Hawaii), and the second series covers the period October 1950 to September 1960 (July 1950 to June 1960, for Hawaii and other Pacific areas). These reports contain summaries of monthly and annual discharge and monthend storage for all previously published records, as well as some records not contained in the annual series of water-supply papers. All records were reexamined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical. The yearly summary table for each gaging station lists the numbers of the water-supply papers in which daily records were published for that station. Records for stations in Hawaii and other Pacific areas are compiled in Water-Supply Paper 1319 through June 1950, in 1739 and 1751 for July 1950 to June 1960, in 1937 for October 1959 to September 1965, and 2137 for October 1966 to September 1970.

Special reports on major floods or droughts or of other hydrologic studies for the area have been issued in publications other than water-supply papers. Information relative to these reports may be obtained from the district office.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The water-quality records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives periods of record for the various types of water-quality data (chemical, specific conductance, biological determination, water temperatures, sediment discharge), period of record, and extremes of pertinent data, and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water-quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration time 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Publications

The annual series of water-supply papers that contain information on quality of surface waters in Hawaii and other Pacific areas are listed below.

Water year	WSP No.	Water year	WSP No.	Water year	WSP No.
1964	1966	1967	2016	1970	2160
1965	1966	1968	2016		
1966	1996	1969	2150		

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figures 14 and 15.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom). To show the intraday variation in the ground-water levels caused by local pumping and tidal fluctuations, instantaneous maximum and minimum water levels are given with the mean water levels for the day.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

ACCESS TO WATSTORE DATA

The National WATer Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's district offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett St., Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 Pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. *Measurement of time of travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS-TWRI Book 3, Chapter B3. 1980. 106 pages.

3-C1. *Fluvial sediment concepts* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments* by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples* edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sedments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels* by R. W. Schaffrannek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells* by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages

8-A2. *Installation and service manual for U.S. Geological Survey manometers* by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

MARIANA ISLANDS, ISLAND OF SAIPAN

16801000 SOUTH FORK TALOFOFO STREAM

LOCATION.--Lat 15°12'48" N., long 145°46'17" E., Hydrologic Unit 20100006, on left bank 0.4 mi upstream from confluence with Middle and North Forks, 1.4 mi south of Ogso Dogas, and 2.2 mi southeast of Tanapag.

DRAINAGE AREA.--0.64 mi^2. Area at site used prior to Mar. 31, 1971, 0.73 mi^2.

PERIOD OF RECORD.--October 1968 to current year. Low-flow records not equivalent prior to Mar. 31, 1971, due to undetermined amount of underflow between sites.

REVISED RECORDS.--WDR HI-78-2: 1976-77(M), WDR HI-82-2: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Mar. 31, 1971. Elevation of gage is 60 ft, from topographic map. Prior to Mar. 31, 1971, at site 0.2 mi downstream at different datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--15 years (water years 1972-86), 1.34 ft^3/s (971 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,100 ft^3/s, Aug. 4, 1976, gage height, 8.15 ft, from rating curve extended above 59 ft^3/s on basis of slope-area measurements at gage heights 7.30 and 8.15 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 850 ft^3/s Aug. 15, gage height, 5.40 ft, no other peak greater than base discharge of 400 ft^3/s; minimum, 0.06 ft^3/s, Apr. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	.94	.50	.54	.20	.93	.10	2.0	.34	.38	3.3	e1.5
2	2.1	.70	.50	.66	.20	.70	.11	2.8	.34	.30	.88	e2.8
3	1.8	.66	.54	.62	3.1	.50	.11	1.3	.34	.30	.58	e4.2
4	1.6	.62	.46	.54	.70	.46	.08	.88	.30	.48	3.6	e2.8
5	1.5	.62	.42	.54	.46	.38	.08	.76	.27	.55	.82	e2.2
6	1.3	.66	.46	.50	.34	.34	.08	.62	.27	2.0	.62	e1.8
7	1.2	.62	5.4	.46	.30	.30	.08	.58	.27	.94	.62	e2.2
8	1.2	.62	25	.50	.27	.27	.08	.54	.30	1.1	.54	e1.5
9	1.6	.58	2.0	.46	.27	.24	.11	.50	.50	.66	.73	1.0
10	1.4	.58	1.4	.42	.24	.24	.12	.38	1.7	.62	.88	.76
11	2.4	.58	1.2	.70	.24	.24	.16	2.3	.66	.50	.58	.76
12	1.4	.58	1.0	.58	.24	.18	.16	.66	8.9	15	7.1	.82
13	1.8	.58	.94	.50	.24	.18	.14	.58	1.8	2.0	4.0	5.5
14	1.5	.66	.84	.50	.27	.16	.14	.67	1.1	1.2	14	19
15	1.7	.58	.76	.54	.27	.16	.18	1.7	.88	.94	66	3.6
16	1.3	.72	.66	.54	.27	.16	.18	.70	.76	.88	6.5	2.2
17	4.2	5.7	.62	.46	.24	.16	.18	.62	.66	.93	4.4	1.8
18	4.4	1.0	.88	.46	.22	.16	.24	.80	.62	.66	2.7	1.7
19	1.7	.82	.66	.42	.22	.16	.27	.62	.58	.58	2.0	1.5
20	1.4	.76	.58	.38	.22	.14	.34	.58	.50	.54	2.5	1.3
21	1.3	1.1	.58	.38	.20	.14	.34	.58	.54	.50	2.4	1.2
22	1.2	.70	.62	.34	.20	.12	.30	.50	.50	.50	e2.8	1.1
23	1.1	.66	.54	.30	.20	.12	.30	.46	.46	.46	e2.2	1.2
24	1.0	.62	4.7	.30	.22	.11	.34	.54	.38	.42	e4.0	1.1
25	1.0	.58	1.3	.27	.22	.11	.34	.46	.64	.42	e3.0	1.1
26	.94	.58	.94	.24	.27	.14	.38	.46	.66	.42	e5.0	.94
27	.88	.54	.76	.24	.34	.14	.46	.50	1.1	.38	e11	.88
28	.94	.50	.70	.22	.76	.11	.43	.46	.50	.54	e2.8	.88
29	.82	.50	.62	.24	---	.11	1.4	.62	.42	.42	e2.2	.76
30	.76	.50	.62	.22	---	.11	1.6	.46	.38	.42	e1.8	.86
31	.76	---	.58	.20	---	.10	---	.42	---	.47	e2.8	---
TOTAL	48.90	24.86	56.78	13.27	10.92	7.37	8.83	25.05	26.67	35.51	162.35	68.96
MEAN	1.58	.83	1.83	.43	.39	.24	.29	.81	.89	1.15	5.24	2.30
MAX	4.4	5.7	25	.70	3.1	.93	1.6	2.8	8.9	15	66	19
MIN	.76	.50	.42	.20	.20	.10	.08	.38	.27	.30	.54	.76
AC-FT	97	49	113	26	22	15	18	50	53	70	322	137

CAL YR 1985	TOTAL	474.00	MEAN	1.30	MAX	71	MIN	.02	AC-FT	940
WTR YR 1986	TOTAL	489.47	MEAN	1.34	MAX	66	MIN	.08	AC-FT	971

e Estimated

16805200 LAKE SUSUPE

LOCATION.--Lat 15°09'15" N., long 145°42'42" E., Hydrologic Unit 20100006, on west shore, at the end of Sugar Mill Road, 0.5 mi southeast from the Administration building, Northern Marianas Government.

PERIOD OF RECORD.--February 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level.

REMARKS.--Water-level records good.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.61 ft, Oct. 19, 1982; lowest, 0.70 ft, June 13, 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 12, 1978, reached a stage of 7.6 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Highest water level, 3.26 ft, Aug. 16, 17; lowest, 1.46 ft, Apr. 27.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.98	2.43	2.29	2.24	2.08	2.17	1.75	1.86	1.82	1.84	2.21	2.89
2	2.95	2.42	2.29	2.24	2.08	2.21	1.73	1.98	1.82	1.81	2.27	2.87
3	2.90	2.40	2.29	2.24	2.19	2.22	1.73	2.03	1.83	1.80	2.27	2.82
4	2.85	2.36	2.27	2.25	2.34	2.20	1.72	2.04	1.81	1.81	2.30	2.79
5	2.79	2.34	2.25	2.24	2.34	2.19	1.70	2.07	1.78	1.82	2.31	2.79
6	2.75	2.33	2.25	2.22	2.33	2.16	1.68	2.07	1.77	1.84	2.30	2.74
7	2.71	2.31	2.34	2.21	2.32	2.14	1.66	2.07	1.75	1.86	2.35	2.70
8	2.67	2.29	2.44	2.20	2.33	2.12	1.64	2.06	1.73	1.95	2.35	2.68
9	2.69	2.30	2.50	2.20	2.33	2.09	1.62	2.04	1.71	2.00	2.34	2.64
10	2.70	2.27	2.51	2.20	2.32	2.08	1.63	2.01	1.73	2.01	2.38	2.60
11	2.68	2.26	2.50	2.25	2.29	2.09	1.66	2.00	1.74	2.00	2.47	2.57
12	2.66	2.25	2.49	2.32	2.29	2.07	1.66	1.97	1.76	2.10	2.46	2.57
13	2.63	2.21	2.47	2.32	2.27	2.05	1.65	1.95	1.77	2.19	2.48	2.67
14	2.64	2.22	2.44	2.31	2.25	2.03	1.63	1.94	1.77	2.19	2.57	2.96
15	2.63	2.20	2.41	2.32	2.24	2.00	1.62	1.94	1.75	2.17	2.99	3.01
16	2.61	2.20	2.40	2.33	2.23	1.99	1.61	1.92	1.75	2.16	3.23	2.95
17	2.60	2.39	2.38	2.33	2.21	1.98	1.60	1.90	1.74	2.16	3.23	2.93
18	2.62	2.41	2.36	2.32	2.19	1.97	1.59	1.89	1.74	2.14	3.19	2.94
19	2.61	2.41	2.36	2.30	2.18	1.94	1.57	1.88	1.73	2.14	3.18	2.91
20	2.59	2.40	2.35	2.28	2.16	1.92	1.56	1.87	1.71	2.11	3.15	2.87
21	2.57	2.41	2.34	2.27	2.16	1.90	1.56	1.86	1.71	2.10	3.15	2.82
22	2.56	2.39	2.35	2.25	2.15	1.88	1.54	1.86	1.70	2.07	3.18	2.77
23	2.53	2.37	2.34	2.25	2.13	1.86	1.52	1.85	1.68	2.05	3.17	2.76
24	2.51	2.35	2.35	2.24	2.12	1.85	1.51	1.86	1.67	2.05	3.13	2.73
25	2.50	2.34	2.31	2.22	2.11	1.83	1.49	1.85	1.72	2.07	3.09	2.71
26	2.51	2.34	2.34	2.20	2.11	1.81	1.48	1.85	1.79	2.09	3.09	2.68
27	2.49	2.33	2.32	2.17	2.09	1.82	1.47	1.84	1.85	2.09	3.09	2.61
28	2.47	2.32	2.31	2.16	2.13	1.82	1.55	1.85	1.86	2.11	3.10	2.63
29	2.46	2.30	2.29	2.14	---	1.80	1.68	1.86	1.85	2.14	3.04	2.62
30	2.44	2.30	2.27	2.12	---	1.78	1.74	1.84	1.84	2.12	2.96	2.60
31	2.42	---	2.25	2.09	---	1.76	---	1.83	---	2.13	2.90	---
MEAN	2.64	2.33	2.36	2.24	2.21	1.99	1.62	1.93	1.76	2.04	2.77	2.76
MAX	2.98	2.43	2.51	2.33	2.34	2.22	1.75	2.07	1.86	2.19	3.23	3.01
MIN	2.42	2.20	2.25	2.09	2.08	1.76	1.47	1.83	1.67	1.80	2.21	2.57

CAL YR 1985 MEAN 2.33 MAX 3.20 MIN 1.48
WTR YR 1986 MEAN 2.22 MAX 3.23 MIN 1.47

16847000 IMONG RIVER NEAR AGAT

LOCATION.--Lat 13°20'17" N., long 144°41'55" E., Hydrologic Unit 20100003, on left bank 500 ft upstream from Fena Valley Reservoir, 1.4 mi south of Fena Dam spillway, and 4.1 mi southeast of Agat School.

DRAINAGE AREA.--1.95 mi^2.

PERIOD OF RECORD.--March 1960 to March 1971. October 1971 to current year.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 120 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--25 years (water years 1961-70, 1972-86), 10.2 ft^3/s (7,390 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,100 ft^3/s Sept. 27, 1978, gage height, 11.3 ft, from outside floodmarks, and from rating curve extended above 58 ft^3/s on basis of slope-area measurement of peak flow; minimum, 0.37 ft^3/s May 21, 22, 26, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 28	1500	1,750	6.10	July 4	1400	*2,030	*6.57
May 4	1130	1,920	6.38	Aug. 25	1100	1,640	5.89

Minimum discharge, 3.0 ft^3/s for several days in April.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e19	13	6.1	19	e3.7	28	4.0	8.1	e7.0	4.2	84	e12
2	e17	12	6.0	9.3	e3.7	19	3.8	8.4	e4.2	5.2	10	e16
3	15	11	7.2	8.5	e3.6	8.8	4.5	21	e4.0	4.0	7.6	e18
4	15	10	10	7.6	e3.6	7.1	3.9	117	e4.2	211	13	e13
5	13	7.3	12	7.6	e3.5	6.1	3.5	15	e5.1	66	6.8	e12
6	17	7.3	74	9.1	e3.5	24	3.6	8.1	e4.5	29	6.0	e11
7	14	7.8	44	7.5	e3.5	11	3.5	24	e4.0	14	31	e20
8	13	7.3	11	7.1	e3.4	7.5	3.5	9.2	e4.4	10	6.7	e15
9	29	6.8	8.9	e6.2	e3.4	6.1	4.7	6.6	e5.0	9.7	115	e11
10	16	6.3	8.0	e5.8	e3.4	7.7	4.0	5.4	e6.0	7.5	52	e11
11	14	6.0	7.5	e5.6	14	6.4	3.7	4.8	e8.5	10	18	e10
12	14	6.0	7.3	e5.4	14	5.6	3.5	5.0	5.4	7.1	15	e11
13	45	6.3	7.2	e5.2	6.8	5.2	3.4	4.3	5.7	7.1	55	e19
14	65	8.3	11	e5.0	8.0	4.9	3.3	4.1	6.3	6.4	95	e69
15	55	8.3	8.6	e4.8	5.6	4.6	3.3	4.0	4.5	7.7	42	e34
16	22	12	11	e4.7	4.4	4.7	3.2	3.7	4.0	6.3	102	e15
17	24	9.2	14	e4.6	4.0	4.6	3.1	3.5	3.7	6.0	50	e20
18	19	8.3	20	e4.5	15	4.4	3.0	5.3	3.7	12	19	e14
19	18	24	10	e4.4	11	4.3	3.4	3.8	5.1	9.7	16	e13
20	36	8.5	8.6	e4.4	7.3	4.1	3.2	3.9	3.7	17	13	e16
21	25	7.7	8.0	e4.3	5.8	4.0	3.6	3.8	3.4	7.7	13	e9.7
22	15	7.0	18	e4.3	5.6	3.8	3.1	4.8	3.5	6.2	88	e8.8
23	19	7.3	8.3	e4.2	4.9	3.8	3.0	4.1	3.3	5.6	64	e8.8
24	15	6.8	7.8	e4.2	4.4	3.8	3.0	3.7	7.2	5.4	58	e8.3
25	13	6.3	8.6	e4.1	5.0	3.8	3.0	4.9	5.5	24	188	e8.8
26	19	6.6	7.2	e4.1	6.6	5.2	3.0	3.8	16	7.2	e110	e7.8
27	19	6.4	6.8	e4.0	18	4.6	4.5	e3.7	20	6.0	e45	e7.3
28	63	6.1	6.8	e4.0	12	4.0	3.2	e8.0	8.1	5.4	e24	e7.3
29	23	6.0	6.6	e3.9	---	3.8	3.1	e5.0	5.5	5.8	e20	e6.8
30	11	6.0	26	e3.9	---	3.8	7.3	e3.9	4.6	7.3	e15	e6.8
31	13	---	18	e3.8	---	4.6	---	e4.0	---	52	e13	---
TOTAL	715	251.9	414.5	181.1	187.7	219.3	108.9	314.9	176.1	582.5	1395.1	440.4
MEAN	23.1	8.40	13.4	5.84	6.70	7.07	3.63	10.2	5.87	18.8	45.0	14.7
MAX	65	24	74	19	18	28	7.3	117	20	211	188	69
MIN	11	6.0	6.0	3.8	3.4	3.8	3.0	3.5	3.3	4.0	6.0	6.8
AC-FT	1420	500	822	359	372	435	216	625	349	1160	2770	874

CAL YR 1985	TOTAL	4640.8	MEAN	12.7	MAX	130	MIN	1.6	AC-FT	9210
WTR YR 1986	TOTAL	4987.4	MEAN	13.7	MAX	211	MIN	3.0	AC-FT	9890

e Estimated

16848100 ALMAGOSA RIVER NEAR AGAT

LOCATION.--Lat 13°20'43" N., long 144°41'36" E., Hydrologic Unit 20100003, on right bank 400 ft upstream from Fena Valley Reservoir and 3.5 mi southeast of Agat.

DRAINAGE AREA.--1.32 mi^2.

PERIOD OF RECORD.--April 1972 to current year.

REVISED RECORD.--WDR HI-75-1: Drainage area. WDR HI-76-1: 1972(P), 1973(M), 1974-75(P).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 155 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. Up to 3.9 ft^3/s diverted upstream for domestic use. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--14 years, 6.17 ft^3/s (4,470 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,650 ft^3/s Sept. 27, 1978, gage height, 7.78 ft, from rating curve extended above 46 ft^3/s on basis of slope-area measurement at gage height 7.32 ft; minimum, 0.13 ft^3/s June 27, July 11, 12, 14, 16, 17, 1979, June 3-9, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 2	1100	740	about 5.15	Aug. 25	1630	820	5.32
July 4	1330	*1,670	*6.68				

Minimum discharge, 0.79 ft^3/s for several days in April.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	e5.4	1.6	7.8	.95	21	.88	4.1	e12	2.6	70	12
2	9.3	e4.6	1.5	4.6	.95	17	.92	3.7	e4.0	1.9	19	20
3	7.1	e4.0	1.9	4.0	.95	8.2	1.1	7.1	e2.8	1.6	11	9.4
4	6.0	e3.9	2.6	3.4	1.0	5.2	.87	57	e1.9	145	9.9	7.4
5	5.6	3.7	2.6	3.2	.98	4.0	.84	22	e1.7	65	6.5	6.5
6	5.5	3.7	40	3.4	.95	10	.88	8.5	e1.5	28	5.2	6.2
7	5.3	4.8	38	2.9	.93	6.5	.82	e30	e1.4	16	9.9	13
8	5.3	3.8	10	2.7	.89	4.7	.79	e10	e1.4	11	4.3	7.0
9	12	3.3	6.4	2.6	.89	3.7	1.1	e6.0	e1.8	8.3	6.0	5.3
10	6.0	2.9	4.8	2.1	.94	4.1	.99	e4.0	e3.0	9.7	3.8	5.0
11	5.3	2.7	3.9	1.8	4.3	3.2	.92	e3.4	e6.0	7.3	6.6	4.9
12	5.3	2.6	3.4	1.6	5.5	2.7	.89	e4.3	e2.8	5.0	19	6.9
13	20	2.6	3.3	1.5	2.9	2.2	.89	e3.0	e4.0	4.8	28	9.4
14	49	4.1	3.5	1.4	3.3	1.8	.89	e2.4	e10	4.0	48	61
15	47	2.7	3.3	1.2	2.9	1.6	.92	e2.0	e4.0	4.4	55	31
16	24	4.7	3.3	1.2	1.9	1.5	.89	e1.9	e1.8	3.4	73	15
17	30	3.8	5.6	1.2	1.4	1.2	.88	e1.8	e1.3	3.0	34	18
18	17	3.1	9.0	1.2	7.2	1.1	.84	e2.4	e1.4	6.0	17	12
19	12	13	5.0	1.2	6.1	1.0	.86	e1.9	e1.0	5.9	12	11
20	21	3.8	4.3	1.2	4.2	.93	.94	e2.0	e.85	6.7	9.1	8.7
21	12	3.2	3.7	1.1	3.3	.89	.95	e2.7	e.80	4.7	7.6	5.8
22	9.8	2.7	7.7	1.1	3.2	.89	.83	e4.0	e.80	3.7	13	5.3
23	11	2.6	3.8	1.1	2.9	1.0	.79	e3.0	.80	3.1	38	5.0
24	8.5	2.5	3.5	1.0	2.0	1.1	.79	e2.4	2.6	2.7	63	4.5
25	8.0	2.3	5.3	1.0	1.5	1.0	.79	e3.2	2.8	11	152	4.1
26	25	2.2	3.2	1.0	4.3	1.3	.79	e2.6	6.6	3.4	88	3.8
27	11	2.1	3.1	1.0	12	1.0	1.1	e2.4	15	6.5	53	3.6
28	18	1.9	2.8	.99	7.8	.84	.89	e7.0	7.3	5.1	27	3.3
29	9.5	1.8	2.5	.95	---	.79	.96	e2.8	4.4	4.0	18	3.2
30	7.5	1.7	15	.95	---	.79	2.0	e2.2	3.3	7.3	14	3.0
31	6.0	---	6.8	.95	---	1.2	---	e3.0	---	53	12	---
TOTAL	430.0	106.2	211.4	61.34	86.13	112.43	28.00	212.8	109.05	444.1	932.9	311.3
MEAN	13.9	3.54	6.82	1.98	3.08	3.63	.93	6.86	3.63	14.3	30.1	10.4
MAX	49	13	40	7.8	12	21	2.0	57	15	145	152	61
MIN	5.3	1.7	1.5	.95	.89	.79	.79	1.8	.80	1.6	3.8	3.0
AC-FT	853	211	419	122	171	223	56	422	216	881	1850	617

CAL YR 1985	TOTAL	2751.05	MEAN	7.54	MAX	90	MIN	.43	AC-FT 5460
WTR YR 1986	TOTAL	3045.65	MEAN	8.34	MAX	152	MIN	.79	AC-FT 6040

e Estimated

16848500 MAULAP RIVER NEAR AGAT

LOCATION.--Lat 13°21'14" N., long 144°41'44" E., Hydrologic Unit 20100003, on right bank 100 ft from Fena Valley Reservoir and 3.2 mi southeast of Agat.

DRAINAGE AREA.--1.15 mi^2.

PERIOD OF RECORD.--January 1972 to current year.

REVISED RECORDS.--WRD Hawaii 1973: 1972. WRD HI-75-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 130 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--14 years, 5.34 ft^3/s (3,860 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,420 ft^3/s Sept. 27, 1978, gage height, 9.2 ft, from rating curve extended above 23 ft^3/s, on basis of slope-area measurements at gage heights 8.21 ft and 9.2 ft; minimum, 0.31 ft^3/s June 28 to July 1, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 17	1200	806	5.94	July 4	1345	*1,190	*6.90
May 4	1130	890	6.15	July 27	1330	708	5.66
May 7	1030	850	6.06	Aug. 25	1045	762	5.83

Minimum discharge, 1.22 ft^3/s Apr. 18 and 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	3.5	2.4	3.9	1.7	31	1.9	e4.0	13	2.8	33	6.3
2	6.3	3.2	2.2	2.9	1.7	9.7	1.9	e3.0	3.6	2.7	9.0	12
3	5.0	3.1	2.4	2.7	1.7	5.6	2.2	8.9	2.7	2.5	11	5.5
4	4.4	3.3	3.3	2.5	1.8	5.1	1.8	72	2.4	151	8.8	4.6
5	4.2	3.3	4.7	2.4	1.7	4.3	1.7	9.4	2.3	40	5.4	4.1
6	4.2	3.8	52	2.9	1.7	12	1.8	6.8	2.3	16	4.7	6.0
7	4.1	4.0	16	2.3	1.6	5.6	1.7	36	2.2	9.3	7.8	12
8	3.9	3.9	6.9	2.3	1.6	4.3	1.6	7.4	2.2	8.0	4.4	5.5
9	13	3.7	4.3	3.0	1.6	3.7	2.3	6.3	2.4	6.6	5.7	3.9
10	4.2	3.5	3.7	2.2	1.7	5.4	2.0	4.6	4.0	8.9	7.1	3.7
11	4.2	3.4	3.3	2.0	4.7	3.9	1.8	3.8	8.1	6.2	7.2	3.9
12	3.7	3.3	3.2	1.9	4.4	3.3	1.7	5.5	3.0	4.9	6.1	6.3
13	26	3.3	3.4	1.9	2.6	2.9	1.6	3.2	4.9	5.0	26	7.0
14	48	4.1	5.0	1.9	2.8	2.7	1.6	2.8	13	4.9	45	62
15	31	4.3	4.2	2.0	2.1	2.6	1.6	2.6	3.6	7.1	27	17
16	9.7	6.8	3.6	2.1	1.8	2.8	1.5	2.4	2.9	4.3	63	6.0
17	39	4.9	9.9	2.0	1.7	2.4	1.4	2.3	2.6	3.9	43	12
18	7.4	4.7	10	2.1	8.2	2.5	1.3	3.4	2.7	8.5	9.4	12
19	6.8	21	3.7	2.2	3.9	2.4	1.6	2.4	2.4	7.0	7.9	7.2
20	20	3.3	3.1	2.0	3.0	2.2	2.1	2.5	2.3	6.9	6.9	5.8
21	7.6	2.9	3.7	1.9	2.6	2.1	1.9	3.0	2.2	3.9	7.2	3.9
22	5.3	2.6	7.6	1.9	2.8	2.0	1.4	4.5	2.2	3.4	19	3.7
23	5.3	3.1	3.4	1.9	2.3	2.0	1.3	3.3	2.2	3.2	32	3.7
24	4.4	2.8	3.1	1.9	2.0	2.0	1.3	2.5	5.0	3.1	41	3.5
25	4.2	2.6	4.5	1.8	2.1	1.9	1.3	3.7	4.0	13	133	3.5
26	16	2.4	2.7	1.8	4.0	3.8	1.3	2.4	10	3.8	58	3.3
27	4.8	2.5	2.4	1.7	19	2.6	e2.3	2.3	12	41	45	3.1
28	12	2.3	2.3	1.7	6.0	2.0	e1.8	8.6	4.3	6.1	12	2.9
29	8.0	2.3	2.3	1.7	---	1.9	e1.6	2.9	3.4	5.9	8.7	2.9
30	4.0	2.4	17	1.8	---	1.8	e3.0	2.4	3.1	6.8	7.2	2.7
31	3.6	---	4.0	1.7	---	2.6	---	2.5	---	34	6.3	---
TOTAL	326.4	120.3	200.3	67.0	92.8	139.1	52.3	227.4	131.0	430.7	707.8	236.0
MEAN	10.5	4.01	6.46	2.16	3.31	4.49	1.74	7.34	4.37	13.9	22.8	7.87
MAX	48	21	52	3.9	19	31	3.0	72	13	151	133	62
MIN	3.6	2.3	2.2	1.7	1.6	1.8	1.3	2.3	2.2	2.5	4.4	2.7
AC-FT	647	239	397	133	184	276	104	451	260	854	1400	468

CAL YR 1985	TOTAL	2407.13	MEAN	6.59	MAX	73	MIN	.75	AC-FT 4770
WTR YR 1986	TOTAL	2731.1	MEAN	7.48	MAX	151	MIN	1.3	AC-FT 5420

e Estimated

16849000 FENA DAM SPILLWAY NEAR AGAT

LOCATION.--Lat 13°21'28" N., long 144°42'12" E., Hydrologic Unit 20100003, on left bank 3.5 mi southeast of Agat and 5.8 mi southwest of Yona.

DRAINAGE AREA.--5.88 mi^2.

PERIOD OF RECORD.--September 1951 to July 1952, November 1952 to current year. Daily mean gage heights published since October 1973.

REVISED RECORDS.--WSP 2137: Drainage area. WDR HI-78-2: 1977(M, m).

GAGE.--Water-stage recorder and concrete-dam control. Datum of gage is 111.35 ft above mean sea level (from U.S. Navy construction plans).

REMARKS.--Gage-height records good. About 10 ft^3/s is diverted from Fena Valley Reservoir and tributary springs for military and civilian use. Discharge records represent flow over spillway only.

AVERAGE DISCHARGE.--20 years (1953-73), 17.9 ft^3/s (12,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, occurred Oct. 15, 1953 (gage height, at least 4.5 ft); no flow for many days each year. Minimum recorded gage height, -21.86 ft, Aug. 4, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 2.39 ft, July 4; minimum, -2.01 ft Apr. 30.

GAGE HEIGHT (FEET AT DATUM), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	.16	.04	.23	-0.87	.34	-0.43	-1.86	.12	.00	.67	.39
2	.25	.15	.03	.18	-0.92	.33	-0.48	-1.65	.06	-0.01	.35	.44
3	.23	.15	.04	.14	-0.95	.17	-0.49	-1.47	.02	-0.04	.26	.44
4	.20	.15	.09	.11	-0.98	.12	-0.56	-0.08	.02	.88	.28	.39
5	.18	.14	.11	.11	-1.04	.11	-0.62	.27	.04	.76	.23	.37
6	.19	.14	.57	.11	-1.09	.22	-0.68	.10	.08	.42	.19	.37
7	.18	.14	.61	.10	-1.14	.18	-0.73	.28	-0.15	.28	.33	.50
8	.16	.15	.25	.08	-1.23	.11	-0.81	.16	-0.20	.21	.24	.45
9	.28	.13	.16	.09	-1.29	.08	-0.82	.10	-0.20	.20	.25	.38
10	.27	.11	.12	.09	-1.35	.10	-0.85	.05	-0.25	.18	.27	.35
11	.19	.11	.10	.05	-1.34	.09	-0.90	.02	-0.10	.20	.27	.34
12	.17	.10	.08	.03	-0.94	.05	-0.96	.03	-0.04	.14	.27	.38
13	.27	.11	.07	-0.01	-0.84	.01	-1.02	-0.01	.01	.14	.65	.49
14	.75	.13	.10	-0.03	-0.78	-0.02	-1.09	-0.04	.09	.13	.69	.94
15	.65	.13	.16	-0.07	-0.74	-0.05	-1.15	-0.03	.05	.15	.60	.72
16	.41	.13	.15	-0.10	-0.75	-0.05	-1.22	-0.05	-0.02	.13	.94	.52
17	.45	.21	.20	-0.14	-0.77	-0.06	-1.29	-0.09	-0.07	.11	.71	.59
18	.34	.14	.21	-0.17	-0.63	-0.07	-1.38	-0.07	-0.11	.17	.41	.53
19	.27	.33	.20	-0.19	-0.31	-0.08	-1.44	-0.07	-0.13	.18	.35	.47
20	.40	.20	.13	-0.20	-0.18	-0.11	-1.49	-0.13	-0.18	.21	.31	.49
21	.36	.13	.11	-0.28	-0.14	-0.15	-1.51	-0.13	-0.24	.18	.28	.43
22	.27	.11	.20	-0.32	-0.12	-0.20	-1.58	-0.07	-0.27	.13	.37	.40
23	.27	.08	.15	-0.36	-0.14	-0.25	-1.65	-0.07	-0.32	.12	.64	.38
24	.23	.10	.12	-0.40	-0.14	-0.29	-1.73	-0.12	-0.28	.09	.69	.34
25	.18	.08	.13	-0.46	-0.15	-0.34	-1.80	-0.13	-0.20	.22	1.34	.31
26	.26	.06	.12	-0.52	-0.14	-0.33	-1.87	-0.14	-0.12	.23	.94	.30
27	.28	.06	.10	-0.56	.24	-0.27	-1.94	-0.17	.22	.26	.80	.30
28	.42	.05	.07	-0.62	.23	-0.29	-1.96	-0.07	.13	.23	.53	.29
29	.33	.04	.06	-0.67	---	-0.36	-1.98	.11	.12	.16	.45	.29
30	.22	.04	.26	-0.74	---	-0.40	-1.94	.03	.04	.15	.40	.27
31	.17	---	.29	-0.82	---	-0.40	---	.01	---	.51	.38	---
MEAN	.29	.13	.16	-0.17	-0.66	-0.06	-1.21	-0.17	-0.06	.22	.49	.43
MAX	.75	.33	.61	.23	.24	.34	-0.43	.28	.22	.88	1.34	.94
MIN	.16	.04	.03	-0.82	-1.35	-0.40	-1.98	-1.86	-0.32	-0.04	.19	.27

CAL YR 1985 MEAN -0.68 MAX .91 MIN -6.29
WTR YR 1986 MEAN -0.05 MAX 1.34 MIN -1.98

16854500 UGUM RIVER ABOVE TALOFOFO FALLS, NEAR TALOFOFO

LOCATION.--Lat 13°19'16" N., long 144°44'01" E., Hydrologic Unit 20100003, about 300 ft upstream from Talofofo Falls, 0.9 mi north of NASA Tracking Station, and 3.5 mi southwest of main intersection in Talofofo village.

DRAINAGE AREA.--5.76 mi^2.

PERIOD OF RECORD.--June 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 130 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years, 26.0 ft^3/s (18,840 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,890 ft^3/s Feb. 26, 1980, gage height, 14.2 ft, from flood-marks, from rating curve extended above 350 ft^3/s on basis of slope-area measurement at gage height 14.2 ft; minimum, 3.4 ft^3/s, June 27, 1978, July 14, 18, 19, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 13	2130	1,520	7.65	Aug. 7	0500	2,060	8.76
May 4	1230	1,450	7.50	Aug. 16	0700	1,360	7.29
July 4	1530	*2,850	*10.14	Aug. 25	1130	2,700	9.88
Aug. 1	0400	1,900	8.44				

Minimum discharge, 8.2 ft^3/s for several days in April.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	30	16	24	9.7	59	11	10	13	14	203	56
2	43	28	16	18	10	63	11	15	12	24	33	71
3	37	27	17	17	9.9	23	14	45	11	14	25	57
4	37	26	19	16	9.8	21	11	258	14	504	51	46
5	32	25	18	16	9.6	19	11	41	19	185	24	41
6	40	24	160	16	9.5	122	10	22	14	90	22	39
7	30	25	162	15	9.4	39	10	17	11	45	142	55
8	29	22	24	16	9.3	24	10	16	12	36	26	37
9	86	21	20	15	9.4	20	14	14	22	32	45	34
10	38	21	19	14	10	34	e12	13	12	31	26	32
11	31	20	17	13	25	24	e11	12	19	28	41	32
12	30	20	17	13	34	18	e10	16	16	44	47	37
13	124	22	17	12	16	17	e9.5	13	17	27	155	53
14	177	24	21	12	15	16	e9.1	12	16	27	201	202
15	149	57	18	12	12	15	e9.0	12	14	27	143	92
16	55	143	20	12	10	16	e8.8	12	12	24	296	43
17	69	21	24	11	9.6	15	e8.6	12	12	22	176	48
18	41	62	42	12	25	14	e8.5	18	12	24	57	32
19	39	122	20	11	18	14	e8.5	13	12	21	48	32
20	58	20	17	11	16	14	e9.4	13	11	78	45	32
21	55	18	16	11	14	13	e9.0	12	12	28	44	41
22	39	17	38	11	15	13	e9.5	21	11	22	47	25
23	61	17	18	10	12	12	8.8	15	10	21	134	27
24	36	18	16	9.9	11	12	8.6	12	34	20	184	22
25	37	16	16	9.7	14	12	8.5	18	33	107	556	27
26	35	16	15	9.6	12	14	8.4	13	58	34	273	21
27	102	19	15	9.5	28	14	11	12	72	36	165	20
28	271	16	15	9.5	21	12	9.8	34	24	23	111	e19
29	260	16	14	9.4	---	11	9.0	18	17	23	88	e19
30	34	16	41	9.5	---	11	12	12	15	23	59	e18
31	31	---	44	9.5	---	12	---	13	---	110	57	---
TOTAL	2158	929	932	394.6	404.2	723	301.0	764	567	1744	3524	1310
MEAN	69.6	31.0	30.1	12.7	14.4	23.3	10.0	24.6	18.9	56.3	114	43.7
MAX	271	143	162	24	34	122	14	258	72	504	556	202
MIN	29	16	14	9.4	9.3	11	8.4	10	10	14	22	18
AC-FT	4280	1840	1850	783	802	1430	597	1520	1120	3460	6990	2600

CAL YR 1985	TOTAL	11622.8	MEAN	31.8	MAX	300	MIN	5.9	AC-FT	23050
WTR YR 1986	TOTAL	13750.8	MEAN	37.7	MAX	556	MIN	8.4	AC-FT	27270

e Estimated

16890600 DIONGRADID RIVER, BABELTHUAP

LOCATION.--Lat 07°36'04" N., long 134°35'02" E., Hydrologic Unit 20100006, on right bank 0.3 mi upstream from left-bank tributary, 0.9 mi southeast of Ngetbong village school, and 2.4 mi upstream from confluence with Ngerchetang River.

DRAINAGE AREA.--4.45 mi^2.

PERIOD OF RECORD.--October 1969 to current year. Prior to October 1980, published as Adeiddo River.

REVISED RECORDS.--WDR HI-75-1: 1970(M), 1972-73(P). WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 15 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No diversion upstream.

AVERAGE DISCHARGE.--17 years, 32.2 ft^3/s (23,330 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,310 ft^3/s Jan. 22, 1975, gage height, 15.44 ft, from rating curve extended above 410 ft^3/s on basis of field estimate at gage height 15.44 ft; minimum, 2.1 ft^3/s Apr. 14-17, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 513 ft^3/s Sept. 11, gage height, 6.70 ft, no peak above base of 600 ft^3/s; minimum, 9.4 ft^3/s May 21.22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	25	15	18	e15	30	16	11	17	32	53	23
2	43	24	14	19	e40	29	16	11	18	48	48	23
3	47	22	14	16	e30	28	17	25	17	40	44	24
4	41	22	14	15	e25	31	29	21	19	38	42	37
5	41	20	14	14	e20	29	59	12	22	45	41	24
6	39	20	13	14	e16	26	e14	12	18	38	41	24
7	48	19	21	14	18	26	e13	16	15	57	34	25
8	39	18	14	14	16	21	e13	13	19	50	33	23
9	38	17	13	18	16	21	e12	12	17	42	100	23
10	70	16	15	15	16	19	e12	13	15	39	66	35
11	42	16	16	15	15	19	e11	12	16	46	65	78
12	39	17	25	16	19	18	e13	9.9	17	44	58	66
13	52	15	16	14	28	18	e12	9.9	16	37	69	46
14	40	15	39	18	74	16	e12	10	15	47	59	50
15	40	22	26	15	38	16	e12	15	15	46	52	61
16	44	16	37	16	31	16	e12	15	15	48	47	50
17	44	14	28	15	31	15	12	11	14	91	43	42
18	53	68	26	14	40	49	12	11	16	67	41	38
19	43	31	26	13	30	23	12	12	15	81	38	36
20	59	21	26	14	31	18	12	9.9	36	73	35	45
21	53	18	20	16	29	18	12	9.7	45	66	33	37
22	44	24	19	34	101	21	11	9.9	26	61	31	34
23	41	19	19	28	52	18	11	11	22	58	28	33
24	38	18	21	20	45	18	11	14	20	52	27	32
25	36	16	19	18	40	18	11	26	21	52	26	32
26	35	17	18	16	38	17	11	20	32	46	24	32
27	33	16	18	15	34	26	13	14	30	44	25	32
28	32	15	18	16	32	20	13	16	25	70	25	31
29	29	15	16	15	---	18	11	16	44	69	23	31
30	28	15	17	14	---	18	11	13	36	72	23	31
31	26	---	22	14	---	17	---	12	---	61	23	---
TOTAL	1303	611	619	513	920	677	436	423.3	653	1660	1297	1098
MEAN	42.0	20.4	20.0	16.5	32.9	21.8	14.5	13.7	21.8	53.5	41.8	36.6
MAX	70	68	39	34	101	49	59	26	45	91	100	78
MIN	26	14	13	13	15	15	11	9.7	14	32	23	23
AC-FT	2580	1210	1230	1020	1820	1340	865	840	1300	3290	2570	2180

CAL YR 1985	TOTAL	11677.0	MEAN	32.0	MAX	263	MIN	7.4	AC-FT	23160
WTR YR 1986	TOTAL	10210.3	MEAN	28.0	MAX	101	MIN	9.7	AC-FT	20250

e Estimated

16890600 DIONGRADID RIVER, BABELTHUAP--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT					MAY				
22...	1335	44	27.0	26.0	14...	1225	11	29.0	26.0
NOV					JUN				
19...	1335	28	27.0	26.0	17...	1240	14	29.0	25.0
JAN					JUL				
15...	1210	14	--	25.0	15...	1100	46	28.0	25.0
FEB					SEP				
06...	1215	16	27.5	25.0	16...	1145	48	30.0	25.5

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL											
15...	1100	46	45	7.00	25.0	15	2.8	1.9	2.9	30	0.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL										
15...	0.20	16	1.9	4.0	<0.10	13	36	<0.100	86	7

< Actual value is known to be less than the value shown.

16890900 TABECHEDING RIVER, BABELTHUAP

LOCATION.--Lat 07°27'03" N., long 134°31'29" E., Hydrologic Unit 20100006, on left bank 0.2 mi downstream from waterfall, 1.5 mi upstream from boat landing, and 1.6 mi east of forestry station.

DRAINAGE AREA.--6.07 mi^2.

PERIOD OF RECORD.--October 1970 to current year. Prior to October 1980, published as Tabagaten River.

REVISED RECORDS.--WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft, from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--16 years, 48.5 ft^3/s (35,140 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,580 ft^3/s Dec. 23, 1973, gage height, 8.79 ft, from rating curve extended above 290 ft^3/s; minimum, 0.57 ft^3/s Apr. 19, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 12	1700	1,140	6.42	Feb. 22	0700	930	5.90
Oct. 14	1400	1,080	6.27	July 17	1130	*1,310	*6.75

Minimum discharge, 5.2 ft^3/s Apr. 26, May 1-3, 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	21	19	20	19	47	15	5.9	30	63	88	13
2	51	19	18	19	58	49	14	5.9	32	51	69	12
3	90	17	18	17	38	37	14	5.9	33	46	57	12
4	50	18	18	16	34	34	24	6.4	30	70	51	18
5	59	18	18	15	24	31	54	6.1	37	215	56	15
6	44	23	18	14	20	28	20	9.7	28	140	46	17
7	39	16	28	17	22	44	17	25	23	152	44	29
8	101	14	20	19	19	26	14	47	61	80	38	18
9	51	14	16	15	17	23	14	16	39	71	243	17
10	86	12	15	15	16	22	13	61	30	56	83	22
11	49	12	18	27	16	20	12	20	32	170	59	22
12	223	14	34	23	32	19	11	13	76	105	99	21
13	130	12	25	19	45	17	11	10	49	69	64	186
14	223	12	32	19	200	16	10	12	39	127	57	87
15	187	27	103	19	49	17	9.5	13	47	100	45	139
16	136	14	44	21	119	15	9.2	29	42	70	39	68
17	108	24	31	20	46	14	9.2	17	34	357	34	43
18	106	181	32	26	39	33	8.7	14	48	232	31	34
19	88	27	32	20	31	19	8.4	13	36	158	30	31
20	75	36	24	87	46	17	7.6	10	94	108	27	28
21	78	28	21	46	41	15	7.4	9.5	169	80	31	26
22	57	92	22	78	246	24	7.1	9.5	62	67	24	22
23	47	37	19	117	198	16	7.1	28	67	66	22	20
24	40	29	30	58	130	17	6.6	39	54	58	20	19
25	35	26	20	40	81	55	6.4	125	44	67	19	18
26	46	42	18	34	84	18	5.7	50	212	48	18	16
27	31	28	16	30	56	23	7.1	28	145	99	17	16
28	25	24	28	27	46	16	8.4	114	83	133	16	14
29	44	24	19	24	---	19	6.4	58	100	129	15	14
30	57	20	27	23	---	38	5.9	36	84	203	14	15
31	24	---	23	21	---	20	---	29	---	123	14	---
TOTAL	2433	881	806	946	1772	789	363.7	865.9	1860	3513	1470	1012
MEAN	78.5	29.4	26.0	30.5	63.3	25.5	12.1	27.9	62.0	113	47.4	33.7
MAX	223	181	103	117	246	55	54	125	212	357	243	186
MIN	24	12	15	14	16	14	5.7	5.9	23	46	14	12
AC-FT	4830	1750	1600	1880	3510	1560	721	1720	3690	6970	2920	2010

CAL YR 1985	TOTAL	18973	MEAN	52.0	MAX	386	MIN	12	AC-FT	37630
WTR YR 1986	TOTAL	16711.6	MEAN	45.8	MAX	357	MIN	5.7	AC-FT	33150

16890900 TABECHEDING RIVER, BABELTHUAP--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT					JUL				
21...	1240	66	--	25.0	16...	1345	65	25.5	25.0
DEC					SEP				
03...	1045	18	29.0	26.0	15...	1545	170	--	25.0
JAN									
24...	1055	54	28.5	26.0					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL											
16...	1345	65	50	7.20	25.0	16	2.7	2.3	3.2	30	0.4

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL										
16...	0.20	20	1.2	3.4	<0.10	16	41	<0.100	72	8

< Actual value is known to be less than the value shown.

16891310 KMEKUMEL RIVER, BABELTHUAP

LOCATION.--Lat 07°23'14" N., long 134°32'42" E., Hydrologic Unit 20100006, 0.5 mi upstream from confluence with Edeng River and 1.1 mi north of Palau Mission Academy.

DRAINAGE AREA.--1.44 mi^2.

PERIOD OF RECORD.--September 1978 to current year. Low-flow partial-record station operated "at mouth" 1970-78. Prior to October 1980, published as Kumekumeyel River.

REVISED RECORDS.--WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 96.44 ft, from stadia survey.

REMARKS.--Records fair. No diversion upstream.

AVERAGE DISCHARGE.--8 years, 9.28 ft^3/s (6,720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 595 ft^3/s Apr. 13, 1979, gage height, 10.53 ft, from rating curve extended above 106 ft^3/s on basis of slope-area measurement at gage height 10.53 ft; minimum, 0.18 ft^3/s Apr. 14-17, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 595 ft^3/s Nov. 17, gage height, 7.05 ft, no other peak above base of 450 ft^3/s; minimum, 1.2 ft^3/s Apr. 24-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	4.6	5.3	4.6	4.4	7.7	3.0	1.5	11	15	14	2.7
2	11	4.4	5.0	4.3	9.7	16	2.7	1.6	14	13	12	2.6
3	13	4.6	4.6	4.3	6.2	8.8	2.9	2.9	15	12	10	2.6
4	9.7	5.7	5.3	3.7	7.3	11	4.4	3.1	12	17	9.0	3.4
5	13	5.0	5.0	3.5	5.2	9.5	4.8	2.0	14	46	12	2.7
6	9.7	7.8	4.4	3.5	4.8	6.4	2.9	1.8	13	17	9.9	3.5
7	9.2	4.3	4.4	3.5	4.6	6.6	2.6	1.7	11	17	7.7	4.2
8	14	4.1	4.1	3.5	4.3	5.5	2.5	3.0	11	12	7.5	3.0
9	9.2	3.7	3.9	3.7	4.1	5.3	2.5	2.0	9.5	21	27	5.1
10	12	3.5	3.7	4.3	4.4	5.0	2.4	5.4	8.8	12	12	5.3
11	8.8	3.7	3.7	6.3	3.9	5.0	2.2	2.5	9.0	38	9.2	4.3
12	19	3.7	13	4.1	8.1	4.4	2.4	2.0	15	21	12	4.3
13	16	3.4	5.7	4.4	9.1	4.1	2.2	2.0	12	15	11	12
14	16	3.5	9.6	4.3	39	3.7	2.1	1.8	10	26	10	9.5
15	13	4.3	17	6.6	11	4.1	2.0	3.0	12	21	8.1	17
16	18	3.2	8.1	5.3	8.4	3.4	1.8	4.8	9.9	16	7.3	9.9
17	13	27	6.8	5.3	7.0	3.2	2.0	5.2	8.8	68	6.8	6.8
18	12	40	7.3	5.5	6.8	6.3	1.7	3.5	15	28	6.2	6.1
19	11	14	6.1	4.3	6.1	3.5	1.7	3.0	11	21	5.9	5.5
20	12	7.9	5.3	12	5.9	3.4	1.5	2.6	29	16	5.5	5.3
21	11	6.4	4.8	12	7.7	3.0	1.6	2.5	23	14	5.7	5.2
22	9.0	16	4.6	19	34	5.2	1.5	2.7	14	12	5.2	4.1
23	11	7.5	4.3	20	12	2.9	1.4	8.8	13	13	4.8	3.7
24	7.7	6.2	13	10	19	3.2	1.4	9.2	11	10	4.3	3.5
25	7.3	5.5	5.9	8.6	14	7.2	1.3	58	11	14	4.1	3.4
26	6.6	17	5.0	7.3	14	3.0	1.3	18	29	9.7	3.9	3.4
27	6.1	7.7	4.6	6.2	9.9	6.5	2.1	11	21	14	3.7	3.2
28	5.7	6.4	6.0	5.7	8.6	3.7	2.0	29	18	16	3.4	3.0
29	5.5	7.3	4.4	5.3	---	3.7	1.6	16	20	18	3.2	2.9
30	5.3	5.5	5.5	5.7	---	3.4	1.5	12	19	26	3.0	3.2
31	5.0	---	5.9	5.0	---	3.2	---	10	---	18	2.9	---
TOTAL	331.8	243.9	192.3	201.8	279.5	167.9	66.0	232.6	430.0	616.7	247.3	151.4
MEAN	10.7	8.13	6.20	6.51	9.98	5.42	2.20	7.50	14.3	19.9	7.98	5.05
MAX	19	40	17	20	39	16	4.8	58	29	68	27	17
MIN	5.0	3.2	3.7	3.5	3.9	2.9	1.3	1.5	8.8	9.7	2.9	2.6
AC-FT	658	484	381	400	554	333	131	461	853	1220	491	300

CAL YR 1985	TOTAL	3763.7	MEAN	10.3	MAX	100	MIN	2.1	AC-FT	7470
WTR YR 1986	TOTAL	3161.2	MEAN	8.66	MAX	68	MIN	1.3	AC-FT	6270

16891310 KMEKUMEL RIVER, BABELTHUAP--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT					JUL				
15...	1600	13	27.0	25.0	19...	1115	24	26.0	25.0
NOV					SEP				
16...	1050	3.1	--	25.5	04...	1210	2.4	28.0	25.0
JAN					30...	1135	2.9	28.0	26.0
21...	1205	10	--	26.0					
MAY									
26...	1205	17	--	26.0					

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL											
19...	1115	24	60	7.00	25.0	22	4.9	2.4	3.3	24	0.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL										
19...	0.20	24	1.4	4.5	<0.10	16	47	<0.100	150	8

< Actual value is known to be less than the value shown.

16891400 SOUTH FORK NGERDORCH RIVER, BABELTHUAP

LOCATION.--Lat 07°26'19" N., long 134°34'28" E., Hydrologic Unit 20100006, on right bank 0.3 mi from left-bank tributary, 1.3 mi west of Rrai village, and 1.5 mi upstream from confluence with North Fork Ngerdorch River.

DRAINAGE AREA.--2.44 mi^2.

PERIOD OF RECORD.--March 1971 to current year. Prior to October 1980, published as South Fork Ngardok River.

REVISED RECORDS.--WDR HI-75-1: 1971(M), 1972, 1973(P), 1974. WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 25 ft, revised, from topographic map.

REMARKS.--Records good. No diversion upstream.

AVERAGE DISCHARGE.--15 years, 19.0 ft^3/s (13,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,750 ft^3/s Dec. 13, 1974, gage height, 9.19 ft, from rating curve extended above 65 ft^3/s on basis of field estimate at gage height 7.57 ft; minimum, 0.48 ft^3/s Apr. 16-17, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 8	1100	785	4.01	June 21	2200	994	4.39
Oct. 12	1500	922	4.27	July 17	1000	850	4.14
May 28	1600	*1,520	*5.20				

Minimum discharge, 2.8 ft^3/s May 20-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	7.5	6.7	6.7	6.3	12	5.0	3.4	11	21	31	5.0
2	19	7.1	6.3	5.9	18	12	5.0	4.2	13	32	26	5.0
3	24	6.7	5.9	5.4	11	11	5.4	5.9	17	22	22	4.6
4	18	7.1	5.9	5.0	11	9.9	8.7	17	17	29	21	7.1
5	25	7.1	6.3	5.0	8.1	9.9	11	8.1	13	79	23	5.4
6	18	8.7	5.9	5.0	7.1	9.3	6.3	5.9	11	36	20	6.3
7	17	7.1	5.4	5.0	6.7	12	5.4	6.7	8.7	46	17	5.4
8	86	5.7	5.4	5.0	6.3	8.1	5.4	5.9	21	29	17	5.0
9	23	5.4	5.4	4.6	5.9	7.5	5.0	4.6	16	27	79	7.5
10	32	5.0	5.4	6.7	6.3	7.5	5.0	4.2	11	23	25	8.7
11	19	5.0	6.3	8.7	5.9	7.1	4.6	4.2	13	72	20	6.7
12	155	5.4	11	6.7	12	6.7	5.4	3.8	18	35	23	6.7
13	44	5.0	7.1	5.9	12	6.7	4.6	3.8	16	25	21	82
14	95	4.6	16	7.1	93	6.3	4.6	4.2	14	35	19	27
15	90	7.1	8.7	8.1	20	6.3	4.6	4.2	21	34	16	42
16	58	5.0	9.3	8.1	15	5.9	4.6	6.3	17	34	14	20
17	40	9.9	7.5	7.1	12	5.9	4.6	5.4	12	158	12	14
18	32	43	8.1	9.3	12	12	4.2	4.2	19	66	11	11
19	27	17	8.1	8.7	9.9	6.7	3.8	3.8	15	45	11	12
20	27	14	6.2	24	9.3	6.3	3.4	3.1	99	34	9.9	11
21	22	8.7	5.9	14	16	5.9	3.4	2.8	63	27	11	9.3
22	18	32	5.4	25	79	8.7	3.4	3.1	27	23	9.3	8.1
23	17	14	5.4	30	23	5.9	3.1	27	23	28	8.7	7.5
24	16	9.9	7.5	17	27	6.7	3.1	15	19	30	7.5	7.1
25	16	9.3	5.9	13	20	15	3.1	63	17	50	7.1	6.7
26	17	13	5.4	11	23	6.3	3.1	20	44	23	6.7	5.9
27	12	9.3	6.2	9.9	16	8.7	4.2	11	31	40	6.7	5.9
28	11	8.1	11	8.7	14	6.3	5.0	131	23	44	6.3	5.9
29	10	8.7	6.2	7.5	---	5.9	4.2	25	32	42	6.3	5.9
30	8.7	7.1	9.3	8.1	---	5.9	3.8	16	27	84	6.3	6.7
31	8.1	---	6.7	6.7	---	5.4	---	11	---	42	5.9	---
TOTAL	1024.8	303.5	221.8	298.9	505.8	249.8	143.0	433.8	688.7	1315	519.7	361.4
MEAN	33.1	10.1	7.15	9.64	18.1	8.06	4.77	14.0	23.0	42.4	16.8	12.0
MAX	155	43	16	30	93	15	11	131	99	158	79	82
MIN	8.1	4.6	5.4	4.6	5.9	5.4	3.1	2.8	8.7	21	5.9	4.6
AC-FT	2030	602	440	593	1000	495	284	860	1370	2610	1030	717

CAL YR 1985	TOTAL	6977.6	MEAN	19.1	MAX	227	MIN	4.6	AC-FT	13840
WTR YR 1986	TOTAL	6066.2	MEAN	16.6	MAX	158	MIN	2.8	AC-FT	12030

16891400 SOUTH FORK NGERDORCH RIVER, BABELTHUAP--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT					MAY				
23...	1050	17	28.0	26.0	20...	1135	3.3	--	26.0
NOV					JUL				
20...	1045	13	27.0	26.0	18...	1115	56	25.5	25.0
JAN					SEP				
17...	1210	7.6	--	26.0	17...	1005	14	28.5	25.5

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL											
18...	1115	56	41	7.20	25.0	12	2.2	1.7	2.8	32	0.4

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL										
18...	0.20	14	1.9	3.7	<0.10	13	34	0.130	68	5

< Actual value is known to be less than the value shown.

16892000 QATLIW STREAM, YAP

LOCATION.--Lat 09°32'58" N., long 138°06'41" E., Hydrologic Unit 20100006, on right bank 90 ft below confluence with major tributary, 0.5 mi upstream from mouth, and 2.6 mi northwest of Colonia.

DRAINAGE AREA.--0.31 mi^2.

PERIOD OF RECORD.--January 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 40 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 874 ft^3/s June 21, 1982, gage height, 5.96 ft, from rating curve extended above 10 ft^3/s; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 19	1600	*468	*4.63	Aug. 4	0530	422	4.45

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	.10	.01	e.03	.01	1.5	.10	10	.03	.63	.30	.00
2	1.6	.08	.01	e.03	4.4	.88	.06	10	.01	.23	.11	6.7
3	1.3	.08	.01	e.04	1.7	.63	6.5	.82	1.2	.16	.08	1.5
4	.76	.05	.01	.02	.11	.30	2.3	.88	7.5	2.0	27	.16
5	.27	.06	.01	.01	.03	6.1	1.1	.57	1.4	4.7	.82	.08
6	.16	.08	.01	.03	.02	8.4	3.1	.10	3.1	.82	.82	.05
7	.30	.06	.01	.08	.01	5.6	.16	.04	.63	.19	.23	.03
8	.45	.04	.02	.03	.01	.94	.04	.02	.34	.10	8.1	.02
9	.08	.04	.03	.10	.01	.39	.04	.01	.13	.19	.70	.02
10	.77	.08	.02	.03	.01	.27	.06	.06	.06	1.1	.23	.95
11	.45	.39	.06	.13	.01	.19	.03	1.3	.06	11	.13	5.2
12	.08	.19	.04	.04	.01	4.3	.04	.34	.08	1.1	2.9	1.4
13	.06	4.5	.07	.02	.03	1.0	.05	.06	.23	.23	3.3	5.6
14	.83	e5.5	.23	.02	6.0	.30	.04	.82	.10	11	.70	2.3
15	4.7	e.50	.11	.02	7.8	.13	.23	3.2	.27	2.0	.16	2.0
16	1.4	e.20	6.6	13	1.4	.11	.06	.94	.10	.34	.10	4.8
17	3.0	e.70	24	1.5	.57	.10	.04	.10	.06	4.9	.06	2.4
18	1.2	e.30	12	.23	.39	.11	.02	.03	.06	2.0	.01	7.9
19	6.5	e.10	4.8	.16	34	.10	.01	.01	2.1	7.2	.01	2.3
20	4.8	e.06	.76	.05	18	.08	.01	.01	20	.94	.02	.34
21	11	e.04	.27	.10	2.3	.06	.00	.01	3.5	.30	.01	.16
22	1.3	e.04	1.0	2.4	.63	.10	.00	.01	.45	.27	.01	.11
23	.30	e1.5	e.16	.82	.30	.05	.00	.06	.70	.34	.01	.08
24	.11	e.40	e.08	.13	.19	.04	.00	.06	.34	1.4	.13	.39
25	.05	e.20	e.06	.05	.88	.04	.00	.03	2.2	.39	.05	.16
26	3.0	e.09	e.05	.02	.34	1.3	.00	.01	3.9	.16	.01	.08
27	.82	e.06	e.04	.02	.16	1.0	.01	.13	3.0	.19	.01	.05
28	.13	e.04	e.07	.01	.08	.27	.01	.13	.57	.27	.01	.03
29	2.3	e.02	e.40	.01	---	1.6	.00	.08	4.5	2.3	.00	.03
30	.94	e.01	e.18	.01	---	.34	.00	.08	1.6	6.8	.00	.02
31	.19	---	.06	.01	---	.16	---	.02	---	2.0	.00	---
TOTAL	54.75	15.51	51.18	19.15	79.40	36.39	14.01	29.93	58.22	65.25	46.02	44.86
MEAN	1.77	.52	1.65	.62	2.84	1.17	.47	.97	1.94	2.10	1.48	1.50
MAX	11	5.5	24	13	34	8.4	6.5	10	20	11	27	7.9
MIN	.05	.01	.01	.01	.01	.04	.00	.01	.01	.10	.00	.00
AC-FT	109	31	102	38	157	72	28	59	115	129	91	89

CAL YR 1985	TOTAL	540.59	MEAN	1.48	MAX	35	MIN	.00	AC-FT	1070
WTR YR 1986	TOTAL	514.67	MEAN	1.41	MAX	34	MIN	.00	AC-FT	1020

e Estimated

16892400 QARINGEEL STREAM, YAP

LOCATION.--Lat 09°31'02" N., long 138°05'31" E., Hydrologic Unit 20100006, on right bank at Qaringeel and 0.3 mi southwest of Dalipeebinaew School.

DRAINAGE AREA.--0.24 mi^2.

PERIOD OF RECORD.--April 1968 to current year. Prior to October 1980, published as Aringel Stream.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 15 ft, from topographic map.

REMARKS.--Records fair. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--18 years, 1.11 ft^3/s (804 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 674 ft^3/s July 13, 1981, gage height, 7.82 ft, from rating curve extended above 20 ft^3/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 4	0500	241	5.24	July 14	0900	254	5.33
June 19	2000	254	5.33	Aug. 4	0430	*422	*6.45
July 11	0630	250	5.30				

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	.03	.45	.04	.01	2.5	.02	14	.01	.54	.23	.01
2	.88	.03	.13	.03	1.5	.76	.02	5.9	1.8	.20	.07	9.8
3	.62	.06	.07	.02	.62	.62	3.8	.65	5.4	.14	.02	1.2
4	.48	.05	.05	.02	.39	.33	2.7	3.6	9.5	.06	33	.45
5	.33	.04	.03	.01	.11	2.3	3.6	.62	.65	.10	.84	.36
6	.48	.04	.01	.01	.08	15	3.5	.16	.45	.25	3.3	.30
7	.23	.03	.02	.01	.05	3.9	.42	.08	.25	.11	.33	.11
8	.20	.02	.01	.01	.02	.51	.16	.04	.16	.13	1.1	.07
9	.08	.02	.01	.03	.01	.25	.07	.05	.11	1.4	.36	.06
10	1.4	.01	.01	.02	.01	.20	.07	.04	.14	3.9	.14	4.5
11	.69	.02	.03	.16	.01	.13	.06	3.2	.18	14	.08	4.3
12	.18	.01	.01	.06	.02	3.1	.07	.51	.20	.73	5.1	1.8
13	.73	.10	.01	.02	.05	.81	.08	.14	.30	.25	2.5	6.8
14	2.7	.30	.01	.02	9.0	.20	.06	.08	.18	16	.48	.76
15	3.6	.14	.01	.01	4.8	.08	.10	.08	.33	.97	.25	1.0
16	1.9	.07	4.7	15	.45	.05	.08	.02	.42	.23	.16	5.3
17	3.2	.18	28	.76	.18	.03	.04	.02	.20	2.4	.05	1.4
18	1.3	.16	11	.33	.10	.10	.02	.02	.18	.92	.02	7.7
19	3.2	.10	3.2	.20	6.0	.04	.02	.01	10	2.6	.02	1.2
20	2.0	.05	.65	.08	1.9	.02	.01	.02	13	.42	.01	.36
21	4.3	.02	1.0	.29	.88	.01	.01	.02	1.4	.75	.01	.18
22	.62	.03	1.5	.42	.25	.03	.01	.01	.25	.54	.01	.13
23	.20	1.7	.33	.25	.13	.02	.01	2.8	.39	.14	.01	.39
24	.11	.45	.16	.08	.08	.01	.01	1.8	.27	.16	.14	1.1
25	.05	.23	.11	.06	.18	.01	.01	.58	.23	.10	.04	.58
26	.18	.13	.07	.03	.14	5.8	.01	.14	1.6	.14	.01	.18
27	.18	.10	.06	.02	.07	1.9	.02	.08	1.1	.06	.01	.10
28	.07	.05	.08	.01	.06	.33	.02	.14	.36	.27	.01	.06
29	.07	.02	.23	.01	---	.23	.01	.07	3.0	.89	.02	.02
30	.14	1.3	.10	.01	---	.14	.01	.04	3.2	8.2	.01	.01
31	.07	---	.07	.01	---	.08	---	.02	---	1.2	.01	---
TOTAL	43.19	5.49	52.12	18.03	27.10	39.49	15.02	34.94	55.26	57.80	48.34	50.23
MEAN	1.39	.18	1.68	.58	.97	1.27	.50	1.13	1.84	1.86	1.56	1.67
MAX	13	1.7	28	15	9.0	15	3.8	14	13	16	33	9.8
MIN	.05	.01	.01	.01	.01	.01	.01	.01	.01	.06	.01	.01
AC-FT	86	11	103	36	54	78	30	69	110	115	96	100

CAL YR 1985	TOTAL	559.68	MEAN	1.53	MAX	30	MIN	.00	AC-FT	1110
WTR YR 1986	TOTAL	447.01	MEAN	1.22	MAX	33	MIN	.01	AC-FT	887

16892480 AIRPORT POND, YAP

LOCATION.--Lat 09°29'14" N., long 138°05'08" E., Hydrologic Unit 20100006, on northwest shore of pond, behind Pacific Missionary Aviation facilities, and north of former landing strip.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level.

REMARKS.--Records good except for estimated daily water levels, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.38 ft, Jume 18, 1985; lowest, 28.19 ft, June 1, 1984.

EXTREMES FOR CURRENT YEAR.--Highest water level, 34.26 ft, Dec. 18; lowest, 32.12 ft, Dec. 15.

GAGE HEIGHT (FEET AT DATUM), WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.60	32.96	32.62	32.81	32.58	33.00	32.81	32.75	32.45	32.99	32.92	32.50
2	33.31	32.92	32.58	32.79	32.82	33.27	32.77	33.28	32.41	32.95	32.86	32.96
3	33.25	32.88	32.56	32.73	32.89	33.25	32.92	33.11	32.41	32.91	32.82	33.06
4	33.19	32.85	32.53	32.70	32.86	33.13	33.04	33.06	32.68	32.87	33.62	32.95
5	33.14	32.81	32.50	32.67	32.84	33.11	33.10	33.05	32.73	32.84	33.13	32.87
6	33.16	32.78	32.47	32.64	32.82	33.12	33.22	32.97	32.71	32.91	33.20	32.83
7	33.16	32.74	32.48	32.63	32.77	33.29	33.11	32.91	32.68	32.89	33.04	32.79
8	33.12	32.70	32.40	32.61	32.74	33.16	33.04	32.86	32.66	32.88	33.11	32.76
9	33.07	32.67	32.36	32.61	32.69	33.08	32.97	32.83	32.65	32.96	33.04	32.73
10	33.08	32.64	32.31	32.58	32.66	33.07	32.94	32.79	32.70	33.07	32.94	32.81
11	33.16	32.62	32.31	32.61	32.63	32.97	32.90	32.89	32.72	33.55	32.88	33.25
12	33.09	32.59	32.29	32.60	32.61	33.11	32.87	32.95	e32.70	33.18	32.92	33.10
13	33.06	32.66	32.25	32.57	32.63	33.16	32.87	32.89	e32.70	33.00	33.06	33.07
14	33.17	32.78	32.20	32.53	33.14	33.07	32.83	32.84	e32.70	33.42	33.00	32.99
15	33.30	32.76	32.16	32.50	33.36	32.99	32.82	32.80	e32.68	33.30	32.91	32.94
16	33.27	32.74	32.66	33.00	33.19	32.94	32.79	32.76	e32.68	33.06	32.85	33.02
17	33.29	32.73	33.40	33.25	33.11	32.90	32.76	32.73	e32.70	32.97	32.80	33.09
18	33.26	32.72	33.94	33.13	33.15	32.88	32.72	32.72	e32.70	32.94	32.75	33.04
19	33.21	32.71	33.50	33.07	33.24	32.86	32.70	32.70	e32.90	32.92	32.73	33.04
20	33.21	32.69	33.28	33.01	33.14	32.82	32.66	32.68	e33.50	32.90	32.71	32.93
21	33.27	32.65	33.17	33.00	33.07	32.78	32.62	32.65	e33.10	32.86	32.69	32.86
22	33.19	32.63	33.22	32.98	33.00	32.78	32.57	32.62	e33.00	32.83	32.69	32.82
23	33.12	32.73	33.15	32.95	32.96	32.75	32.52	32.61	e32.92	32.80	32.66	32.78
24	33.07	32.75	33.09	32.91	32.92	32.72	32.46	32.68	32.87	32.78	32.74	32.75
25	33.03	32.74	33.03	32.86	32.89	32.67	32.41	32.71	32.84	32.77	32.74	32.73
26	33.05	32.70	32.99	32.81	32.87	32.80	32.38	32.68	32.86	32.78	32.71	32.69
27	33.06	32.68	32.96	32.76	32.83	33.05	32.37	32.65	32.88	32.79	32.67	32.68
28	33.07	32.66	32.92	32.72	32.81	32.98	32.35	32.62	32.86	32.84	32.64	32.66
29	33.10	32.63	32.90	32.68	---	32.93	32.32	32.58	32.98	32.91	32.62	32.64
30	33.07	32.62	32.88	32.64	---	32.88	32.28	32.54	33.01	32.97	32.59	32.66
31	33.01	---	32.85	32.61	---	32.84	---	32.49	---	32.99	32.55	---
MEAN	33.17	32.72	32.77	32.77	32.90	32.98	32.74	32.79	32.78	32.96	32.86	32.87
MAX	33.60	32.96	33.94	33.25	33.36	33.29	33.22	33.28	33.50	33.55	33.62	33.25
MIN	33.01	32.59	32.16	32.50	32.58	32.67	32.28	32.49	32.41	32.77	32.55	32.50

CAL YR 1985 MEAN 32.60 MAX 34.05 MIN 31.23
WTR YR 1986 MEAN 32.86 MAX 33.94 MIN 32.16

e Estimated

16893100 BURONG STREAM, YAP

LOCATION.--Lat 09°32'05" N., long 138°07'19" E., Hydrologic Unit 20100006, on left bank at Dugor, 0.25 mi upstream from mouth, and 0.5 mi northeast of Mount Gamuw.

DRAINAGE AREA.--0.23 mi^2.

PERIOD OF RECORD.--April 1968 to current year.

REVISED RECORDS.--WDR HI-79-2: Drainage area, 1968-78(P).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 15 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--18 years, 0.940 ft^3/s (681 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550 ft^3/s June 21, 1982, gage height, 5.45 ft, from rating curve extended above 15 ft^3/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 16	1600	122	3.58	June 20	1800	112	3.50
Feb. 19	1630	*463	*5.16	Aug. 4	0530	325	4.66
Feb. 20	1400	409	4.98				

No flow for few days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	.10	.03	.07	.03	.27	.07	7.1	.01	.60	.37	.03
2	1.2	.08	.04	.04	1.6	.27	.05	7.9	.01	.27	.20	5.1
3	1.6	.07	.05	.03	.85	.20	4.3	.60	.28	.16	.13	1.3
4	.90	.06	.06	.03	.16	.16	1.0	.27	2.5	.11	27	.40
5	.37	.06	.04	.02	.09	4.1	.65	.20	.30	1.3	.60	.54
6	.22	.06	.05	.02	.08	5.6	1.1	.10	3.3	.44	.44	.24
7	.20	.05	.05	.04	.07	3.7	.30	.06	.44	.20	.20	.16
8	.20	.04	.02	.03	.06	.95	.13	.05	.14	.13	3.9	.13
9	.13	.04	.03	.04	.04	.40	.09	.04	.09	.11	.50	.13
10	.16	.04	.02	.03	.03	.22	.07	.09	.06	.47	.20	1.2
11	.20	.37	.06	.08	.03	.14	.06	2.2	.06	9.6	.14	4.6
12	.11	.08	.03	.05	.08	3.5	.05	.50	.06	.85	2.5	1.2
13	.13	.91	.05	.02	.06	.95	.05	.16	.10	.34	2.2	4.7
14	.90	1.4	.10	.02	7.1	.24	.03	.11	.06	9.5	.57	2.3
15	2.1	.30	.06	.02	7.0	.13	.09	2.1	.07	1.8	.22	1.7
16	1.2	.14	5.3	11	.53	.10	.06	.57	.07	.22	.13	4.4
17	1.6	.22	19	1.2	.22	.10	.05	.16	.06	2.4	.09	1.7
18	.70	.27	11	.30	.24	.08	.05	.09	.05	1.1	.07	5.0
19	4.9	.16	3.8	.18	23	.06	.04	.06	2.2	e3.5	.06	1.7
20	2.9	.10	.60	.10	26	.05	.02	.04	14	e.70	.05	.44
21	6.0	.09	.30	.16	2.1	.04	.01	.03	2.6	e.30	.05	.24
22	1.0	.09	.60	.57	.60	.04	.01	.04	.40	e.15	.04	.16
23	.47	1.3	.22	.37	.27	.03	.00	.04	.53	e.20	.04	.14
24	.27	.40	.13	.14	.18	.02	.00	.05	.60	e.90	.05	.14
25	.16	.22	.13	.11	.30	.01	.00	.03	.90	e.30	.07	.10
26	.50	.14	.11	.08	.27	1.0	.00	.02	1.9	.14	.05	.22
27	.44	.09	.09	.06	.16	1.4	.01	.02	1.2	.24	.04	.05
28	.20	.06	.16	.05	.11	.18	.02	.02	.34	.16	.03	.04
29	.22	.03	.37	.04	---	.57	.01	.02	2.6	1.1	.02	.03
30	.24	.02	.13	.04	---	.22	.01	.02	1.5	4.8	.02	.03
31	.13	---	.10	.02	---	.10	---	.02	---	1.5	.02	---
TOTAL	35.95	6.99	42.73	14.96	71.26	24.83	8.33	22.71	36.43	43.59	40.00	38.12
MEAN	1.16	.23	1.38	.48	2.54	.80	.28	.73	1.21	1.41	1.29	1.27
MAX	6.6	1.4	19	11	26	5.6	4.3	7.9	14	9.6	27	5.1
MIN	.11	.02	.02	.02	.03	.01	.00	.02	.01	.11	.02	.03
AC-FT	71	14	85	30	141	49	17	45	72	86	79	76

CAL YR 1985	TOTAL	404.98	MEAN	1.11	MAX	32	MIN	.00	AC-FT	803
WTR YR 1986	TOTAL	385.90	MEAN	1.06	MAX	27	MIN	.00	AC-FT	765

e Estimated

16893200 MUKONG STREAM, GAGIL-TAMIL

LOCATION.--Lat 09°32'05" N., long 138°10'18" E., Hydrologic Unit 20100006, on right bank 0.2 mi upstream from mouth and 0.9 mi south of U.S. Coast Guard LORAN station.

DRAINAGE AREA.--0.50 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1972-75, December 1974 to June 1978, July to September 1978, stage-discharge relation indefinite due to blocked control. October 1978 to current year.

REVISED RECORDS.--WDR HI-79-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. At times some water is pumped from upstream for village use. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--10 years (water years 1976-77, 1979-86), 2.00 ft^3/s (1,450 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153 ft^3/s June 21, 1982, gage height, 4.10 ft, from rating curve extended above 18 ft^3/s; minimum, 0.02 ft^3/s May 17-23, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50 ft^3/s June 20, gage height, 3.04 ft, no other peak greater than base discharge of 50 ft^3/s; minimum, 0.42 ft^3/s Apr. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	1.3	.89	1.2	.82	1.9	1.0	6.2	.57	2.8	2.3	1.1
2	2.5	1.2	.89	1.2	5.0	1.3	.96	5.2	.57	1.9	1.9	4.0
3	3.4	1.2	.89	1.0	3.1	1.2	5.1	2.3	.47	1.6	1.6	2.7
4	2.4	1.2	.89	1.0	1.4	1.2	3.4	4.3	3.7	1.9	7.5	1.8
5	1.9	1.2	.82	.96	1.2	6.1	2.5	2.7	1.5	2.1	2.6	1.4
6	2.5	1.0	.82	.89	1.2	6.1	2.3	1.4	2.6	3.3	2.0	1.2
7	3.5	.96	.75	1.1	1.1	8.1	e1.4	1.2	1.3	2.4	1.7	1.2
8	3.9	.89	.75	1.0	1.0	2.7	e1.3	.96	1.0	1.6	7.8	1.1
9	2.0	.82	.75	1.2	.96	1.8	e1.2	.89	.82	1.9	3.2	1.1
10	2.6	.82	.69	.96	.82	1.4	1.1	.82	.69	2.4	2.5	2.8
11	2.7	1.6	1.0	1.2	.82	1.2	1.0	1.6	.69	7.0	2.3	5.4
12	1.7	.96	.96	.96	1.2	4.3	.89	1.2	1.0	3.1	4.0	2.8
13	1.5	2.1	.82	.89	1.3	2.4	1.3	.89	1.8	2.0	4.6	4.3
14	2.5	2.8	1.1	.82	2.7	1.5	.89	1.2	.96	13	2.6	2.4
15	3.8	1.5	.82	.82	7.6	1.2	1.3	.82	.96	4.5	2.0	3.1
16	2.5	1.2	7.8	13	2.0	1.3	.89	.75	1.0	2.6	1.7	4.8
17	2.6	1.6	17	4.3	1.4	1.1	.82	.69	.82	4.7	1.7	4.5
18	2.0	1.4	11	2.3	1.4	1.3	.69	.63	.82	3.3	1.3	9.6
19	7.2	1.2	7.5	1.8	1.5	1.1	.69	.57	2.2	3.2	1.2	5.6
20	4.9	1.0	3.3	1.4	3.8	1.0	.69	.57	14	2.2	1.2	3.3
21	7.1	1.0	2.6	1.7	5.2	.89	.57	.57	6.9	1.8	1.2	3.0
22	3.3	1.1	3.6	2.6	2.1	.96	.57	.52	2.2	2.0	1.2	2.2
23	2.3	2.4	2.1	2.4	1.7	.89	.52	.75	2.4	1.4	1.2	2.2
24	1.9	.89	1.8	1.5	1.5	.89	.47	.82	2.2	4.1	2.6	2.7
25	1.7	1.4	1.6	1.3	1.4	.82	.42	.63	3.0	2.4	1.4	2.0
26	8.0	1.2	1.9	1.1	1.3	2.6	.47	.63	3.0	1.6	1.2	1.6
27	3.1	1.1	1.9	1.0	1.2	2.9	.52	.57	3.9	4.5	1.1	1.4
28	1.8	1.0	2.5	.96	1.0	1.4	.52	.52	2.4	3.1	1.2	2.3
29	1.8	.89	2.2	.96	---	2.1	.52	.89	4.9	3.4	1.4	2.1
30	1.6	.82	1.7	.89	---	1.4	.52	.82	4.2	6.1	1.1	1.4
31	1.4	---	1.4	.82	---	1.1	---	.57	---	3.8	1.1	---
TOTAL	94.6	37.75	82.74	53.23	55.72	64.15	34.52	42.18	72.57	101.7	70.4	85.1
MEAN	3.05	1.26	2.67	1.72	1.99	2.07	1.15	1.36	2.42	3.28	2.27	2.84
MAX	8.0	2.8	17	13	7.6	8.1	5.1	6.2	14	13	7.8	9.6
MIN	1.4	.82	.69	.82	.82	.82	.42	.52	.47	1.4	1.1	1.1
AC-FT	188	75	164	106	111	127	68	84	144	202	140	169

CAL YR 1985	TOTAL	855.16	MEAN	2.34	MAX	19	MIN	.42	AC-FT	1700
WTR YR 1986	TOTAL	794.66	MEAN	2.18	MAX	17	MIN	.42	AC-FT	1580

e Estimated

16893400 EYEB STREAM, GAGIL-TAMIL

LOCATION.--Lat 09°33'02" N., long 138°09'03" E., Hydrologic Unit 20100006, on left bank 0.6 mi southeast of the Tagireeng Canal bridge and 1.2 mi northwest of the Coast Guard LORAN Station.

DRAINAGE AREA.--0.32 mi^2.

PERIOD OF RECORD.--January 1982 to current year.

REVISED RECORDS.--WDR HI-85-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 15 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 490 ft^3/s June 21, 1982, gage height, 6.22 ft, from rating curve extended above 14 ft^3/s; minimum, 0.01 ft^3/s for many days in May 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 159 ft^3/s June 20, gage height, 4.21 ft, no other peak greater than base discharge of 150 ft^3/s; minimum, 0.29 ft^3/s Dec. 6, 7, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.8	1.2	.44	.59	.34	1.1	.83	8.3	.34	2.3	2.3	.44
2	e2.0	1.1	.39	.54	3.1	.83	.76	3.7	.34	1.7	2.1	3.4
3	e3.0	1.1	.39	.49	1.5	.76	4.3	1.5	.39	1.3	2.0	1.9
4	2.1	1.0	.39	.44	.69	.76	2.1	7.6	2.0	1.3	11	1.0
5	1.5	1.0	.39	.44	.54	4.2	1.7	2.3	.97	1.5	2.3	.76
6	2.2	.97	.34	.39	.54	6.7	1.7	1.3	2.1	1.3	1.7	.59
7	2.8	.83	.29	.69	.54	6.1	1.1	.97	.97	1.1	1.4	.49
8	2.2	.76	.34	.54	.49	2.2	.83	.76	.69	.83	11	.44
9	1.3	.69	.34	.64	.44	1.6	.83	.64	.59	1.0	2.1	.44
10	2.2	.83	.29	.49	.44	1.3	.76	.64	.49	1.2	1.5	1.5
11	1.7	1.1	.49	.69	.44	1.2	.69	.76	.49	5.3	1.2	3.9
12	1.3	.90	.44	.49	.83	4.1	.64	.83	.64	1.7	3.5	2.6
13	1.1	1.9	.39	.39	.59	1.9	.76	.64	1.0	1.2	2.7	3.5
14	1.5	2.7	.54	.39	3.3	1.3	.59	.59	.64	12	1.5	1.7
15	1.6	1.1	.49	.34	6.0	1.0	1.1	.54	.59	3.7	1.2	2.4
16	1.6	.83	8.0	16	1.7	1.0	.76	.49	.64	2.2	1.0	4.4
17	2.1	1.4	21	2.9	1.2	.90	.64	.44	.54	4.0	.83	4.2
18	1.3	.97	12	1.5	1.2	.90	.59	.44	.49	2.6	.76	14
19	5.0	.83	9.1	1.2	1.4	.83	.54	.44	3.5	2.9	.69	5.2
20	4.6	.69	3.4	.83	2.7	.69	.49	.39	22	1.7	.69	3.5
21	6.8	.64	2.4	1.1	4.3	.64	.44	.39	5.7	1.4	.69	2.4
22	3.0	.64	2.4	1.9	1.6	.76	.44	.34	2.3	1.2	.64	2.0
23	2.2	1.7	1.5	1.7	1.3	.69	.39	.69	2.9	2.4	.64	1.5
24	1.7	.83	1.3	.97	1.0	.59	.39	.59	2.4	6.8	1.6	1.5
25	1.5	.69	.97	.69	.97	.59	.39	.44	2.7	2.4	.76	1.3
26	9.5	.54	1.3	.54	.90	1.1	.49	.54	2.9	1.7	.59	1.0
27	2.4	.49	.94	.49	.83	1.9	.49	.44	4.6	1.6	.54	.97
28	1.9	.49	1.6	.44	.76	1.1	.49	.39	2.3	1.6	.49	.83
29	1.9	.44	1.3	.34	---	2.6	.49	.49	4.4	3.0	.54	.76
30	1.6	.44	.83	.34	---	1.3	.44	.54	7.4	5.6	.49	.76
31	1.3	---	.69	.29	---	.97	---	.39	---	3.7	.39	---
TOTAL	78.7	28.80	74.68	38.78	39.64	51.61	26.16	38.51	77.01	82.23	58.84	69.38
MEAN	2.54	.96	2.41	1.25	1.42	1.66	.87	1.24	2.57	2.65	1.90	2.31
MAX	9.5	2.7	21	16	6.0	6.7	4.3	8.3	22	12	11	14
MIN	1.1	.44	.29	.29	.34	.59	.39	.34	.34	.83	.39	.44
AC-FT	156	57	148	77	79	102	52	76	153	163	117	138

CAL YR 1985	TOTAL	855.25	MEAN	2.34	MAX	27	MIN	.24	AC-FT	1700
WTR YR 1986	TOTAL	664.34	MEAN	1.82	MAX	22	MIN	.29	AC-FT	1320

e Estimated

16893800 WICHEN RIVER AT ALTITUDE 18 M, MOEN

LOCATION.--Lat 07°27'01" N., long 151°51'56" E., Hydrologic Unit 20100006, on left bank at Peniesence, 0.3 mi upstream from mouth, and 1.4 mi west of Saint Xaviers Academy.

DRAINAGE AREA.--0.57 mi^2.

PERIOD OF RECORD.--April 1955 to March 1956 (published as "at Peniesence"), June 1968 to January 1980, May 1980 to May 1983, February 1984 to current year. All figures of discharge above 3 ft^3/s prior to April 1956, published in WSP 1751, are unreliable and should not be used.

REVISED RECORDS.--WSP 2137, WDR HI-79-2: Drainage area.

GAGE.--Water-stage recorder and concrete control since Mar. 29, 1973. Elevation of gage is 60 ft, from topographic map. Prior to Apr. 1, 1956, nonrecording gage at site 100 ft downstream at different datum.

REMARKS.--Records poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--15 years, 3.14 ft^3/s (2,270 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 910 ft^3/s June 4, 1972, gage height, 6.80 ft, from rating curve extended above 28 ft^3/s; minimum, 0.01 ft^3/s Apr. 16-19, 1977, Apr. 8, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 15	unknown	312	3.98	July 26	unknown	*368	*4.35

Minimum discharge, 0.03 ft^3/s for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	.59	.66	5.0	3.0	.80	1.6	1.0	.70	1.2	2.3	10
2	1.2	.45	.57	6.6	1.6	1.2	5.3	.53	.51	.80	1.9	8.8
3	.55	2.0	.57	5.4	10	1.0	3.6	1.6	.34	.60	1.7	5.7
4	.40	1.0	.85	3.3	6.3	.85	1.9	.70	.32	9.0	1.6	3.8
5	.28	.53	.66	2.2	4.9	.72	1.4	.46	.30	3.0	1.6	2.4
6	.35	1.8	.49	11	2.6	.66	1.2	.51	.30	3.0	1.4	2.1
7	8.0	1.7	.49	6.6	1.5	.66	.95	.46	.40	12	1.2	1.4
8	2.4	16	1.8	4.2	1.1	7.1	.85	.40	7.0	5.0	.95	1.2
9	1.3	5.0	.66	3.8	.80	6.4	1.3	2.4	3.1	2.5	.85	1.9
10	.90	3.0	.57	3.3	.68	13	.85	7.3	3.1	6.0	.85	2.2
11	.71	2.1	3.2	3.9	.72	30	.75	6.0	1.8	3.0	9.4	9.0
12	.40	4.0	10	3.2	.66	13	.57	3.6	1.0	1.8	5.7	4.6
13	.31	3.0	2.4	2.5	.66	7.6	.42	10	2.3	1.3	3.0	3.0
14	11	2.1	5.6	2.2	.66	6.4	.32	9.8	1.8	.90	1.9	7.5
15	4.5	1.5	18	1.7	4.0	6.4	.30	24	2.0	.70	1.4	4.0
16	2.2	1.6	6.0	1.3	1.6	4.6	.90	7.0	4.7	1.1	1.2	2.7
17	10	9.0	4.0	1.0	15	3.3	.60	3.1	3.2	.75	.95	1.8
18	3.8	3.2	2.2	.80	25	2.2	3.1	1.6	5.2	.50	.75	1.2
19	2.5	6.0	3.0	14	17	1.3	1.8	.99	3.2	.35	.66	1.0
20	2.0	2.6	1.9	8.0	9.0	.86	1.2	.66	2.7	.31	.57	8.5
21	1.7	3.3	4.7	4.3	4.0	.74	.91	.46	4.6	.30	.49	5.0
22	1.6	2.6	23	3.0	5.2	.66	15	.34	2.8	.40	.49	2.8
23	1.8	3.3	8.4	2.0	6.1	4.0	11	.50	1.7	3.5	3.2	1.8
24	1.5	2.2	1.9	1.3	4.0	5.6	8.0	2.3	3.7	1.6	16	1.1
25	1.2	1.6	1.9	.84	2.4	5.1	5.2	1.6	1.8	.80	7.6	.70
26	1.0	1.3	1.4	.66	1.4	4.4	2.7	1.2	3.3	25	3.3	.50
27	.88	1.1	1.3	.66	.92	6.0	4.5	.80	5.1	8.0	1.9	7.8
28	.79	.85	1.2	8.3	.72	4.6	11	.55	3.0	3.5	1.4	4.6
29	2.0	.75	4.0	11	---	3.0	5.0	.70	1.5	6.0	2.1	1.9
30	2.3	.66	2.4	9.0	---	2.2	2.0	.55	.90	3.8	6.3	1.6
31	1.1	---	3.9	6.3	---	2.1	---	.80	---	2.8	5.1	---
TOTAL	69.07	84.83	117.72	137.36	131.52	146.45	94.22	91.91	72.37	109.51	87.76	110.60
MEAN	2.23	2.83	3.80	4.43	4.70	4.72	3.14	2.96	2.41	3.53	2.83	3.69
MAX	11	16	23	14	25	30	15	24	7.0	25	16	10
MIN	.28	.45	.49	.66	.66	.66	.30	.34	.30	.30	.49	.50
AC-FT	137	168	233	272	261	290	187	182	144	217	174	219

CAL YR 1985	TOTAL	1219.35	MEAN	3.34	MAX	70	MIN	.08	AC-FT	2420
WTR YR 1986	TOTAL	1253.32	MEAN	3.43	MAX	30	MIN	.28	AC-FT	2490

16897600 NANPIL RIVER

LOCATION.--Lat 06°55'09" N., long 158°11'59" E., Hydrologic Unit 20100006, on left bank 0.1 mi upstream from diversion dam and 1.3 mi upstream from Kiepw River.

DRAINAGE AREA.--3.00 mi^2.

PERIOD OF RECORD.--March 1970 to current year. Prior to October 1980, published as Nanepil River.

REVISED RECORDS.--WDR HI-76-1: 1970(M), 1971-72(P), 1973(M), 1974(P), 1975(M). WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 370 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No diversion upstream.

AVERAGE DISCHARGE.--16 years, 44.6 ft^3/s (32,310 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,820 ft^3/s Aug. 4, 1976, gage height, 9.68 ft, from rating curve extended above 168 ft^3/s on basis of slope-area measurement at gage height 9.68 ft; minimum, 0.54 ft^3/s Apr. 19, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,390 ft^3/s Dec. 13, gage height 6.81 ft, no peak greater than base discharge of 3,200 ft^3/s; minimum, 5.2 ft^3/s Aug. 19-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	20	42	49	47	14	89	84	e37	e49	18	25
2	22	21	32	24	48	29	54	39	e18	e24	16	27
3	25	21	28	15	64	23	35	8.5	e13	15	30	27
4	34	16	21	13	38	20	23	22	e59	24	24	22
5	20	80	89	17	26	15	17	18	e25	17	30	15
6	17	87	63	16	51	13	14	15	e15	16	26	11
7	22	79	35	14	45	68	12	339	e20	42	23	9.2
8	15	28	115	12	42	81	12	112	e31	22	14	131
9	19	19	45	62	40	64	9.8	32	e27	16	13	32
10	45	15	63	87	44	42	14	91	e53	19	47	59
11	47	42	35	64	144	72	13	166	e111	17	47	171
12	99	22	58	85	47	47	11	36	e58	22	186	136
13	35	e43	298	36	24	35	10	71	e32	13	67	76
14	100	e35	137	22	16	30	9.5	54	e23	10	24	83
15	185	e70	44	20	40	23	15	128	e33	8.5	14	53
16	58	e66	42	15	64	17	22	242	e43	11	10	e80
17	26	e90	44	18	42	14	23	217	e32	76	7.9	e58
18	56	e45	228	51	168	15	32	317	e22	111	6.6	e35
19	75	e74	88	65	68	67	50	123	e19	34	6.5	e31
20	30	e130	44	60	43	98	90	121	e25	16	5.7	e100
21	82	e50	45	67	30	128	54	57	e49	12	5.7	e35
22	42	e41	31	59	29	66	90	31	e33	18	8.3	e19
23	24	e45	38	51	53	127	192	19	e22	126	8.6	e12
24	18	e66	101	30	39	194	53	14	e16	397	58	e13
25	19	e97	45	46	24	65	31	11	e21	73	26	e8.1
26	18	31	26	27	19	33	29	12	e30	40	20	e10
27	14	22	23	18	17	76	23	e22	e22	27	10	e12
28	20	41	18	17	15	83	116	e30	e16	22	43	e11
29	23	28	15	28	---	37	32	e22	e52	41	52	e27
30	17	22	14	70	---	132	64	e15	e110	72	28	e52
31	38	---	16	42	---	122	---	e27	---	31	75	---
TOTAL	1287	1446	1923	1200	1327	1850	1239.3	2495.5	1067	1421.5	950.3	1380.3
MEAN	41.5	48.2	62.0	38.7	47.4	59.7	41.3	80.5	35.6	45.9	30.7	46.0
MAX	185	130	298	87	168	194	192	339	111	397	186	171
MIN	14	15	14	12	15	13	9.5	8.5	13	8.5	5.7	8.1
AC-FT	2550	2870	3810	2380	2630	3670	2460	4950	2120	2820	1880	2740

CAL YR 1985	TOTAL	15230.1	MEAN	41.7	MAX	298	MIN	4.5	AC-FT	30210
WTR YR 1986	TOTAL	17586.9	MEAN	48.2	MAX	397	MIN	5.7	AC-FT	34880

e Estimated

16897600 NANPIL RIVER--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
16...	1030	56	28.0	24.0
NOV				
12...	1125	21	28.0	24.0
26...	1020	34	28.0	23.5
DEC				
09...	1040	46	28.0	24.0
JAN				
14...	1000	9.4	28.0	24.0
29...	1010	37	28.0	23.5
FEB				
13...	1025	25	28.0	24.0
26...	1010	20	28.0	23.0
MAR				
11...	1040	37	28.0	24.0
APR				
22...	1005	46	27.0	24.0
MAY				
23...	1130	18	29.0	25.0
JUL				
23...	1420	104	28.0	24.0
AUG				
19...	1545	5.5	29.0	26.5

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
AUG											
19...	1545	5.5	29	7.00	26.5	16	4.6	1.0	2.6	26	0.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
AUG										
19...	0.40	8.0	2.3	3.3	<0.10	7.9	27	<0.100	410	11

< Actual value is known to be less than the value shown.

16897900 LEWI RIVER

LOCATION.--Lat 06°55'32" N., long 158°12'18" E., Hydrologic Unit 20100006, on right bank at road and pipeline crossing, 300 ft upstream from right-bank tributary, and 2.4 mi upstream from mouth.

DRAINAGE AREA.--0.46 mi^2.

PERIOD OF RECORD.--March 1970 to current year. Prior to October 1980, published as Lui River.

REVISED RECORDS.--WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 290 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. No diversion upstream.

AVERAGE DISCHARGE.--16 years, 5.34 ft^3/s (3,870 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,320 ft^3/s July 24, 1986, gage height, 6.32 ft, from rating curve extended above 37 ft^3/s, on basis of slope-area measurement at gage height 5.92 ft; minimum, 0.02 ft^3/s Apr. 18, 19, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum(*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 20	unknown	668	4.92	July 24	0400	*1,320	*6.32
May 15	1800	688	4.97	Sept. 8	1000	825	5.30

Minimum discharge, 0.65 ft^3/s Apr. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	1.9	1.6	2.5	7.6	1.5	8.8	11	4.7	6.2	2.1	2.8
2	3.2	1.8	1.6	1.6	5.0	2.1	7.0	6.0	2.2	2.9	2.6	2.7
3	2.2	1.7	1.9	1.2	6.0	2.6	5.2	3.8	1.6	2.0	2.7	2.5
4	2.7	1.7	1.8	1.0	3.5	3.5	3.2	2.8	8.6	1.7	1.8	1.8
5	2.0	8.6	14	1.7	2.3	2.2	2.2	2.3	3.6	1.4	1.8	1.6
6	2.0	11	6.2	1.4	2.9	1.5	1.8	2.4	2.0	1.6	1.9	1.3
7	1.9	6.0	3.2	1.2	1.8	11	1.6	37	2.8	6.5	1.9	2.3
8	1.4	2.6	19	.85	1.7	5.8	1.6	14	4.1	2.7	1.4	42
9	1.4	1.6	5.0	5.6	1.6	5.6	1.3	3.8	3.9	2.0	1.3	4.2
10	3.1	1.4	8.0	6.9	2.3	3.5	1.4	17	9.1	2.1	2.8	9.5
11	5.2	5.0	4.2	6.6	10	7.2	1.1	12	19	2.6	3.4	28
12	7.8	3.1	7.5	7.9	5.8	4.7	1.0	4.8	13	3.1	20	11
13	3.1	3.5	30	4.1	2.6	3.8	.90	8.0	4.4	1.6	6.9	11
14	15	e4.6	23	2.2	1.7	3.2	.85	6.8	3.4	1.3	2.4	6.6
15	20	e18	5.3	1.7	1.8	2.4	1.1	49	4.8	.95	1.6	6.4
16	6.8	e14	8.0	1.4	8.4	2.5	1.0	33	5.8	1.2	1.3	11
17	3.2	e11	6.0	1.6	4.8	2.1	.90	20	4.8	4.6	1.0	9.0
18	8.0	e7.4	40	5.8	20	1.8	.80	37	2.8	18	.92	4.5
19	8.8	e7.0	9.0	8.6	9.0	4.1	1.1	17	2.8	4.8	.80	4.1
20	3.5	e18	4.7	3.1	4.7	7.2	2.7	12	3.7	2.3	.94	11
21	10	e11	5.6	4.4	3.6	13	3.2	6.0	7.4	1.6	.80	5.6
22	5.0	e7.1	4.1	6.4	4.7	11	9.4	3.8	4.7	10	1.0	3.1
23	2.5	e4.6	4.1	3.8	11	19	27	2.7	3.1	40	.95	2.6
24	1.9	e5.0	16	2.3	5.8	30	5.2	2.1	2.2	81	4.0	2.9
25	1.9	e4.5	5.8	1.6	3.4	9.0	2.8	1.8	2.8	9.4	2.1	1.8
26	1.8	2.8	3.6	4.5	2.5	4.5	3.1	1.6	3.8	4.8	1.6	2.4
27	1.6	2.2	2.7	1.9	1.9	10	2.2	1.7	3.1	3.8	1.0	2.6
28	1.3	1.7	2.0	1.7	1.7	9.9	16	4.2	2.1	4.5	11	1.9
29	2.4	3.2	1.6	3.0	---	4.8	3.8	3.4	9.0	4.5	9.0	3.2
30	1.8	2.1	1.5	5.3	---	16	13	2.2	16	4.8	4.7	9.8
31	4.1	---	1.5	3.9	---	13	---	4.6	---	3.4	8.9	---
TOTAL	146.6	174.1	248.5	105.75	138.1	218.5	131.25	333.8	161.3	237.35	104.61	209.2
MEAN	4.73	5.80	8.02	3.41	4.93	7.05	4.37	10.8	5.38	7.66	3.37	6.97
MAX	20	18	40	8.6	20	30	27	49	19	81	20	42
MIN	1.3	1.4	1.5	.85	1.6	1.5	.80	1.6	1.6	.95	.80	1.3
AC-FT	291	345	493	210	274	433	260	662	320	471	207	415

CAL YR 1985	TOTAL	1855.04	MEAN	5.08	MAX	40	MIN	.49	AC-FT	3680
WTR YR 1986	TOTAL	2209.06	MEAN	6.05	MAX	81	MIN	.80	AC-FT	4380

e Estimated

16897900 LEWI RIVER--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
16...	1225	5.4	28.0	24.0
NOV				
12...	1245	3.5	28.0	24.0
26...	1225	3.0	29.0	25.0
DEC				
09...	1215	4.6	29.0	25.0
JAN				
14...	1310	2.1	28.0	24.5
29...	1300	2.5	28.0	24.0
FEB				
13...	1230	2.4	28.0	24.0
26...	1300	2.3	29.0	25.0
MAR				
11...	1230	4.9	28.0	24.0
APR				
22...	1155	4.8	28.0	24.0
MAY				
08...	0915	11	28.0	24.0
23...	0930	2.7	28.0	24.0
JUN				
18...	1315	2.6	29.0	25.0
JUL				
03...	0940	2.0	29.0	25.0
23...	1545	9.2	29.0	25.0
AUG				
20...	0945	1.2	28.5	26.0

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
AUG										
20...	0945	1.2	6.90	26.0	23	4.7	2.8	2.9	21	0.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
AUG										
20...	0.30	18	2.6	4.0	<0.10	14	42	<0.100	270	11

< Actual value is known to be less than the value shown.

16898600 LUHPWOR RIVER

LOCATION.--Lat 06°54'09" N., long 158°09'07" E., Hydrologic Unit 20100006, on left bank about 300 ft upstream from 50-ft waterfall, 0.2 mi downstream from highway bridge, and 0.2 mi west of Pwakorokot Hill.

DRAINAGE AREA.--0.72 mi^2.

PERIOD OF RECORD.--September 1972 to current year. Prior to October 1980, published as Lupwor River.

REVISED RECORDS.--WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 145 ft, from topographic map.

REMARKS.--Records fair. No diversion upstream.

AVERAGE DISCHARGE.--14 years, 8.88 ft^3/s (6,430 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft^3/s Aug. 4, 1976, gage height, 8.26 ft, from rating curve extended above 47 ft^3/s, on basis of estimate of peak flow; minimum, 0.13 ft^3/s May 4, 5, 1983

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s and maximum(*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 7	1700	810	5.74	July 24	0400	*1,320	*6.55

Minimum discharge, 0.86 ft^3/s Apr. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	2.4	1.8	5.1	5.2	3.3	22	18	11	14	4.5	6.2
2	7.6	2.1	2.4	2.6	5.4	6.3	15	9.3	6.4	8.0	8.0	5.6
3	15	1.9	2.5	1.8	6.2	5.1	9.0	11	5.1	5.8	9.6	6.3
4	14	1.6	2.0	1.5	4.5	4.7	6.4	7.6	29	10	8.8	5.2
5	8.0	12	13	1.8	3.8	3.7	4.7	5.4	35	7.8	8.8	3.7
6	6.0	8.8	9.6	1.5	3.3	2.7	3.6	4.0	12	5.6	8.0	3.4
7	5.8	9.0	5.4	1.2	2.4	11	2.7	77	9.5	7.6	6.8	11
8	4.2	5.1	18	.96	2.1	15	2.3	21	11	5.2	5.4	49
9	3.7	3.3	10	7.6	2.0	13	1.7	8.5	7.6	3.8	5.4	11
10	5.8	2.5	12	11	4.6	8.3	1.8	18	15	3.7	8.6	15
11	6.8	6.5	8.3	9.9	33	15	1.5	20	24	4.2	12	43
12	17	3.8	12	14	12	10	1.5	8.5	18	4.9	21	25
13	8.0	5.4	61	7.1	6.0	7.8	1.2	11	9.0	3.2	18	24
14	15	6.4	31	4.7	4.2	7.1	1.0	9.0	7.1	2.5	8.3	14
15	33	32	11	3.4	3.7	5.4	1.4	48	8.4	1.9	6.2	9.0
16	14	21	11	2.5	23	4.0	1.2	36	8.5	2.2	5.1	15
17	7.8	19	9.3	2.6	9.3	3.1	1.4	39	9.0	7.3	e3.9	20
18	10	11	72	25	31	3.3	1.2	46	6.2	14	e3.0	13
19	14	11	20	9.2	16	10	1.2	22	5.8	6.2	2.4	9.3
20	7.1	32	11	8.3	9.9	14	3.7	16	6.9	3.8	2.5	13
21	24	13	10	8.5	7.6	24	4.2	11	13	3.0	2.0	10
22	10	8.8	7.3	11	6.4	12	9.3	7.8	8.2	3.0	3.2	6.2
23	6.4	7.3	7.3	9.0	11	31	39	5.6	8.3	64	2.7	4.5
24	5.8	8.3	15	6.2	8.8	44	12	4.5	7.1	121	9.3	3.4
25	4.7	7.6	9.0	4.3	6.2	16	7.6	3.4	9.0	19	6.0	3.3
26	3.7	5.2	6.0	6.0	4.9	9.0	6.0	3.2	10	11	4.3	5.9
27	2.8	3.9	4.7	3.4	3.7	13	5.2	3.0	10	8.3	2.8	4.8
28	2.5	3.2	3.6	3.0	3.4	15	19	11	6.2	7.3	20	4.1
29	2.2	3.1	2.6	5.1	---	8.3	7.6	33	10	6.0	12	3.7
30	1.7	2.2	2.2	6.6	---	24	7.8	10	30	7.2	6.8	9.0
31	5.2	---	2.4	5.6	---	24	---	12	---	5.6	14	---
TOTAL	286.8	259.4	393.4	190.46	239.6	373.1	202.2	539.8	356.3	377.1	239.4	356.6
MEAN	9.25	8.65	12.7	6.14	8.56	12.0	6.74	17.4	11.9	12.2	7.72	11.9
MAX	33	32	72	25	33	44	39	77	35	121	21	49
MIN	1.7	1.6	1.8	.96	2.0	2.7	1.0	3.0	5.1	1.9	2.0	3.3
AC-FT	569	515	780	378	475	740	401	1070	707	748	475	707

CAL YR 1985	TOTAL	3561.1	MEAN	9.76	MAX	91	MIN	1.4	AC-FT	7060
WTR YR 1986	TOTAL	3814.16	MEAN	10.4	MAX	121	MIN	.96	AC-FT	7570

e Estimated

16898600 LUHPWOR RIVER--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
17...	0940	8.3	27.0	24.0
NOV				
13...	1050	6.1	28.0	24.0
27...	0935	4.3	28.0	24.0
DEC				
10...	1000	21	28.0	23.0
JAN				
15...	1015	3.8	28.0	24.0
30...	1100	5.5	28.0	24.0
FEB				
14...	1105	4.7	28.0	24.0
27...	1005	4.9	28.0	23.0
MAR				
17...	1550	3.9	--	28.0
APR				
24...	1050	8.3	28.0	24.0
MAY				
06...	1045	4.1	28.0	24.0
JUN				
20...	1205	4.4	29.0	25.0
JUL				
02...	1220	7.5	29.0	25.0
SEP				
03...	1110	3.7	30.0	25.0

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
MAR										
17...	1550	3.9	7.40	28.0	21	4.7	2.3	3.1	24	0.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR										
17...	0.20	22	2.1	4.0	<0.10	13	43	<0.100	260	9

< Actual value is known to be less than the value shown.

16898690 LEHN MESI RIVER

LOCATION.--Lat 06°50'41" N., long 158°11'02" E., Hydrologic Unit 20100006, on left bank 3.2 mi upstream from mouth, 1.7 mi southwest of Mount Tolenpwoaipwoai, and 4.5 mi south of Mount Temwetemwensekir.

DRAINAGE AREA.--2.31 mi^2.

PERIOD OF RECORD.--November 1981 to current year.

REVISED RECORDS.--WDR HI-85-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 260 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft^3/s, May 8, 1982, gage height, 10.14 ft, from rating curve extended above 126 ft^3/s; minimum, 4.5 ft^3/s for several days in April and May, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 13	1900	6,430	9.37	July 23	0100	*6,840	*9.61
May 7	2100	3,240	7.03				

Minimum discharge, 12.0 ft^3/s Apr. 14,15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	32	53	143	77	24	142	90	102	115	81	90
2	41	44	74	e58	70	37	97	93	66	78	90	80
3	66	53	88	e34	98	31	87	72	62	72	80	85
4	87	35	62	e23	62	24	59	54	84	185	118	69
5	49	146	52	e28	37	20	44	50	129	75	135	66
6	46	143	89	e24	24	18	36	45	74	73	132	62
7	90	133	57	e22	20	100	31	307	81	125	84	131
8	50	52	207	21	17	102	33	217	111	70	62	219
9	65	37	115	115	21	107	25	107	72	61	91	90
10	155	32	140	157	40	108	41	164	221	84	229	161
11	160	37	89	108	165	175	36	246	259	66	272	363
12	201	42	134	165	82	108	26	138	217	70	198	218
13	76	90	768	59	36	81	23	181	99	51	120	180
14	256	65	180	37	26	76	19	133	106	47	84	115
15	326	150	79	42	28	54	23	277	174	40	70	161
16	180	131	62	28	66	38	33	446	109	98	63	155
17	81	180	78	37	50	33	52	485	86	202	63	166
18	163	84	178	130	137	51	55	517	74	149	126	122
19	116	144	134	134	85	168	93	225	82	76	67	117
20	67	270	84	93	56	212	200	185	92	55	63	158
21	165	108	90	80	44	250	128	122	178	46	63	100
22	86	77	e72	77	46	146	151	84	104	77	70	68
23	54	84	e95	67	65	197	269	74	78	969	68	55
24	46	107	e190	41	59	337	108	59	78	401	211	51
25	40	198	93	28	41	128	72	51	97	191	106	51
26	36	76	59	29	41	70	51	52	149	130	80	53
27	33	52	66	21	34	229	51	113	103	89	69	54
28	36	41	53	24	28	218	239	110	74	92	71	67
29	34	68	50	28	---	82	74	106	68	99	96	53
30	32	79	48	67	---	156	109	107	401	147	84	109
31	46	---	60	45	---	192	---	200	---	93	142	---
TOTAL	2931	2790	3599	1965	1555	3572	2407	5110	3630	4126	3288	3469
MEAN	94.5	93.0	116	63.4	55.5	115	80.2	165	121	133	106	116
MAX	326	270	768	165	165	337	269	517	401	969	272	363
MIN	32	32	48	21	17	18	19	45	62	40	62	51
AC-FT	5810	5530	7140	3900	3080	7090	4770	10140	7200	8180	6520	6880

CAL YR 1985	TOTAL	31026	MEAN	85.0	MAX	768	MIN	16	AC-FT	61540
WTR YR 1986	TOTAL	38442	MEAN	105	MAX	969	MIN	17	AC-FT	76250

e Estimated

16898690 LEHN MESI RIVER--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
JAN					MAY				
08...	1225	21	30.0	25.0	20...	1350	187	29.0	25.0
FEB					JUN				
04...	1110	68	28.0	24.0	13...	1600	92	34.0	26.0
MAR					27...	1635	89	28.0	25.0
18...	1300	32	--	26.5	AUG				
APR					01...	1620	98	28.0	24.0
18...	1550	45	29.0	26.0	29...	1625	73	30.0	25.0

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
MAR											
18...	1300	32	38	8.20	26.5	13	2.1	1.9	2.6	30	0.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR										
18...	0.30	14	2.2	3.8	<0.10	8.9	30	<0.100	46	3

< Actual value is known to be less than the value shown.

16899620 MELO RIVER

LOCATION.--Lat 05°20'30" N., long 162°58'33" E., Hydrologic Unit 20100006, on left bank 0.5 mi upstream from mouth and 1.3 mi southwest of Mount Mutunte.

DRAINAGE AREA.--0.68 mi^2.

PERIOD OF RECORD.--October 1974 to September 1979, June 1980 to current year.

REVISED RECORDS.--WRD HI-81-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 20 ft, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 13-15, 17, Nov. 2-4, 6-16, Nov. 26 to Dec. 3, Dec. 15 to Mar. 20, Aug. 3- 22, 25-29. Records poor. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--11 years (water years 1975-79, 1981-86), 6.90 ft^3/s (5,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 784 ft^3/s Mar. 22, 1976, gage height, 5.78 ft, from rating curve extended above 17 ft^3/s; minimum, 0.11 ft^3/s for several days in April 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 11	1800	346	3.78	June 5	0100	*494	*4.38
Mar. 30	1330	350	3.80				

Minimum discharge, 1.9 ft^3/s Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	3.0	2.1	20	3.8	7.2	14	2.4	13	3.6	2.8	2.7
2	5.5	4.0	2.0	30	3.3	6.4	46	3.6	3.4	17	2.6	11
3	4.1	4.5	2.6	15	4.4	5.8	40	3.2	2.6	33	3.0	5.4
4	3.0	3.9	2.2	11	3.0	5.4	19	2.6	6.3	11	2.9	4.1
5	2.6	6.3	2.5	8.0	3.0	5.2	12	2.9	24	9.0	3.5	3.9
6	3.4	8.0	2.9	7.2	4.5	5.2	8.8	6.7	5.8	6.7	5.4	4.2
7	2.5	5.0	3.4	6.2	20	6.4	9.5	13	6.3	6.4	3.5	2.6
8	2.0	4.0	2.5	18	6.0	5.6	13	8.1	3.8	5.0	3.0	4.5
9	7.1	3.0	2.6	30	10	6.0	31	8.8	3.6	5.0	2.8	15
10	5.0	4.0	6.1	35	8.0	5.4	12	12	3.4	17	2.5	6.4
11	6.2	4.2	5.6	43	7.0	19	11	9.3	4.9	6.4	2.2	4.3
12	4.0	6.0	6.9	25	4.5	12	7.5	6.3	3.4	5.5	2.3	3.2
13	4.3	5.6	5.0	15	3.4	21	5.7	5.0	2.8	4.3	2.1	3.3
14	13	30	11	11	2.8	10	5.0	8.1	3.6	3.8	2.1	16
15	5.5	10	6.0	17	4.4	7.5	4.3	4.5	2.5	3.2	2.1	6.7
16	4.1	7.0	12	19	3.1	5.0	3.4	4.1	7.1	3.0	2.0	4.4
17	4.0	5.9	9.8	11	2.5	5.0	3.2	13	12	2.6	2.0	23
18	2.8	5.0	6.4	26	8.0	6.7	3.6	14	5.0	2.4	2.2	18
19	13	8.1	4.9	12	6.6	30	4.9	12	3.4	2.1	2.0	12
20	6.7	5.5	6.6	9.0	28	26	7.4	6.4	8.7	3.0	1.9	7.8
21	4.5	5.7	18	9.6	41	18	6.6	4.5	25	4.0	1.9	15
22	3.8	4.5	12	10	23	16	5.9	3.8	9.9	15	7.0	7.2
23	3.0	3.6	9.0	18	18	24	3.6	3.8	6.1	20	4.2	5.5
24	3.0	3.8	11	10	12	30	3.4	5.4	5.2	7.3	4.3	4.3
25	22	5.9	8.0	7.6	25	36	2.8	3.2	6.0	5.5	2.5	8.2
26	6.7	7.2	6.2	7.2	12	16	2.4	4.0	3.6	4.3	2.2	4.1
27	4.3	3.6	18	8.2	9.6	19	3.2	2.6	4.6	4.3	2.0	3.2
28	4.4	3.0	10	7.9	8.3	30	9.2	7.6	5.7	3.6	1.9	2.6
29	5.6	2.5	6.2	13	---	14	4.3	6.5	12	3.2	3.9	2.4
30	3.2	2.3	6.4	7.0	---	48	3.4	3.8	4.0	2.8	2.2	4.5
31	4.9	---	8.8	5.0	---	18	---	3.2	---	3.2	2.0	---
TOTAL	168.9	175.1	216.7	471.9	285.2	469.8	306.1	194.4	207.7	223.2	87.0	215.5
MEAN	5.45	5.84	6.99	15.2	10.2	15.2	10.2	6.27	6.92	7.20	2.81	7.18
MAX	22	30	18	43	41	48	46	14	25	33	7.0	23
MIN	2.0	2.3	2.0	5.0	2.5	5.0	2.4	2.4	2.5	2.1	1.9	2.4
AC-FT	335	347	430	936	566	932	607	386	412	443	173	427

CAL YR 1985	TOTAL	2517.1	MEAN	6.90	MAX	54	MIN	1.2	AC-FT	4990
WTR YR 1986	TOTAL	3021.5	MEAN	8.28	MAX	48	MIN	1.9	AC-FT	5990

16899750 MALEM RIVER

LOCATION.--Lat 05°17'35" N., long 163°00'54" E., Hydrologic Unit 20100006, on left bank 0.9 mi upstream from mouth and 2.0 mi southeast of Mount Finkol.

DRAINAGE AREA.--0.76 mi^2.

PERIOD OF RECORD.--July 1971 to March 1981, March 1982 to current year.

REVISED RECORDS.--WDR HI-81-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 95 ft, from stadia survey.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--13 years (1972-80, 1983-86), 6.71 ft^3/s (4,860 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft^3/s Mar. 22, 1976, gage height, 6.20 ft, from rating curve extended above 110 ft^3/s; minimum, 0.07 ft^3/s Apr. 30, May 1, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 252 ft^3/s Apr. 9, gage height, 4.32 ft, no peak greater than base discharge of 350 ft^3/s; minimum, 0.97 ft^3/s Oct. 7, 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	1.8	1.2	12	2.4	4.5	15	2.7	2.7	e3.7	e2.3	2.1
2	3.5	3.3	1.2	26	2.0	3.8	32	2.9	2.0	e20	e2.1	3.0
3	2.1	3.8	1.4	11	2.7	3.3	26	2.9	1.6	e31	e2.4	3.3
4	1.4	3.3	1.3	7.0	1.9	3.0	15	4.5	5.1	e20	e2.3	5.1
5	1.3	7.6	1.5	5.3	1.9	2.9	10	3.2	18	e12	e2.5	18
6	1.6	11	1.7	3.9	2.7	2.9	8.5	3.5	4.8	e9.0	e4.5	6.4
7	1.2	5.7	1.7	3.5	16	3.9	7.5	18	14	e7.2	e2.5	4.3
8	1.1	2.9	2.8	15	3.5	3.0	9.6	11	7.5	e5.2	e2.0	2.2
9	5.7	2.1	1.7	21	7.8	3.2	39	6.7	4.1	e5.2	1.9	6.4
10	10	3.3	13	24	5.4	2.9	14	5.4	9.2	e14	1.8	4.3
11	4.8	3.4	7.4	31	4.5	17	8.5	7.1	9.0	e7.0	1.6	2.6
12	2.7	5.3	3.6	22	2.9	7.5	6.4	4.9	6.6	e5.4	1.6	2.0
13	2.0	4.9	4.0	10	2.1	18	5.5	4.1	e4.4	e4.2	1.5	2.7
14	16	30	3.0	6.6	1.7	8.0	4.5	8.1	e3.4	e3.5	1.5	6.3
15	5.3	7.5	3.8	13	3.0	5.1	3.8	5.3	e3.3	e2.9	1.5	2.3
16	3.2	3.8	7.3	13	2.0	3.2	3.5	5.0	e6.8	e2.6	1.5	2.0
17	2.3	2.9	6.4	6.8	1.6	3.2	3.2	25	e11	e2.4	1.5	21
18	1.9	2.3	3.3	14	e6.3	3.5	2.9	19	e6.4	e2.2	1.7	26
19	13	3.3	2.9	7.3	e5.0	22	3.6	14	e3.7	e2.0	1.5	11
20	4.7	2.4	3.8	5.3	e20	15	9.6	6.8	e7.0	e2.5	1.3	7.3
21	2.6	1.9	13	5.5	e30	12	14	4.5	e21	e3.2	1.3	31
22	2.1	1.7	7.7	5.5	e16	12	5.5	5.1	e10	e13	3.8	9.3
23	1.8	1.4	4.7	13	e12	15	3.8	3.6	e6.2	e19	3.3	6.6
24	1.8	1.3	6.3	7.0	e8.0	30	2.9	3.0	e4.6	e8.2	2.9	5.1
25	9.3	1.5	5.1	4.5	e20	34	2.4	12	e5.2	e5.6	1.4	4.1
26	4.3	3.6	3.6	4.5	e7.5	14	2.3	5.5	e3.7	e4.2	1.3	3.2
27	2.6	2.2	13	5.3	e6.0	24	2.3	3.5	e4.5	e3.7	1.3	2.2
28	2.3	1.5	7.7	5.3	5.1	34	6.6	2.7	e5.6	e3.2	1.6	2.1
29	2.1	1.3	3.8	9.5	---	14	3.5	3.0	e10	e2.7	5.0	2.1
30	2.0	1.3	4.1	4.1	---	42	3.3	2.6	e4.3	e2.4	2.6	3.6
31	1.9	---	5.3	3.2	---	17	---	2.1	---	e2.7	2.3	---
TOTAL	120.3	128.3	147.3	325.1	200.0	383.9	274.7	207.7	205.7	229.9	66.3	207.6
MEAN	3.88	4.28	4.75	10.5	7.14	12.4	9.16	6.70	6.86	7.42	2.14	6.92
MAX	16	30	13	31	30	42	39	25	21	31	5.0	31
MIN	1.1	1.3	1.2	3.2	1.6	2.9	2.3	2.1	1.6	2.0	1.3	2.0
AC-FT	239	254	292	645	397	761	545	412	408	456	132	412

CAL YR 1985	TOTAL	2280.47	MEAN	6.25	MAX	50	MIN	.97	AC-FT	4520
WTR YR 1986	TOTAL	2496.8	MEAN	6.84	MAX	42	MIN	1.1	AC-FT	4950

e Estimated

16899800 TOFOL RIVER

LOCATION.--Lat 05°19'10" N., long 163°00'24" E., Hydrologic Unit 20100006, on left bank 25 ft downstream from right-bank tributary, 0.9 mi upstream from mouth, and 1.3 mi northeast of Mount Finkol.

DRAINAGE AREA.--0.53 mi^2.

PERIOD OF RECORD.--June 1971 to September 1979, March 1980 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 98 ft, from stadia survey.

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 15 and Nov. 27 to Aug. 15. Records poor. Water is diverted through 8-in pipe from dam upstream for domestic use. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--14 years (1971-79, 1981-86), 5.60 ft^3/s (4,060 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,560 ft^3/s Nov. 10, 1981, gage height, 5.97 ft, from rating curve extended above 79 ft^3/s; minimum, 0.01 ft^3/s Apr. 1, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 300 ft^3/s Mar. 30, no peak greater than base discharge of 450 ft^3/s; minimum, 0.66 ft^3/s Aug. 19-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	1.2	1.4	8.0	1.9	2.2	11	1.2	1.8	2.5	1.2	1.1
2	2.7	2.5	1.3	14	1.5	2.0	23	1.4	1.3	13	1.1	3.9
3	1.5	2.8	1.3	7.3	2.0	1.9	18	1.5	1.1	21	1.3	2.7
4	1.1	2.5	1.2	4.4	1.4	1.8	10	2.0	3.0	12	1.2	3.1
5	1.0	5.4	1.2	3.7	1.4	1.8	8.0	1.5	10	8.3	1.3	8.0
6	1.3	8.0	1.1	2.9	1.9	1.8	6.4	2.0	3.0	6.0	1.8	3.5
7	.92	4.2	1.1	2.4	10	2.3	5.4	9.0	9.0	4.6	1.3	3.2
8	.86	2.2	3.0	8.7	2.5	2.0	8.6	6.0	4.5	3.7	1.1	2.6
9	2.4	1.6	1.7	14	4.6	2.3	27	3.9	2.5	3.7	1.1	6.6
10	6.0	2.4	10	16	3.5	1.9	10	3.3	6.0	9.0	.98	3.3
11	3.0	2.5	6.0	20	2.8	10	6.4	4.9	5.6	5.2	.94	2.3
12	1.8	4.0	3.9	10	1.7	6.2	5.2	3.2	4.2	3.5	.92	1.8
13	1.5	3.6	4.2	6.2	1.4	11	4.4	2.8	2.8	2.8	.85	2.7
14	8.0	16	3.2	4.1	1.2	4.9	3.5	5.0	3.5	2.3	.81	5.0
15	3.5	7.7	5.0	8.0	2.0	3.4	3.0	3.5	2.3	2.0	.81	2.1
16	2.5	4.5	6.8	8.6	1.4	2.5	2.8	3.3	3.6	1.7	.82	1.6
17	1.7	4.0	6.4	4.3	1.2	2.5	2.6	16	6.0	1.5	.94	19
18	1.4	3.2	3.4	8.6	3.8	2.8	2.5	12	4.0	1.4	1.1	17
19	8.0	5.0	2.5	5.0	3.1	14	3.4	9.0	2.5	1.3	.70	9.5
20	3.5	2.7	2.9	4.1	15	11	6.2	4.7	5.0	1.7	.66	7.1
21	2.0	1.9	19	4.3	19	9.6	9.8	3.0	14	2.3	.94	20
22	1.6	1.9	6.2	4.6	11	9.6	5.0	3.6	7.0	9.0	5.4	6.4
23	1.3	1.5	3.4	8.5	8.0	12	2.8	2.5	4.2	12	3.6	5.0
24	1.3	1.4	4.6	5.0	5.8	23	2.0	2.1	3.2	6.0	2.5	3.8
25	6.2	1.7	3.5	3.3	12	26	1.6	8.0	3.9	3.5	1.3	3.2
26	2.9	1.9	2.2	3.3	6.0	9.9	1.4	3.5	2.5	2.4	1.1	2.5
27	1.8	2.9	7.9	3.9	3.5	19	1.3	2.5	3.0	1.8	.94	2.1
28	1.6	2.0	4.0	3.9	2.7	27	5.0	1.8	3.9	1.5	.94	1.9
29	1.5	1.6	2.4	6.4	---	11	2.0	2.5	7.0	1.3	2.3	1.6
30	1.4	1.4	2.7	4.5	---	30	1.5	1.9	2.8	1.2	1.1	2.7
31	1.3	---	3.4	3.0	---	12	---	1.4	---	1.5	1.0	---
TOTAL	78.58	104.2	126.9	211.0	132.3	277.4	199.8	129.0	133.2	149.7	42.05	155.3
MEAN	2.53	3.47	4.09	6.81	4.72	8.95	6.66	4.16	4.44	4.83	1.36	5.18
MAX	8.0	16	19	20	19	30	27	16	14	21	5.4	20
MIN	.86	1.2	1.1	2.4	1.2	1.8	1.3	1.2	1.1	1.2	.66	1.1
AC-FT	156	207	252	419	262	550	396	256	264	297	83	308

CAL YR 1985	TOTAL	1865.43	MEAN	5.11	MAX	42	MIN	.50	AC-FT	3700
WTR YR 1986	TOTAL	1739.43	MEAN	4.77	MAX	30	MIN	.66	AC-FT	3450

16912000 PAGO STREAM AT AFONO

LOCATION.--Lat 14°16'03" S., long 170°39'02" W., Hydrologic Unit 20100001, on left bank 0.2 mi south of Afono and 0.3 mi upstream from mouth.

DRAINAGE AREA.--0.60 mi^2.

PERIOD OF RECORD.--October 1958 to current year. Prior to July 1960, published as Afono Stream at Afono.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 30 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. About 0.06 ft^3/s is diverted upstream for domestic use in Afono. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--27 years (water years 1960-86), 3.45 ft^3/s (2,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,350 ft^3/s July 5, 1969, gage height, 5.49 ft, from rating curve extended above 61 ft^3/s; minimum, 0.11 ft^3/s Sept. 15, 16, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 210 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 7	0900	330	3.70	May 16	1930	*825	*4.83
Jan. 8	2330	222	3.33	June 18	1020	264	3.48
Feb. 23	2000	514	4.16				

Minimum discharge, 0.19 ft^3/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.62	.69	.37	3.4	6.2	.49	5.0	e3.0	.78	2.0	.22
2	.96	.55	.62	2.2	3.4	4.2	.43	3.6	e2.0	2.1	1.4	.37
3	.96	.55	.49	3.2	2.9	4.1	.43	2.2	e1.5	1.8	1.7	.28
4	.87	.49	.43	.96	4.0	4.9	.70	1.7	e1.2	1.1	1.4	.23
5	1.0	.55	.37	.43	17	5.6	.87	1.6	e1.3	.78	.87	.23
6	.87	1.2	.32	.37	4.2	5.7	.49	1.3	1.3	.70	.62	.28
7	3.6	.70	.37	36	3.4	3.4	.65	1.4	1.6	.70	.49	.37
8	21	.55	.37	43	2.7	2.4	2.1	21	1.2	.55	.43	13
9	32	3.1	.28	33	2.1	1.9	.87	8.2	1.1	.49	.37	3.2
10	12	1.1	.28	12	1.7	2.1	.55	8.3	1.0	.43	.32	1.2
11	12	1.7	.25	5.4	1.4	1.8	2.7	22	.96	.55	.43	.78
12	5.7	6.9	.25	3.4	1.3	1.6	3.2	6.2	1.1	.49	.37	.55
13	3.8	2.2	.28	2.4	1.3	1.4	1.7	4.0	.96	.43	.49	3.6
14	2.8	18	.32	1.9	5.7	1.3	1.0	2.8	.87	.37	.43	7.2
15	3.4	8.1	.25	1.6	2.4	1.2	.62	2.4	.87	.70	.32	16
16	6.9	3.2	.25	1.3	1.7	1.1	.70	60	.78	.37	.28	7.3
17	3.0	2.1	.39	1.2	1.3	1.6	.55	27	.78	.37	.32	3.4
18	2.4	1.6	.44	1.1	1.2	1.1	2.0	14	35	.70	.37	2.1
19	1.9	1.3	3.1	1.0	5.2	1.0	2.1	6.7	3.8	.86	.32	1.6
20	1.6	1.1	1.8	2.0	19	1.0	1.4	7.7	1.9	8.0	.28	1.2
21	1.8	1.0	1.2	7.8	4.0	.96	1.2	7.2	1.6	1.1	.37	1.1
22	1.3	.87	.67	6.9	2.4	.78	6.5	e6.2	1.3	.78	1.0	.87
23	1.2	.78	.43	9.4	30	.70	5.6	e4.0	1.1	1.2	.78	.78
24	.96	.87	.28	5.2	12	.78	7.8	e7.5	1.0	4.8	.37	.70
25	.87	.70	.25	4.4	4.6	.70	2.5	e6.0	1.0	1.4	.32	3.4
26	1.1	.62	.23	5.8	3.8	.62	25	e3.5	.87	.96	.32	4.2
27	.78	.55	.22	5.4	4.2	.62	25	e8.0	.87	.70	.37	4.8
28	.62	.49	.27	2.7	8.5	.55	6.5	e22	.78	.62	.25	3.4
29	.55	.49	.37	3.1	---	.62	4.0	e7.0	.78	.49	.25	10
30	.55	.43	.25	2.7	---	.70	3.2	e3.5	.70	.37	.23	4.4
31	.62	---	.49	2.8	---	.49	---	e6.0	---	.37	.23	---
TOTAL	128.21	62.41	16.21	209.03	154.8	61.12	110.85	288.0	72.22	35.06	17.70	96.76
MEAN	4.14	2.08	.52	6.74	5.53	1.97	3.69	9.29	2.41	1.13	.57	3.23
MAX	32	18	3.1	43	30	6.2	25	60	35	8.0	2.0	16
MIN	.55	.43	.22	.37	1.2	.49	.43	1.3	.70	.37	.23	.22
AC-FT	254	124	32	415	307	121	220	571	143	70	35	192

CAL YR 1985	TOTAL	1285.37	MEAN	3.52	MAX	106	MIN	.22	AC-FT	2550
WTR YR 1986	TOTAL	1252.37	MEAN	3.43	MAX	60	MIN	.22	AC-FT	2480

e Estimated

16920500 AASU STREAM AT AASU

LOCATION.--Lat 14°17'51" S., long 170°45'30" W., Hydrologic Unit 20100001, on right bank at Aasu and 200 ft upstream from mouth.

DRAINAGE AREA.--1.03 mi^2.

PERIOD OF RECORD.--October 1958 to current year.

REVISED RECORDS.--WSP 1937: Drainage area. WSP 2137: 1959-60(P), 1961(M), 1962-65(P).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 5 ft, by hand levels from high-tide mark.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Small diversion upstream for domestic use. Recording rain gage located at station. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--27 years (water years 1960-86), 6.13 ft^3/s (4,440 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 498 ft^3/s Sept. 7, 1972, gage height, 5.16 ft, from rating curve extended above 20 ft^3/s on basis of slope-area measurement at gage height 4.57 ft; minimum, 0.12 ft^3/s Oct. 21, 23, 24, 27, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 245 ft^3/s May 16, gage height, 3.93 ft, no other peak greater than base discharge of 180 ft^3/s; minimum, 1.1 ft^3/s Dec. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	5.1	3.0	2.1	7.4	7.4	1.7	e15	9.0	3.3	6.7	2.4
2	5.5	4.9	3.0	2.2	5.8	6.1	1.8	e12	7.5	3.6	4.2	2.5
3	4.6	4.0	2.5	2.4	5.2	8.7	2.4	e9.5	6.5	3.6	4.0	2.4
4	4.0	5.1	2.4	1.6	e6.0	12	2.3	e8.0	6.0	2.5	4.3	2.2
5	4.9	4.8	2.4	1.4	e11	12	3.7	e6.5	5.5	2.2	3.4	2.1
6	3.6	5.5	2.2	2.7	e7.0	9.8	3.2	e5.5	5.0	2.1	3.0	2.9
7	3.8	4.9	2.6	18	e5.5	8.9	e3.0	e5.0	5.0	2.4	2.7	3.2
8	13	4.5	2.2	22	e5.0	7.0	e3.0	e6.0	4.5	2.1	2.4	17
9	19	7.6	2.1	15	e4.5	6.1	e2.5	e6.0	4.0	1.8	2.4	9.8
10	21	5.4	1.8	e13	e4.0	5.8	e2.2	e6.5	3.5	1.8	2.2	6.4
11	24	9.0	1.8	e11	e3.5	5.2	e4.0	5.5	3.7	1.8	2.2	5.8
12	18	27	1.7	e11	e3.0	4.3	e10	4.5	3.7	1.6	2.1	5.5
13	14	14	1.6	e9.5	e4.0	4.3	e6.5	4.0	3.0	1.6	2.1	7.6
14	12	20	1.7	e8.0	e6.5	5.0	e5.0	3.5	2.7	1.7	1.9	18
15	12	e18	1.6	e7.0	e5.5	3.6	e4.5	3.2	3.6	1.7	1.8	16
16	11	e15	1.6	e6.5	e5.0	3.7	e4.0	40	2.8	1.6	1.8	16
17	8.8	e13	1.7	e6.0	e4.0	5.1	e5.0	35	2.5	1.6	1.9	11
18	11	e11	1.5	e5.5	e3.5	3.8	e12	25	13	2.6	1.8	9.8
19	9.2	e9.5	2.8	e8.0	e5.0	4.0	e7.0	20	5.5	1.6	1.7	8.8
20	7.8	e8.5	1.8	e8.0	e13	4.0	e6.0	18	3.6	3.8	1.6	8.1
21	7.0	e7.5	1.6	e15	e10	3.2	e5.5	15	3.2	2.1	3.0	7.0
22	6.1	6.7	5.0	e18	e9.0	2.7	e9.0	15	3.2	2.1	12	6.1
23	5.5	6.1	2.4	e16	e9.0	2.5	e9.5	11	3.0	5.0	7.0	5.5
24	5.2	5.5	1.7	e13	e7.0	2.4	e12	13	3.0	5.2	4.0	4.6
25	4.9	4.6	1.5	e11	e6.0	2.2	e9.5	11	3.0	3.0	3.2	12
26	14	4.0	1.4	e9.5	e5.5	2.1	e17	10	2.8	2.7	3.2	21
27	7.4	3.8	1.3	e8.5	e5.0	2.1	e14	9.5	2.7	2.5	3.4	20
28	5.8	3.4	1.5	7.8	e9.0	2.1	e10	8.0	2.5	2.5	3.0	19
29	4.9	3.2	1.6	9.7	---	1.9	e12	10	2.4	2.4	2.8	27
30	4.6	3.0	1.3	8.9	---	1.9	e20	8.5	2.4	2.4	2.7	25
31	5.6	---	3.0	7.9	---	1.8	---	11	---	2.4	2.5	---
TOTAL	284.6	244.6	64.3	286.2	174.9	151.7	208.3	360.7	128.8	77.3	101.0	304.7
MEAN	9.18	8.15	2.07	9.23	6.25	4.89	6.94	11.6	4.29	2.49	3.26	10.2
MAX	24	27	5.0	22	13	12	20	40	13	5.2	12	27
MIN	3.6	3.0	1.3	1.4	3.0	1.8	1.7	3.2	2.4	1.6	1.6	2.1
AC-FT	565	485	128	568	347	301	413	715	255	153	200	604

CAL YR 1985	TOTAL	2559.0	MEAN	7.01	MAX	56	MIN	1.3	AC-FT	5080
WTR YR 1986	TOTAL	2387.1	MEAN	6.54	MAX	40	MIN	1.3	AC-FT	4730

e Estimated

16931000 ATAULOMA STREAM AT AFAO

LOCATION.--Lat 14°20'10" S., long 170°48'02" W., Hydrologic Unit 20100001, on left bank at Afao, 100 ft upstream from highway bridge, and 300 ft upstream from mouth.

DRAINAGE AREA.--0.24 mi^2.

PERIOD OF RECORD.--October 1958 to current year.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft, by hand levels from high-tide mark.

REMARKS.--Records good. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--27 years (water years 1960-86), 1.48 ft^3/s (1,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 815 ft^3/s Oct. 28, 1979, gage height, 4.47 ft, from rating curve extended above 30 ft^3/s; minimum, 0.04 ft^3/s Oct. 24-26, 28-31, Nov. 1, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 302 ft^3/s June 18, gage height, 3.15 ft, no other peak greater than base discharge of 180 ft^3/s; minimum, 0.17 ft^3/s July 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.51	.59	.52	.19	1.2	.94	.36	2.1	.94	.36	.55	.19
2	.49	.49	.44	.39	.87	.74	.36	1.0	.69	.81	.36	.19
3	.44	.40	.33	.24	.80	1.0	1.4	.74	.64	.64	.40	.19
4	.40	1.7	.30	.21	.80	2.7	1.2	.69	.69	.33	.49	.19
5	.61	.80	.30	.19	1.8	2.1	1.2	.64	.59	.30	.44	.19
6	.44	.98	.30	.19	1.1	1.6	.92	.59	.54	.27	.40	.21
7	.36	3.6	.30	27	.94	1.0	.74	.64	.84	.27	.40	.26
8	1.0	.94	.27	21	.74	.74	.66	.74	.44	.24	.36	9.2
9	3.8	.69	.27	8.0	.69	1.1	.54	1.2	.44	.21	.36	1.3
10	3.2	.49	.27	6.8	.64	.80	.40	2.1	.40	.22	.36	.59
11	14	1.7	.24	3.1	.59	.74	.60	1.9	.44	.24	.36	.44
12	1.8	10	.27	4.4	.54	.59	1.7	.80	.48	.21	.22	.36
13	.94	2.6	.27	1.6	1.4	.66	1.1	.59	.36	.19	.30	.45
14	.80	5.9	.33	1.2	1.2	.77	.87	.44	.33	.19	.21	1.3
15	2.9	4.3	.27	1.0	1.2	.59	.64	.40	.54	.21	.19	2.6
16	1.4	2.1	.24	.94	7.0	.59	.44	27	.44	.30	.19	2.9
17	.74	1.1	.36	.87	2.0	3.3	.91	8.7	.36	.27	.19	.87
18	5.2	.87	.33	.80	1.2	1.0	2.2	2.2	15	.42	.19	.64
19	1.9	.74	.94	.80	.87	.80	1.3	1.4	1.1	1.1	.19	.54
20	1.1	.69	.33	.69	2.0	.74	.69	1.8	.69	4.8	.19	.49
21	.80	.69	.30	14	2.2	.64	1.1	2.5	.49	.54	.43	.55
22	.69	.64	.90	5.0	1.3	.49	3.9	3.6	.44	.59	4.3	.40
23	.59	.59	.36	3.3	2.0	.49	2.4	1.1	.40	2.8	1.3	.36
24	.64	.54	.27	2.2	2.0	.44	5.7	2.8	.36	.94	.49	.36
25	.59	.44	.24	1.3	1.0	.36	1.9	1.6	.36	.59	.36	4.8
26	2.0	.40	.24	1.4	.94	.36	3.0	.94	.33	.40	.33	19
27	.69	.40	.21	1.3	.87	.36	2.2	.80	.33	.36	.33	5.1
28	.59	.36	.21	1.0	1.0	.36	1.2	1.1	.30	.36	.27	2.6
29	.59	.36	.21	1.1	---	.36	2.8	1.8	.27	.27	.21	4.2
30	.54	.33	.21	1.0	---	.36	4.1	1.1	.27	.24	.21	1.6
31	.97	---	.19	.87	---	.36	---	1.6	---	.24	.21	---
TOTAL	50.72	45.43	10.22	112.08	38.89	27.08	46.53	74.61	29.50	18.91	14.79	62.07
MEAN	1.64	1.51	.33	3.62	1.39	.87	1.55	2.41	.98	.61	.48	2.07
MAX	14	10	.94	27	7.0	3.3	5.7	27	15	4.8	4.3	19
MIN	.36	.33	.19	.19	.54	.36	.36	.40	.27	.19	.19	.19
AC-FT	101	90	20	222	77	54	92	148	59	38	29	123

CAL YR 1985	TOTAL	695.99	MEAN	1.91	MAX	44	MIN	.19	AC-FT	1380
WTR YR 1986	TOTAL	530.83	MEAN	1.45	MAX	27	MIN	.19	AC-FT	1050

16931500 ASILI STREAM AT ALTITUDE 330 FT NEAR ASILI

LOCATION.--Lat 14°19'34" S., long 170°47'38" W., Hydrologic Unit 20100001, on right bank 1.3 mi northwest of Leone, 1.5 mi southwest of Aoloaufou, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--0.32 mi^2.

PERIOD OF RECORD.--October 1977 to September 1986 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 330 ft, from topographic map.

REMARKS.--Records good. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years, 2.54 ft^3/s (1,840 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 635 ft^3/s, Oct. 28, 1980, gage height, 4.73 ft, from rating curve extended above 14 ft^3/s; minimum, 0.20 ft^3/s Aug. 16, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 165 ft^3/s on June 18, gage height, 3.32 ft, no peak above base discharge of 205 ft^3/s; minimum, 0.43 ft^3/s Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.0	1.1	.46	2.0	3.5	.75	4.7	3.0	1.2	1.9	.95
2	1.4	1.1	.87	.75	1.7	2.1	3.0	3.4	2.4	2.1	.95	.91
3	1.2	.95	.75	.55	2.1	2.9	2.1	2.7	2.2	1.7	1.1	.87
4	1.2	2.0	.67	.46	1.7	5.3	1.8	2.3	2.1	.91	1.0	.87
5	1.6	1.2	.64	.43	4.4	4.7	1.7	2.1	1.7	.79	.87	.83
6	1.1	1.4	.61	.51	2.6	3.8	1.8	1.7	1.5	.79	.79	1.1
7	1.1	1.9	.61	17	2.1	3.1	1.2	1.6	2.0	.91	.75	2.0
8	3.8	1.4	.58	20	1.8	2.5	1.5	1.8	1.3	.75	.75	e9.5
9	6.6	1.1	.61	14	1.6	2.5	1.2	2.1	1.2	.67	.71	e4.0
10	8.1	.99	.55	8.0	1.5	2.0	.99	2.6	1.1	.71	.71	e3.0
11	14	2.0	.52	5.6	1.3	1.7	1.9	2.6	1.2	.75	.75	e2.5
12	6.7	11	.52	5.1	1.2	1.4	4.0	1.5	1.1	.61	.71	e1.8
13	4.8	4.7	.56	4.4	2.4	1.4	2.9	1.3	.95	.61	.86	e3.0
14	3.5	8.4	.55	2.6	3.1	1.5	1.9	1.2	.91	.58	.67	e4.0
15	4.8	7.3	.52	2.4	2.4	1.2	1.6	1.2	2.4	.71	.61	e6.0
16	3.0	5.2	.49	2.0	2.9	1.2	1.4	23	1.1	.67	.58	e5.0
17	2.3	3.6	.63	1.7	2.1	3.9	1.7	13	1.1	.58	.58	e3.5
18	7.6	2.8	.52	1.5	1.7	1.7	2.1	7.0	15	.82	.58	2.7
19	2.6	2.3	1.3	1.6	1.6	1.4	1.4	4.6	2.5	.64	.58	2.3
20	2.1	1.9	.55	1.5	3.6	1.3	1.2	5.4	1.8	2.8	.58	2.0
21	1.8	1.7	.49	8.3	4.8	1.2	1.5	5.5	1.5	.67	1.8	1.9
22	1.6	1.4	2.7	9.6	3.2	1.1	3.4	6.1	1.4	.86	7.4	1.5
23	1.5	1.3	.79	7.7	4.2	1.0	2.8	3.9	1.2	3.8	3.1	1.3
24	1.4	1.2	.58	5.2	3.8	1.0	5.1	5.7	1.2	3.4	1.8	1.3
25	1.3	1.1	.55	3.9	2.8	.91	3.2	4.6	1.1	1.4	1.5	7.3
26	3.3	1.1	.52	3.4	2.6	.87	5.7	3.4	1.0	1.2	1.3	19
27	1.3	.99	.49	2.8	2.0	.87	4.2	2.9	.99	1.2	1.3	9.3
28	1.2	.91	.52	2.2	2.4	.91	3.1	2.9	.91	1.1	1.1	8.0
29	1.1	.87	.46	2.7	---	.79	3.0	3.8	.87	.99	1.1	14
30	1.1	.79	.46	2.5	---	.75	7.0	3.8	.83	.95	.99	7.8
31	1.6	---	.52	1.9	---	.71	---	4.4	---	.91	.95	---
TOTAL	96.2	73.60	21.23	140.76	69.6	59.21	75.14	132.8	57.56	35.78	38.37	128.23
MEAN	3.10	2.45	.68	4.54	2.49	1.91	2.50	4.28	1.92	1.15	1.24	4.27
MAX	14	11	2.7	20	4.8	5.3	7.0	23	15	3.8	7.4	19
MIN	1.1	.79	.46	.43	1.2	.71	.75	1.2	.83	.58	.58	.83
AC-FT	191	146	42	279	138	117	149	263	114	71	76	254

CAL YR 1985	TOTAL	952.84	MEAN	2.61	MAX	31	MIN	.46	AC-FT	1890
WTR YR 1986	TOTAL	928.48	MEAN	2.54	MAX	23	MIN	.43	AC-FT	1840

e Estimated

16933500 LEAFU STREAM AT ALTITUDE 370 FT, NEAR LEONE

LOCATION.--Lat 14°19'31" S., long 170°46'50" W., Hydrologic Unit 20100001, on left bank 900 ft upstream from village stream intake, 1.1 mi north of Leone, and 1.0 mi southwest of Aoloaufou.

DRAINAGE AREA.--0.31 mi^2.

PERIOD OF RECORD.--October 1977 to September 1986 (discontinued).

REVISED RECORDS.--WDR HI-79-2: 1978(P).

GAGE.--Water-stage recorder. Elevation of gage is 370 ft, from topographic map.

REMARKS.--Records good. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--9 years, 4.56 ft^3/s (3,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 400 ft^3/s Dec. 3, 1984, gage height, 6.70 ft, from rating curve extended above 48 ft^3/s; minimum, 32 ft^3/s Aug. 9, 1983, Aug. 21, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 160 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 16	2100	185	4.55	Sept. 29	1030	*210	(about)*4.80
Sept. 25	1800	202	4.72				

Minimum discharge, 0.75 ft^3/s Jan. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.7	1.4	.56	2.5	4.8	1.2	8.1	4.0	2.2	4.0	1.3
2	2.2	1.7	1.2	.70	4.2	3.1	1.3	6.5	3.5	4.1	1.6	1.4
3	1.9	1.5	1.1	.59	2.8	4.7	3.2	5.2	3.1	2.9	2.0	1.2
4	1.8	3.1	1.0	.52	3.6	9.8	2.8	4.3	3.0	1.9	1.8	1.2
5	2.2	1.9	.98	.48	6.7	6.6	1.9	3.6	2.7	1.6	1.4	1.2
6	1.6	2.0	.94	.58	3.8	5.4	2.0	3.0	2.3	1.4	1.3	1.4
7	1.6	3.0	.98	22	3.2	4.5	1.7	2.8	2.6	1.6	1.2	4.6
8	9.3	2.0	.90	37	2.8	3.8	1.8	3.4	2.0	1.4	1.2	17
9	13	2.0	.90	29	2.5	3.5	1.5	3.3	1.8	1.3	1.1	6.1
10	13	1.7	.82	18	2.3	3.0	1.4	3.8	1.8	1.4	1.1	4.4
11	24	4.1	.78	11	2.1	2.7	2.4	3.4	1.8	1.4	1.1	3.5
12	14	18	.74	10	1.9	2.3	6.2	2.5	1.5	1.2	1.1	3.0
13	8.3	8.0	.82	6.2	2.7	2.4	3.8	2.2	1.5	1.2	1.2	4.9
14	5.9	17	.78	4.8	3.8	2.7	2.7	1.9	1.3	1.1	.94	6.5
15	5.8	13	.70	4.2	3.4	1.9	2.4	1.9	2.9	1.4	.90	9.3
16	4.1	8.6	.66	3.5	3.3	2.0	2.2	41	1.7	1.2	.86	7.8
17	3.3	6.5	1.5	3.0	2.5	5.9	2.7	36	1.5	1.5	.94	5.7
18	7.4	5.0	.74	2.6	2.1	2.5	7.3	18	12	1.6	.90	4.6
19	3.6	4.0	1.8	3.6	2.7	2.0	3.9	9.8	3.7	3.7	.86	3.8
20	3.1	3.4	.78	3.5	8.1	2.2	2.9	7.9	2.8	4.0	.94	3.3
21	2.8	2.8	.62	14	6.3	1.8	2.9	7.9	2.5	1.6	2.4	3.0
22	2.4	2.4	3.9	18	5.3	1.7	5.1	8.2	2.3	1.6	11	2.4
23	2.2	2.1	1.1	14	6.0	1.6	5.2	5.5	2.1	4.2	4.1	2.1
24	2.1	1.9	.78	8.6	4.5	1.5	7.5	8.9	1.9	2.8	2.7	1.9
25	2.0	1.8	.70	6.4	3.7	1.4	4.9	6.4	1.9	2.0	2.3	11
26	6.4	1.7	.66	5.5	3.8	1.3	10	5.1	1.8	1.9	2.2	40
27	2.2	1.5	.62	4.4	3.1	1.4	7.7	4.9	1.6	2.0	2.2	22
28	1.9	1.4	.66	3.5	4.1	1.2	5.9	4.4	1.5	1.8	1.8	17
29	1.8	1.3	.59	3.8	---	1.2	6.6	5.3	1.4	1.6	1.7	34
30	1.7	1.3	.56	3.0	---	1.2	12	4.0	1.3	1.4	1.5	22
31	2.5	---	.64	2.7	---	1.1	---	6.0	---	1.4	1.4	---
TOTAL	156.5	126.4	30.35	245.73	103.8	91.2	123.1	235.2	75.8	60.4	59.74	247.6
MEAN	5.05	4.21	.98	7.93	3.71	2.94	4.10	7.59	2.53	1.95	1.93	8.25
MAX	24	18	3.9	37	8.1	9.8	12	41	12	4.2	11	40
MIN	1.6	1.3	.56	.48	1.9	1.1	1.2	1.9	1.3	1.1	.86	1.2
AC-FT	310	251	60	487	206	181	244	467	150	120	118	491

CAL YR 1985	TOTAL	1568.05	MEAN	4.30	MAX	57	MIN	.56	AC-FT	3110
WTR YR 1986	TOTAL	1555.82	MEAN	4.26	MAX	41	MIN	.48	AC-FT	3090

16948000 AFUELO STREAM AT MATUU

LOCATION.--Lat 14°18'07" S., long 170°41'07" W., Hydrologic Unit 20100001, on left bank 0.2 mi northwest of Matuu and 0.3 mi upstream from mouth.

DRAINAGE AREA.--0.25 mi^2.

PERIOD OF RECORD.--March 1958 to current year. Prior to July 1960, published as Matuu Stream at Matuu.

REVISED RECORDS.--WSP 1937: Drainage area. WSP 2137: 1958-65.

GAGE.--Water-stage recorder. Elevation of gage is 80 ft, from topographic map.

REMARKS.--Records good except for estimated daily discharge, which are are fair. Small diversion upstream for domestic use since September 1972. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--28 years, 1.48 ft^3/s (1,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 535 ft^3/s May 3, 1985, gage height, 4.70 ft, from rating curve extended above 26 ft^3/s on basis of slope-area measurement of peak flow; minimum, 0.01 ft^3/s Sept. 16, 17, 20-26, 28, 29, 1975, Apr. 5-7, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 160 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 12	0400	229	3.32	Apr. 30	0430	213	3.23
Jan. 7	0730	236	3.36	May 16	2100	*360	*4.00
Feb. 20	0630	188	3.08	June 18	0700	160	2.90

Minimum discharge, 0.02 ft^3/s, Aug. 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	.17	.17	.13	2.4	4.2	e.10	4.3	1.0	.11	.39	.06
2	.28	.10	.16	.85	.91	1.2	e.13	1.7	.70	.89	.42	.08
3	.23	.10	.11	1.0	.65	1.4	e.90	.80	.50	.46	.25	.07
4	.21	.13	.07	.16	.50	2.5	e.60	.65	.46	.30	.14	.07
5	.49	.08	.06	.14	4.4	3.0	e.30	.42	.52	.16	.10	.09
6	.42	.28	.07	2.2	.98	2.0	e.20	.36	.42	.14	.07	.09
7	2.5	.16	.07	35	.70	.96	e.17	.33	2.3	.14	.05	.10
8	8.7	.13	.06	36	.42	.55	e.14	1.9	.30	.13	.05	12
9	10	.62	.06	11	.30	.36	e.13	2.0	.25	.10	.06	1.3
10	13	.16	.06	5.7	.25	.30	e.11	5.3	.28	.08	.05	.36
11	11	3.7	.05	2.0	.19	1.0	.23	9.7	1.2	.11	.08	.19
12	1.6	24	.06	1.3	.17	.55	3.6	1.5	1.1	.10	.07	.13
13	.70	1.4	.07	.65	.19	.30	.80	.70	.36	.08	.11	7.1
14	.46	6.6	.26	.46	5.6	.50	.28	.46	.28	.11	.17	8.3
15	.39	4.7	.54	.33	.65	.28	.16	.36	.23	.20	.06	8.6
16	.36	2.2	.10	.28	.36	.35	.13	29	.19	.09	.04	3.9
17	.25	.75	.13	.23	.40	3.4	.14	12	.19	.09	.04	.91
18	1.5	.42	.11	.19	.33	.91	.20	8.0	13	.17	.03	.42
19	.60	.28	2.1	.16	1.2	.55	.14	4.1	.98	.15	.03	.25
20	.28	.21	.49	.80	11	.39	.09	1.6	.46	.82	.03	.19
21	.19	.17	.39	4.1	2.1	.46	.11	1.9	.28	.11	.05	.17
22	.14	.16	.98	2.2	.91	.19	1.5	1.6	.23	.10	.64	.14
23	.11	.14	.39	6.4	4.1	.17	4.2	.91	.19	1.2	.28	.13
24	.11	.14	.14	1.7	6.9	.17	4.8	4.0	.16	2.1	.15	.11
25	.08	.13	.08	.91	3.1	.16	.84	2.5	.14	.23	.10	7.6
26	1.1	.11	.08	1.9	4.4	.14	3.7	.85	.16	.11	.09	6.1
27	.19	.11	.08	1.5	2.2	.16	17	3.6	.17	.11	.13	9.8
28	.11	.09	.09	.60	4.2	e.14	2.4	10	.14	.09	.09	2.5
29	.09	.07	.07	1.6	---	e.13	1.6	1.8	.11	.07	.06	11
30	.07	.07	.07	6.3	---	e.11	28	.85	.11	.08	.06	2.1
31	.15	---	.41	8.0	---	e.10	---	3.4	---	.09	.07	---
TOTAL	55.61	47.38	7.58	133.79	59.51	26.63	72.70	116.59	26.41	8.72	3.96	83.86
MEAN	1.79	1.58	.24	4.32	2.13	.86	2.42	3.76	.88	.28	.13	2.80
MAX	13	24	2.1	36	11	4.2	28	29	13	2.1	.64	12
MIN	.07	.07	.05	.13	.17	.10	.09	.33	.11	.07	.03	.06
AC-FT	110	94	15	265	118	53	144	231	52	17	7.9	166

CAL YR 1985	TOTAL	565.49	MEAN	1.55	MAX	41	MIN	.05	AC-FT	1120
WTR YR 1986	TOTAL	642.74	MEAN	1.76	MAX	36	MIN	.03	AC-FT	1270

e Estimated

16963900 LEAFU STREAM NEAR AUASI

LOCATION.--Lat 14°16'27" S., long 170°34'26" W., Hydrologic Unit 20100001, on right bank 35 ft upstream from upper village intake, 0.1 mi north of Auasi, and 0.2 mi upstream from mouth.

DRAINAGE AREA.--0.11 mi^2.

PERIOD OF RECORD.--February 1972 to September 1986 (discontinued).

REVISED RECORDS.--WDR HI-75-1: 1972(P), 1973-74.

GAGE.--Water-stage recorder. Elevation of gage is 120 ft, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No diversion upstream. Periodic determinations of water temperature for the current year are published elsewhere in this report.

AVERAGE DISCHARGE.--14 years, 0.325 ft^3/s (232 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 234 ft^3/s Dec. 5, 1980, gage height, 4.43 ft, from recorded range in stage, from rating curve extended above 19 ft^3/s; minimum, 0.02 ft^3/s several days in 1976 and many days in 1983, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 30 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 23	2030	63	2.79	May 27	2330	42	2.46
May 8	1500	57	2.70	May 31	0630	33	2.31
May 10	2300	54	2.65	June 11	2400	71	2.90
May 16	1930	80	3.01	June 18	0930	*127	*3.54

Minimum discharge, 0.03 ft^3/s Apr. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.04	.08	.04	.09	.21	.05	e1.1	.19	.04	.10	.04
2	.04	.04	.05	.08	.08	.13	.04	e.09	.13	.33	.06	.05
3	.04	.04	.04	.09	.08	.13	.04	e.09	.11	.17	.06	.04
4	.04	.04	.04	.08	.15	.11	.04	e.08	.09	.08	.06	.04
5	.05	.04	.04	.08	.62	.13	.04	e.08	.09	.06	.05	.05
6	.04	.10	.04	.08	.23	.09	.04	.07	.08	.05	.05	.04
7	.06	.05	.04	.35	.17	.08	.06	.08	.11	.04	.05	.04
8	.52	.05	.04	1.6	.13	.08	.05	2.4	.09	.04	.05	.19
9	1.2	.05	.04	2.2	.09	.07	.05	.97	.08	.04	.04	.07
10	.53	.05	.04	.85	.09	.06	.04	1.3	.15	.04	.04	.05
11	.90	.16	.04	.43	.08	.14	.16	2.8	.09	.04	.04	.06
12	.23	.07	.04	.19	.07	.06	.60	.61	1.3	.04	.05	.07
13	.13	.06	.04	.13	.07	.06	.07	.29	.21	.04	.05	1.3
14	.09	1.2	.07	.11	.65	.08	.08	.19	.15	.05	.05	1.7
15	.08	.55	.05	.08	.17	.06	.07	.17	.15	.06	.04	3.0
16	.07	.15	.04	.08	.11	.06	.05	5.8	.11	.06	.04	1.0
17	.06	.09	.04	.08	.08	.11	.06	3.0	.09	.04	.04	.70
18	.05	.06	.05	.07	.09	.06	.09	1.1	1.8	.18	.04	.40
19	.10	.05	.08	.06	.08	.06	.11	.39	.13	1.2	.04	.30
20	.06	.05	.06	.06	.53	.05	.11	.29	.09	1.0	.05	.20
21	.05	.05	.05	.15	.17	.06	.09	.21	.07	.15	.05	.15
22	.05	.05	.05	.09	.11	.05	1.0	.19	.07	.09	.06	.10
23	.05	.05	.05	.38	2.7	.05	e.11	.17	.06	.13	.05	.08
24	.05	.06	.05	.23	2.4	.04	e.08	.17	.05	.13	.04	.06
25	.04	.05	.05	.15	1.2	.04	e.07	.17	.05	.11	.04	.30
26	.07	.05	.04	.40	.54	.04	e.05	.15	.05	.08	.04	.50
27	.04	.05	.04	.32	.37	.04	e.05	.83	.05	.07	.04	.20
28	.04	.05	.04	.17	.63	.04	e.05	.44	.04	.06	.04	.10
29	.04	.05	.04	.11	---	.04	e.04	.17	.04	.06	.04	.15
30	.04	.05	.04	.11	---	.05	e.04	.13	.04	.05	.04	.07
31	.04	---	.04	.09	---	.05	---	.87	---	.05	.04	---
TOTAL	4.84	3.45	1.45	8.94	11.78	2.33	3.43	24.40	5.76	4.58	1.48	11.05
MEAN	.16	.11	.05	.29	.42	.07	.11	.79	.19	.15	.05	.37
MAX	1.2	1.2	.08	2.2	2.7	.21	1.0	5.8	1.8	1.2	.10	3.0
MIN	.04	.04	.04	.04	.07	.04	.04	.07	.04	.04	.04	.04
AC-FT	9.6	6.8	2.9	18	23	4.6	6.8	48	11	9.1	2.9	22

CAL YR 1985	TOTAL	74.41	MEAN	.20	MAX	10	MIN	.03	AC-FT	148
WTR YR 1986	TOTAL	83.49	MEAN	.23	MAX	5.8	MIN	.04	AC-FT	166

e Estimated

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of base flow or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1986

Station No.	Station name	Location	Drainage area mi^2	Period of record	Measurements: Date	Measurements: Discharge (ft^3/s)
		Caroline Islands, Yap Islands				
16892900	Peemgoy Stream, Yap	Lat 09°31'07" N., long 138°06'36" E., 100 ft upstream from Taalgum Stream, 0.3 southeast of Mount Peemgoy, and 1.0 mi northwest of Protestant Mission Church.	0.14	1968-82≠, 1985-86	9-03-86	0.79
		Samoa Islands, Island of Tutuila				
16917500	Leele Stream at mouth at Fagasa	Lat 14°17'28" S., long 170°43'09" W., on left bank at Fagasa and 200 ft upstream from mouth.	.23	1966-76≠, 1977, 1981-86	9- 4-86	.41
16919000	Leaveave Stream near Aasu	Lat 14°18'28" S., long 170°45'06" W., 0.6 mi upstream from mouth and 0.9 mi southeast of Aasu.	.60	1959-60, 1962-63, 1968, 1974-77, 1979, 1981, 1983, 1986	7-15-86	1.04
16920000	Aasu Stream near Aasu	Lat 14°18'16" S., long 170°45'29" W., 300 ft downstream from 100-ft waterfall, 0.5 mi south of Aasu, and 0.5 mi upstream from mouth.	.82	1959-63, 1968, 1974-76, 1978-79, 1981, 1983, 1985-86	7-15-86	1.47
16934000	Leafu Stream near Leone	Lat 14°19'47" S., long 170°46'55" W., 30 ft upstream from reservoir, 0.9 mi upstream from mouth, and 1.0 mi north of Leone.	.69	1959-64, 1968-69, 1971-74, 1976-77, 1981-86	9-24-86	1.49
16944000	Papa Stream near Nuuuli	Lat 14°18'31" S., long 170°42'29" W., 0.3 mi upstream from Tauese Stream and 0.9 mi northwest of Nuuuli.	.57	1959-61, 1963-64, 1967-68, 1974-78, 1981-86	8- 6-86 9- 5-86	.90 .42

≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1986--Continued

Station No.	Station name	Location	Drainage area mi^2	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Samoa Islands, Island of Tutuila--Continued				
16949800	Utumoa Stream near Pago Pago	Lat 14°17'35" S., long 170°42'20" W., 0.6 mi upstream from mouth and 1.1 mi south of Pago Pago above the Vaipito diversion intake system.	0.07	1960-61≠, 1963-65, 1967-71, 1974, 1983, 1986	8- 7-86 9- 4-86	0.22 .33
16960000	Alega Stream at Alega	Lat 14°16'58" S., long 170°38'19" W., on left bank 300 ft upstream from left-bank tributary, 0.2 mi northwest of Alega, and 0.3 mi upstream from mouth.	.19	1958-76≠, 1977-78, 1981-86	8- 8-86	.66

≠ Operated as a continuous-record gaging station.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements or peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water years 1985 and 1986

Station no.	Station name	Location	Drainage area mi^2	Period of record	Annual maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		Mariana Islands, Island of Guam					
		Annual maximum discharge at crest-stage partial-record stations during water year 1985					
16807200	Agana River at Agana	Lat 13°28'23"N., long 144°45'13"E., upstream side of road bridge East Agana, 0.2 mi southeast of Leary Junction, and 0.5 mi northeast of Government House, Agana.	8.60	1973-85	9- 6-85		e600
16808120	Namo River near Santa Rosa	Lat 13°23'44"N., long 144°39'57"E., upstream fo weir, 0.75 mi south of Camp Roxas, and 0.75 mi northwest of Santa Rita.	1.56	1980-85	9- 6-85		340
		Annual maximum discharge at crest-stage partial-record stations during water year 1986					
16807200	Agana River at Agana	Lat 13°28'23"N., long 144°45'13"E., upstream side of road bridge East Agana, 0.2 mi southeast of Leary Junction, and 0.5 mi northeast of Government House, Agana.	8.60	1973-86	7- 4-86		e450
16808120	Namo River near Santa Rosa	Lat 13°23'44"N., long 144°39'57"E., upstream fo weir, 0.75 mi south of Camp Roxas, and 0.75 mi northwest of Santa Rita.	1.56	1980-86	7- 4-86		255

e Estimated

Discharge measurements made at miscellaneous sites during water year 1986

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Caroline Islands, Palau Islands				
Ngechutrong River, Babelthuap (16890620)	Pacfic Ocean	Lat 07°36'11" N., long 134°34'50" E., at trail crossing, 300 ft upstream from Diongradid River and 0.7 mi southeast of Ngetbong village school.	0.25	1974-82, 1985	2- 6-86 3-10-86 4-16-86 5-14-86 6-17-86 7-15-86	1.10 1.06 1.18 .58 .45 2.42
Ngerchetang River, Babelthuap (16890650)	Pacific Ocean	Lat 07°35'48" N., long 134°34'13" E., 0.7 mi south of Ngetbong village school and 0.9 mi upstream from Diongradid River.	1.51	1974-77, 1980-82, 1985	2-13-86 3-13-86 4-23-86 5-22-86	7.58 10.6 5.43 5.83
Ngermeskang River, Babelthuap (16890700)	Pacific Ocean	Lat 07°31'16" N., long 134°33'16" E., 0.6 mi upstream from unnamed left-bank tributary, 2.0 mi east of Imeong Village, and 5.8 mi upstream from mouth.	7.14	1973-82, 1985	2-12-86 3-12-86 4-17-86 5-19-86 6-18-86 7-16-86	47.2 22.1 16.0 17.8 42.7 68.1
Ngetpang River, Babelthuap (16890800)	Pacific Ocean	Lat 07°27'45" N., long 134°31'38" E., 0.2 mi upstream from unnamed right-bank tributary, 1.1 mi east of forestry station, and 2.5 mi upstream from mouth.	.34	1973-82, 1985	2-13-86 3-13-86 4-23-86 5-22-86	2.10 1.24 .43 .60
North Fork Ngerdorch River (16891430)	Ngerdorch River	Lat 07°27'51" N., long 134°35'12" E., 500 ft upstream from right-bank tributary, 1.4 mi upstream from confluence with South Fork Ngerdorch River, and 1.5 mi west of Ngchesar Village.	9.37	1976-83,	5- 2-86 5-20-86 6-19-86	9.62 15.6 34.7
North Fork Ngerdorch River tributary (16891440)	North Fork Ngerdorch River	Lat 07°27'51" N., long 134°35'10" E., 50 ft upstream from North Fork Ngerdorch River and 1.5 mi west of Ngchesar village.	1.73	1976-83	5- 2-86 5-20-86 6-19-86	3.00 2.70 5.64
Lmetmellasch River (16891500)	Pacific Ocean	Lat 07°36'12" N., long 134°37'36" E., 0.5 mi upstream from mouth and 1.1 mi northwest of Ngkeklau community center.	.34	1971-75, 1977, 1980-82	5-21-86	.59
Unnamed west coast stream, Ngerekebesang (16891700)	Pacific Ocean	Lat 07°21'14" N., long 134°27'10" E., 50 ft downstream from reservoir, 200 ft upstream from mouth, and 0.25 mi northwest of Ngerekesang Village community center.	.02	1970-79, 1982, 1984-85	7-21-86	.16
Unnamed south coast stream, Ngerekebesang (16891750)	Pacific Ocean	Lat 07°20'42" N., long 134°26'54" E., at Echang Village, 200 ft upstream from mouth, and 0.5 mi southeast of Ngerekebesand Village community center.	.02	1970-79, 1981-82, 1984-85	7-21-86	.28

Samples are collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

CAROLINE ISLANDS, PALAU ISLANDS

16890620 NGECHUTRONG RIVER, BABELTHUAP (LAT 07°36'11" N., LONG 134°34'50" E.)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL 15...	1330	2.4	30	7.00	26.0	8	1.7	1.0	2.4	38	0.4

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL 15...	0.10	9.0	1.4	3.9	<0.10	9.7	26	<0.100	76	10

16890700 NGERMESKANG RIVER, BABELTHUAP (LAT 07°31'16" N., LONG 134°33'16" E.)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL 16...	1030	71	55	7.10	24.5	19	3.3	2.5	3.5	29	0.4

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL 16...	0.20	22	1.3	3.8	<0.10	17	45	<0.100	72	8

< Actual value is known to be less than the value shown.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

CAROLINE ISLANDS, PALAU ISLANDS--Continued

16891700 UNNAMED WEST COAST STREAM, NGEREKEBESANG (LAT 07°21'17" N., LONG 134°26'32" E.)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL 21...	1000	0.16	69	7.00	26.0	16	3.4	1.9	6.1	44	0.7

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL 21...	0.20	15	1.9	10	<0.10	17	50	0.640	21	4

16891750 UNNAMED SOUTH COAST STREAM, NGEREKEBESANG (LAT 07°20'42" N., LONG 134°26'54" E.)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL 21...	1115	0.28	43	7.10	26.5	10	2.0	1.3	4.3	47	0.6

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL 21...	0.20	10	2.1	6.0	<0.10	15	37	0.280	47	9

< Actual value is known to be less than the value shown.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

CAROLINE ISLANDS, PALAU ISLANDS--Continued

16891800 ELODESACHEL SPRING, KOROR (LAT 07°20'47" N., LONG 134°29'57" E.)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO
JUL 21...	1330	1.0	117	6.70	26.0	48	14	3.1	3.9	15	0.3

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JUL 21...	0.10	50	4.2	5.4	<0.10	18	79	0.100	180	7

< Actual value is known to be less than the value shown.

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
MARIANA ISLANDS, ISLAND OF SAIPAN									
16801000 - SF TALOFOFO STREAM, ISLAND OF SAIPAN (LAT 15 12 58 LONG 145 46 31)									
JAN					JUN				
22...	1410	.38	28.5	27.0	27...	1020	1.0	--	27.5
MAR									
04...	1205	.41	25.5	25.0					
MARIANA ISLANDS, ISLAND OF GUAM									
16847000 - IMONG RIVER NR AGAT, GUAM (LAT 13 20 17 LONG 144 41 55)									
NOV					MAR				
05...	1030	7.1	--	26.5	27...	1105	4.1	28.5	27.5
FEB									
24...	1105	4.6	26.0	25.5					
16848100 - ALMAGOSA RIVER NEAR AGAT, GUAM (LAT 13 20 43 LONG 144 41 36)									
FEB					JUN				
24...	1400	1.4	29.0	28.0	23...	1255	.80	32.5	29.5
MAR									
27...	1235	.88	28.5	27.5					
16848500 - MAULAP RIVER NEAR AGAT, GUAM (LAT 13 21 14 LONG 144 41 44)									
FEB					JUL				
24...	1555	2.0	29.5	27.0	02...	1305	2.6	33.0	28.0
MAR									
27...	1420	2.2	29.0	28.0					
16854500 - UGUM RIVER AB TALOFOFO FALLS, NR TALOFOFO, GUAM (LAT 13 19 16 LONG 144 44 01)									
NOV					MAY				
22...	1325	18	35.0	27.0	21...	1210	11	33.5	27.5
FEB					JUN				
19...	1510	15	27.5	26.0	17...	1120	12	34.0	28.5
MAR					JUL				
21...	1305	12	31.0	28.0	08...	1355	30	32.5	27.5
CAROLINE ISLANDS, YAP ISLANDS									
16892000 - QATLIW STREAM, YAP, YAP ISLANDS (LAT 09 32 58 LONG 138 06 41)									
OCT					MAR				
04...	1155	.69	27.0	26.0	14...	1140	.33	27.0	25.5
30...	1225	.90	27.0	25.0	APR				
NOV					10...	1255	.10	27.5	26.0
14...	1000	5.8	26.5	25.5	JUN				
DEC					11...	1050	.06	27.5	25.5
30...	1050	.18	26.5	25.5	JUL				
JAN					07...	1520	.21	28.0	26.0
23...	1245	.77	27.0	26.0	25...	1230	.37	27.0	25.5
FEB									
19...	1315	.48	26.0	25.5					
16892400 - QARINGEEL STREAM, YAP, YAP ISLANDS (LAT 09 31 02 LONG 138 05 31)									
OCT					APR				
04...	1320	.43	28.0	27.0	10...	1405	.07	27.5	26.5
29...	1110	.02	27.5	25.5	MAY				
NOV					20...	1115	.05	26.5	25.5
13...	1330	.23	28.0	27.0	JUN				
JAN					11...	1155	.18	27.5	26.0
23...	1355	.23	27.0	26.5	JUL				
FEB					25...	1130	.12	27.0	26.0
19...	1140	.10	28.0	25.5	SEP				
MAR					03...	1240	1.0	27.0	26.0
14...	1250	.17	28.0	27.0					

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
CAROLINE ISLANDS, YAP ISLANDS--Continued									
16893100 - BURONG STREAM, YAP, YAP ISLANDS (LAT 09 32 05 LONG 138 07 19)									
OCT					APR				
04...	1015	0.84	27.0	26.0	10...	1135	0.08	27.5	26.5
29...	0940	.13	26.0	25.0	JUN				
NOV					11...	0935	.07	27.5	25.5
13...	1540	1.7	27.5	26.0	JUL				
DEC					07...	1135	.24	27.5	26.0
30...	1210	.17	26.5	25.5	23...	1405	.10	27.0	26.0
JAN					AUG				
23...	1100	.42	28.5	26.0	18...	1055	.07	27.5	26.5
FEB					SEP				
19...	1500	1.6	26.0	25.5	03...	1100	1.2	27.0	25.5
MAR					15...	1540	4.0	--	26.0
14...	1005	.30	27.0	25.5					
16893200 - MUKONG STREAM, GAGIL-TAMIL, YAP ISLANDS (LAT 09 32 05 LONG 138 10 18)									
OCT					APR				
03...	1110	4.3	26.5	26.0	09...	1205	1.1	27.5	26.5
28...	1115	1.8	27.0	26.5	29...	1055	.51	27.5	26.5
NOV					MAY				
14...	1435	2.6	29.0	27.5	16...	1025	.74	27.0	26.0
DEC					JUN				
23...	1040	2.1	27.0	26.0	10...	1000	.68	27.5	26.0
JAN					24...	1455	2.0	30.0	28.0
22...	1150	3.6	27.0	26.0	JUL				
FEB					23...	1140	1.5	27.5	26.0
20...	1110	1.7	27.0	26.0	AUG				
MAR					12...	1055	6.5	27.0	26.0
13...	1045	2.3	28.5	26.0	29...	1020	1.3	27.5	27.0
16893400 - EYEB STREAM, GAGIL-TAMIL, YAP ISLANDS (LAT 09 33 02 LONG 138 09 03)									
OCT					APR				
03...	1350	3.3	26.0	25.5	10...	1020	.83	27.5	26.5
28...	1415	1.8	27.0	26.5	29...	1335	.64	27.5	26.5
NOV					MAY				
14...	1225	2.6	28.0	26.5	19...	0910	.41	26.5	26.5
DEC					JUN				
02...	1125	.42	29.0	26.5	10...	1135	.46	28.0	26.5
23...	1410	1.5	29.0	26.0	JUL				
JAN					07...	1015	1.2	28.0	26.5
23...	0950	1.8	27.5	26.5	23...	0955	1.1	27.0	26.0
FEB					AUG				
20...	1250	1.7	26.5	25.0	18...	1000	.82	27.5	26.5
MAR					SEP				
13...	1352	1.6	28.0	27.0	03...	0950	2.6	27.0	26.0
					16...	1310	3.4	27.5	--
CAROLINE ISLANDS, TRUK ISLANDS									
16893800 - WICHEN RIVER AT ALT 18M, MOEN, TRUK ISLANDS (LAT 07 27 01 LONG 151 51 56)									
MAR					AUG				
24...	1550	2.7	--	28.0	04...	1420	1.5	31.0	28.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
CAROLINE ISLANDS, ISLAND OF KOSRAE									
16899620 - MELO RIVER, KOSRAE (LAT 05 20 30 LONG 162 58 33)									
NOV					MAY				
16...	1650	6.7	28.0	26.0	27...	1215	2.5	--	26.5
MAR					AUG				
20...	1135	8.8	29.5	25.5	12...	1125	2.3	28.0	26.5
APR					SEP				
25...	1030	3.3	28.0	26.0	01...	1140	1.6	27.5	26.0
16899750 - MALEM RIVER, KOSRAE (LAT 05 17 35 LONG 163 00 54)									
OCT					APR				
15...	1435	4.1	29.0	26.5	14...	1005	3.5	29.5	25.5
22...	0945	2.3	27.5	26.0	28...	1025	6.8	28.0	25.0
NOV					MAY				
26...	1520	7.9	26.5	25.5	26...	1000	5.2	27.0	25.5
FEB					AUG				
18...	1110	5.8	29.0	25.5	08...	1300	2.1	31.5	27.5
27...	1020	5.6	28.0	26.0	26...	1025	1.2	29.0	26.5
MAR					SEP				
17...	1035	2.7	29.0	26.0	15...	1115	2.2	31.5	27.0
25...	1035	106	26.0	24.5					
16899800 - TOFOL RIVER, KOSRAE (LAT 05 19 10 LONG 163 00 24)									
NOV					MAY				
15...	0945	6.8	26.5	25.5	19...	1300	8.8	28.5	25.5
JAN					30...	0935	2.0	28.5	26.0
20...	1315	4.1	27.5	26.0	JUN				
30...	0920	3.6	27.5	25.0	17...	1410	5.0	27.0	26.0
FEB					AUG				
27...	1250	3.0	27.5	26.0	15...	1630	.73	28.0	27.0
APR					16...	1020	.52	31.5	27.0
17...	0905	2.6	28.5	27.0	26...	1225	.82	28.0	26.0
					SEP				
					26...	1415	2.1	31.5	27.5
SAMOA ISLANDS, ISLAND OF TUTUILA									
16912000 - PAGO STREAM AT AFONO, TUTUILA (LAT 14 16 03 LONG 170 39 02)									
OCT					APR				
02...	1115	.93	24.0	22.0	22...	0915	4.9	25.5	24.5
NOV					MAY				
08...	0930	.54	25.0	24.0	07...	1100	1.4	24.0	22.0
20...	1125	1.1	24.0	22.0	22...	0935	6.2	26.0	22.0
DEC					JUN				
11...	0935	.27	24.0	22.0	06...	1130	1.3	26.0	25.0
JAN					18...	1250	61	25.0	24.0
14...	1155	1.9	24.0	22.0	JUL				
29...	1040	3.6	24.0	22.0	25...	1020	1.5	27.0	25.0
FEB					AUG				
19...	1115	1.1	25.0	23.0	13...	0955	.46	24.0	22.0
MAR					SEP				
19...	1125	1.1	26.0	24.0	16...	0940	7.7	26.5	25.0

SAMOA ISLANDS, ISLAND OF TUTUILA--Continued

16920500 - AASU STREAM AT AASU, TUTUILA (LAT 14 17 51 LONG 170 45 30)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
17...	0920	9.2	26.0	24.0
NOV				
22...	0755	6.7	23.5	22.0
DEC				
23...	0920	2.7	25.0	23.5
JAN				
28...	1025	7.9	26.0	24.0
FEB				
28...	0845	13	25.0	24.0
MAR				
11...	0830	5.2	26.0	24.0
31...	0910	1.8	25.0	23.0
MAY				
02...	0855	12	26.0	24.0
20...	1020	14	28.0	26.0
JUN				
11...	0935	3.2	26.0	24.0
JUL				
15...	0910	1.6	26.0	24.0
SEP				
19...	0815	8.7	24.0	23.5

16931000 - ATAULOMA STREAM AT AFAO, TUTUILA (LAT 14 20 10 LONG 170 48 02)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
01...	1140	.53	26.0	24.0
NOV				
05...	0755	.87	26.0	24.0
20...	0855	.69	26.0	24.0
DEC				
05...	1015	.34	23.5	22.0
JAN				
10...	0915	2.5	26.0	24.0
FEB				
05...	1015	2.1	25.0	24.0
MAR				
05...	0900	1.5	26.0	24.0
26...	1025	.40	24.0	21.0
APR				
08...	0920	.81	25.0	23.0
MAY				
08...	1200	.54	26.0	23.0
JUN				
10...	0910	.42	24.0	22.0
JUL				
10...	0855	.24	26.0	24.0
AUG				
12...	0950	.20	26.0	24.5
SEP				
12...	0925	.34	26.0	24.5

16931500 - ASILI STR AT ALT 330 FT, NR ASILI,TUTUILA (LAT 14 19 34 LONG 170 47 38)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
01...	0945	1.6	26.0	24.0
NOV				
01...	0845	1.0	24.5	24.0
25...	1035	1.1	26.0	24.0
DEC				
05...	0830	.64	24.0	22.0
JAN				
06...	0845	.47	24.0	22.0
FEB				
11...	0920	1.3	25.0	22.0
24...	0855	4.0	26.0	24.0
MAR				
12...	0935	1.5	24.0	23.0
26...	0850	.85	24.0	22.0
APR				
15...	0835	1.6	25.0	24.5
MAY				
08...	0950	1.4	26.0	23.0
15...	0925	1.1	27.0	24.0
JUN				
19...	0930	2.6	26.0	24.0
JUL				
23...	1120	5.1	27.0	25.0
AUG				
06...	0840	.78	27.0	26.0
26...	0930	1.3	26.0	24.0
SEP				
18...	0825	2.7	26.0	24.0

16933500 - LEAFU STR AT ALT 370 FT, NR LEONE, TUTUILA (LAT 14 19 31 LONG 170 46 50)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
29...	0900	1.8	26.0	23.0
NOV				
15...	0855	12	26.0	24.0
DEC				
03...	0845	1.1	25.5	23.0
JAN				
06...	1110	.54	24.0	22.0
FEB				
17...	0950	3.1	26.0	24.0
MAR				
10...	0920	3.0	24.0	22.0
APR				
10...	0940	1.3	24.0	22.0
24...	0920	6.6	23.5	23.0
MAY				
13...	0935	2.2	28.0	26.0
JUN				
17...	0955	1.6	26.0	24.0
JUL				
18...	0915	1.6	27.0	24.0
AUG				
19...	0920	.87	26.0	24.0
SEP				

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

SAMOA ISLANDS, ISLAND OF TUTUILA--Continued

16948000 - AFUELO STREAM AT MATUU, TUTUILA (LAT 14 18 07 LONG 170 41 07)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
08...	1030	9.5	26.0	24.0
NOV				
13...	0850	1.6	25.0	24.0
DEC				
17...	0810	.11	23.5	21.0
JAN				
17...	0930	.24	24.0	22.0
FEB				
19...	0855	.18	25.0	23.0
25...	0945	1.8	25.0	24.0
MAR				
19...	0900	.65	26.0	24.0
APR				
10...	1225	0.11	30.0	25.5
25...	0915	.61	26.0	24.0
MAY				
28...	1040	2.6	24.5	24.0
JUN				
26...	0930	.15	26.0	24.0
JUL				
24...	1155	1.6	26.0	24.0
AUG				
14...	1040	.25	26.0	24.0
26...	1230	.08	26.0	24.0
SEP				
11...	0840	.23	26.5	24.0
26...	0825	3.3	27.0	26.0

16963900 - LEAFU STREAM NEAR AUASI, TUTUILA (LAT 14 16 27 LONG 170 34 26)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)
OCT				
02...	0915	.04	24.0	22.0
21...	0840	.06	24.0	22.0
30...	0855	.05	24.0	22.0
NOV				
19...	0950	.06	24.5	22.0
DEC				
04...	0805	.04	24.0	22.0
JAN				
07...	1205	.24	26.0	23.0
29...	0925	.11	24.0	22.0
FEB				
12...	0835	.07	24.0	23.0
26...	0945	.39	25.0	24.0
MAR				
13...	0900	.06	25.0	23.0
27...	0945	.06	26.0	25.0
APR				
16...	0835	.05	26.0	25.0
MAY				
06...	1300	.07	26.5	25.5
21...	1015	.19	26.0	24.0
JUN				
24...	0915	.06	25.5	24.0
JUL				
24...	1055	.13	26.0	24.0
AUG				
08...	0940	.05	26.0	24.0
27...	0810	.04	26.0	24.0
SEP				
30...	1140	.08	26.0	24.0

MARIANA ISLANDS, ISLAND OF GUAM

132833144445371. Local number, 18-2844-04 Tide Gage of Agana.

LOCATION.--Lat 13°28'33" N., long 144°44'53" E., Hydrologic Unit 20100003, at Agana Boat Basin. Owner: Government of Guam.

WELL CHARACTERISTICS.--Twelve-inch PVC stilling well, 14 ft deep.

DATUM.--Altitude of land-surface datum is 6.40 ft. Measuring point: Top of PVC pipe, 8.19 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, April 1, 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.44 ft above mean sea level, Aug. 27, 1984; lowest, -2.47 ft, Dec. 14, 1985.

TIDE STAGES, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	.09	.07	.23	.42	.15	.25	.28	.45	.36	.29	.13
2	.25	.05	.07	.30	.39	.12	.28	.24	.44	.39	.19	.04
3	.23	.06	.13	.21	.41	.17	.32	.30	.46	.42	.17	-0.01
4	.18	.01	.11	.35	.36	.12	.30	.28	.46	.54	.22	.06
5	.12	.16	.19	.39	.35	e.10	.40	.33	.45	.38	.19	.05
6	.07	.32	.22	.39	.33	e.12	.36	.27	.42	.24	.18	.05
7	.06	.20	.24	.37	.36	e.11	.32	.28	.42	.23	.19	-0.01
8	.13	.16	.25	.39	.32	e.17	.26	.19	.43	.27	.26	-0.01
9	.22	.19	.23	.41	.30	e.19	.26	.17	.41	.24	.30	-0.03
10	.25	.28	.26	.38	.28	e.20	.29	.16	.43	.33	.28	-0.04
11	.23	.35	.19	.45	.26	e.15	.27	.22	.45	.28	.27	-0.09
12	.28	.32	.25	.33	.18	e.10	.23	.22	.52	.38	.32	-0.09
13	.37	.26	.19	.34	.25	.08	.14	.22	.51	.31	.31	-0.04
14	.50	.19	.22	.36	.40	.07	.14	.23	.53	.37	.22	-0.09
15	.48	.13	.27	.30	.24	.19	.10	.21	.58	.31	.26	-0.13
16	.36	.11	.27	.30	.16	.16	.10	.26	.59	.26	.28	-0.21
17	.27	-0.01	.28	.32	.15	.22	.12	.33	.56	.26	.34	-0.21
18	.20	-0.05	.33	.34	.33	.25	.13	.37	.57	.19	.36	-0.17
19	.10	.02	.31	.38	.44	.23	.15	.43	.54	.18	.33	-0.13
20	.02	.00	.41	.39	.17	.21	.26	.53	.52	.10	.32	-0.16
21	.02	.04	.38	.34	.17	.28	.31	.62	.47	.10	.63	-0.18
22	.02	-0.04	.35	.30	.23	.40	.29	.48	.40	.18	.74	-0.17
23	.05	.08	.42	.32	.19	.39	.22	.35	.40	.25	.71	-0.06
24	.10	.05	.33	.24	.24	.41	.19	.25	.40	.27	.61	-0.11
25	.14	.04	.31	.20	.25	.39	.18	.25	.47	.29	.44	-0.09
26	.10	.09	.24	.30	.27	.43	.22	.30	.47	.39	.35	-0.11
27	.02	.18	.27	.23	.29	.45	.16	.27	.42	.38	.28	-0.03
28	.14	.27	.30	.24	.17	.39	.23	.30	.43	.41	.12	-0.05
29	.07	.15	.17	.20	---	.38	.17	.37	.41	.41	.00	-0.22
30	.09	.12	.28	.32	---	.33	.20	.41	.40	.40	.05	-0.21
31	.05	---	.33	.34	---	.29	---	.39	---	.34	.18	---
MEAN	.17	.13	.25	.32	.28	.23	.23	.31	.47	.31	.30	-0.08
MAX	.50	.35	.42	.45	.44	.45	.40	.62	.59	.54	.74	.13
MIN	.02	-0.05	.07	.20	.15	.04	.10	.16	.40	.10	.00	-0.22

e Estimated

MARIANA ISLANDS, ISLAND OF SAIPAN

151032145460370. Local number, 14-1045-09 Hakmang Well 78.

LOCATION.--Lat 15°10'22" N., long 145°45'51" E., Hydrologic Unit 20100006, 0.8 mi west-southwest of the Hakmang Communication station and 2.3 mi northeast of San Vicente Village. Owner: Government of the Northern Mariana Islands.

AQUIFER.--Tagpochau Limestone.

WELL CHARACTERISTICS.--Drilled artesian well, depth 369 ft, diameter 12 in.

DATUM.--Elevation of land-surface datum is 229 ft. Measuring point: Top of casing, about 230 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, March 1973 to May 1976, March 1977 to September 1978, December 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 21.03 ft above mean sea level, Aug. 24, 1985; lowest daily, 18.20 ft above mean sea level, July 13, 1986.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	19.33	18.75	18.70	18.65	18.68	18.65	18.67	18.63	18.80	---
2		---	19.34	18.76	18.71	18.63	18.66	18.71	18.70	18.64	18.58	---
3		---	19.33	18.78	18.71	18.62	18.67	18.66	18.69	18.65	18.60	---
4		---	19.35	18.79	18.73	18.64	18.66	18.68	18.63	18.72	18.62	---
5		---	19.38	18.78	18.72	18.62	18.66	18.69	18.56	18.68	18.60	---
6		---	19.39	18.76	18.71	18.65	18.67	18.69	18.56	18.67	18.62	---
7		---	19.42	18.77	18.71	18.63	18.78	18.68	18.62	18.65	18.65	---
8		---	---	18.75	18.70	18.65	18.65	18.68	18.63	18.67	18.67	18.73
9		---	---	18.76	18.65	18.66	18.64	18.66	18.64	18.69	18.69	18.72
10		---	---	18.76	18.64	18.67	18.64	18.69	18.64	18.70	18.71	18.70
11		---	---	18.75	18.66	18.71	18.63	18.68	18.63	18.70	18.74	18.66
12		---	---	18.73	18.65	18.70	18.63	18.69	18.64	19.86	18.76	18.66
13		---	---	18.73	18.64	18.69	18.64	18.69	18.66	18.20	18.92	18.73
14		---	---	18.75	18.63	18.67	18.62	18.69	18.65	18.21	---	---
15		---	---	18.76	18.64	18.64	18.61	18.69	18.66	18.25	---	---
16		---	---	18.76	18.63	18.65	18.62	18.69	18.68	18.32	---	---
17		---	---	18.76	18.63	18.65	18.62	18.69	18.68	18.45	---	---
18		---	---	18.76	18.64	18.68	18.65	18.70	18.65	18.50	---	---
19		---	---	18.75	18.64	18.67	18.65	18.72	18.58	18.56	---	---
20		19.26	18.72	18.73	18.64	18.65	18.66	18.74	18.55	18.55	---	---
21		19.30	18.71	18.72	18.64	18.66	18.67	18.77	18.53	18.52	---	---
22		19.31	18.70	18.73	18.64	18.69	18.68	18.75	18.58	18.54	---	---
23		19.30	18.70	18.68	18.63	18.69	18.68	18.71	18.56	18.58	---	---
24		19.30	18.72	18.68	18.64	18.69	18.68	18.67	18.49	18.59	---	---
25		19.29	18.72	18.67	18.64	18.69	18.68	18.67	18.50	18.59	---	---
26		19.30	18.72	18.67	18.64	18.70	18.68	18.66	18.56	18.60	---	---
27		19.31	18.71	18.67	18.65	18.70	18.68	18.66	18.58	18.62	---	---
28		19.33	18.70	18.67	18.66	18.70	18.68	18.66	18.61	18.62	---	---
29		19.33	18.70	18.67	---	18.71	18.65	18.68	18.65	18.62	---	---
30		19.34	18.72	18.67	---	18.71	18.65	18.67	18.64	18.61	---	---
31		---	18.73	18.70	---	18.70	---	18.67	---	18.61	---	---
MEAN		---	---	18.73	18.66	18.67	18.66	18.69	18.61	18.61	---	---
MAX		---	---	18.79	18.73	18.71	18.78	18.77	18.70	19.86	---	---
MIN		---	---	18.67	18.63	18.62	18.61	18.65	18.49	18.20	---	---

MARIANA ISLANDS, ISLAND OF SAIPAN

151130145445970. Local number, 14-1144-07 Akgak Well 31.

LOCATION.--Lat 15°11'30" N., long 145°44'59" E., Hydrologic Unit 20100006, 1.2 mi south of Capitol Hill and 2.5 mi north of San Vicente Village. Owner: Government of the Northern Mariana Islands.

AQUIFER.--Tagpochau Limestone.

WELL CHARACTERISTICS.--Drilled perched water-table well, depth 290 ft, diameter 12 in.

DATUM.--Elevation of land-surface datum is 615 ft. Measuring point: Top of casing, 615.37 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 407.97 ft above mean sea level, Dec. 24, 1982; lowest, 371.34 ft above mean sea level, July 21, 1984.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	381.27	385.23	387.68	387.63	386.69	---	384.28	381.46	379.26	378.70	379.05	---
2	381.40	385.28	387.66	387.57	386.68	---	384.33	381.36	379.20	378.69	378.99	---
3	381.55	385.34	387.63	387.55	386.67	---	384.30	381.41	379.16	378.67	378.99	---
4	381.69	385.42	387.60	387.54	386.67	384.07	384.18	381.36	379.09	378.72	379.01	---
5	381.75	385.48	387.58	387.50	386.67	383.99	383.96	381.23	379.04	379.23	379.10	---
6	381.79	385.54	387.56	387.45	386.67	383.90	383.71	381.11	379.00	379.09	379.15	---
7	381.86	385.60	387.44	387.41	386.66	383.85	383.52	380.99	378.98	379.06	379.17	---
8	381.91	385.64	387.35	387.38	386.66	383.74	383.40	380.88	378.98	379.05	379.18	---
9	381.92	385.68	387.28	387.36	386.66	383.63	383.20	380.75	379.01	379.11	379.19	388.59
10	381.94	385.75	387.25	387.35	---	383.55	383.05	380.71	378.99	379.15	379.20	388.82
11	382.01	385.79	387.25	387.31	---	383.50	382.89	380.57	378.97	379.20	379.20	389.07
12	382.16	385.83	387.25	387.26	---	383.39	382.86	380.47	378.97	379.21	379.20	389.33
13	382.32	385.86	387.26	387.25	---	383.28	382.85	380.41	379.08	379.22	379.20	389.61
14	382.91	385.92	387.30	387.24	---	383.19	382.82	380.31	379.42	379.22	379.01	390.34
15	383.18	385.97	387.40	387.20	---	383.13	382.86	380.22	379.37	379.22	379.42	390.94
16	383.43	385.98	387.35	387.15	---	383.14	382.94	380.12	379.19	379.22	---	391.41
17	383.65	385.99	387.32	387.11	---	383.10	382.96	380.05	379.15	379.22	---	391.39
18	383.73	386.13	387.29	387.06	---	382.98	382.91	379.97	379.11	379.22	---	391.65
19	383.79	386.39	387.25	387.04	---	382.85	382.85	379.92	378.93	379.23	---	391.76
20	383.85	386.52	387.25	386.98	---	382.80	382.61	379.89	378.89	379.24	---	392.56
21	384.04	386.60	387.25	386.95	---	382.89	382.47	379.93	378.86	379.24	---	393.74
22	384.25	386.72	387.25	386.90	---	384.09	382.37	380.10	378.83	379.26	---	e394.00
23	384.49	386.85	387.25	386.85	---	385.24	382.30	380.01	378.81	379.20	---	e394.03
24	384.76	386.93	387.25	386.77	---	385.38	382.16	379.84	378.80	379.19	---	e394.08
25	384.93	387.24	387.25	386.74	---	384.69	382.08	379.82	378.78	379.20	---	e394.21
26	384.90	387.46	387.25	386.73	---	384.49	382.10	379.80	378.77	379.15	---	e394.42
27	384.94	387.50	387.37	386.72	---	384.48	381.87	379.70	378.75	379.15	---	e394.48
28	385.03	387.54	387.57	386.71	---	384.20	381.76	379.58	378.73	379.14	---	e394.59
29	385.09	387.60	387.64	386.70	---	384.08	381.65	379.49	378.72	379.14	---	e394.62
30	385.14	387.65	387.65	386.70	---	384.06	381.55	379.40	378.70	379.13	---	e394.72
31	385.20	---	387.65	386.69	---	384.13	---	379.31	---	379.10	---	---
MEAN	383.25	386.25	387.40	387.12	---	---	382.89	380.33	378.98	379.12	---	---
MAX	385.20	387.65	387.68	387.63	---	---	384.33	381.46	379.42	379.26	---	---
MIN	381.27	385.23	387.25	386.69	---	---	381.55	379.31	378.70	378.67	---	---

CAL YR 1985 MEAN 380.38 MAX 387.68 MIN 377.13

e Estimated

MARIANA ISLANDS, ISLAND OF SAIPAN

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

STATION NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE OF SAMPLE	TIME	SPE-CIFIC CON-DUC-TANCE (US/CM)	TEMPER-ATURE (DEG C)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
150723145431170	14-0742-06	15 07 23	145 43 11	03-06-86	0825	4280	28.0	1300
				09-09-86	1720	1660	26.5	360
150737145431070	14-0742-07	15 07 37	145 43 10	06-27-86	1550	4050	28.5	1100
				09-09-86	1705	3400	28.0	850
150732145431270	14-0742-09	15 07 32	145 43 12	03-06-86	1340	6870	28.0	2200
				06-27-86	1600	9120	27.5	2600
150731145430870	14-0742-11	15 07 31	145 43 08	03-06-86	1335	--	28.0	1400
				06-27-86	1555	6110	28.0	1700
150736145425370	14-0742-13	15 07 36	145 42 53	03-06-86	1320	--	28.0	6100
				09-09-86	1715	2200	27.0	530
150732145432070	14-0743-09	15 07 32	145 43 20	06-27-86	1615	19100	32.0	6400
150728145431470	14-0743-10	15 07 28	145 43 14	03-06-86	1350	5230	28.0	1600
				06-27-86	1610	6200	28.0	1800
150730145431370	14-0743-11	15 07 30	145 43 13	03-06-86	1345	5280	27.5	1600
				06-27-86	1605	6490	28.0	1800
				09-09-86	1650	5230	28.0	1500
150730145435270	14-0743-17	15 07 30	145 43 52	03-05-86	1455	835	29.0	150
				06-27-86	1650	1010	28.5	150
				09-09-86	1605	945	30.0	140
150737145440670	14-0743-18	15 07 37	145 44 06	03-05-86	1500	2200	28.5	540
				06-27-86	1705	2480	28.5	600
				09-09-86	1620	2340	28.0	560
150749145434170	14-0743-19	15 07 49	145 43 41	03-05-86	1535	2670	29.0	680
				06-27-86	1740	2950	28.5	720
				09-09-86	1215	2310	30.0	540
150731145440370	14-0743-22	15 07 31	145 44 03	03-05-86	1440	2780	28.5	750
				09-09-86	1610	2780	29.0	700
150738145435870	14-0743-23	15 07 38	145 43 58	03-05-86	1435	1840	29.0	420
				06-27-86	1640	1960	28.5	450
				09-09-86	1555	1880	30.0	420
150743145435470	14-0743-24	15 07 43	145 43 54	03-05-86	1420	2650	29.0	660
				06-27-86	1630	2750	29.0	680
				09-09-86	1545	2930	30.0	750
150733145435970	14-0743-26	15 07 27	145 43 44	03-05-86	1445	1330	28.5	280
				09-09-86	1615	1220	28.0	210

MARIANA ISLANDS, ISLAND OF SAIPAN--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE OF SAMPLE	TIME	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
150731145435270	14-0743-28	15 07 31	145 43 52	03-05-86	1505	3260	28.5	880
				06-28-86	1710	3700	28.5	1000
				09-09-86	1625	3700	28.0	1000
150729145435570	14-0743-29	15 07 29	145 43 55	03-05-86	1510	2440	29.0	600
				06-27-86	1715	2790	28.5	700
				09-09-86	1630	2930	28.0	750
150737145430370	14-0743-30	15 07 37	145 43 03	03-06-86	1325	1310	28.0	290
				06-27-86	1545	2160	29.5	490
150843145434770	14-0843-04	15 08 43	145 43 47	03-05-86	1540	4530	30.0	1300
				06-28-86	1605	5220	30.0	1400
				09-09-86	1220	4820	30.0	1400
150905145435670	14-0943-01	15 09 05	145 43 56	03-05-86	1610	2580	29.0	640
				06-28-86	1555	2460	30.0	590
				09-09-86	1725	3250	26.5	820
151026145454970	14-1045-08	15 10 26	145 45 49	03-06-86	1125	871	28.0	90
				06-28-86	1635	1010	30.0	120
				09-09-86	1345	880	29.5	90
151127145434270	14-1143-02	15 11 27	145 43 42	03-06-86	0905	1570	29.0	400
				06-28-86	1445	1670	29.0	380
				09-09-86	1735	1730	26.0	400
151127145434070	14-1143-05	15 11 27	145 43 40	06-27-86	1440	4950	30.0	1500
151133145445770	14-1144-05	15 11 33	145 44 57	09-09-86	1330	516	28.5	24
151246145443770	14-1244-08	15 12 46	145 44 37	03-05-86	1030	1480	27.5	300
151250145444170	14-1244-09	15 12 50	145 44 41	03-05-86	1050	7260	28.0	2200
151255145443770	14-1244-16	15 12 55	145 44 37	03-05-86	1010	1970	28.0	500
151312145441570	14-1344-14	15 13 12	145 44 15	03-06-86	0935	--	27.5	2200
				09-09-86	1045	6540	29.0	1900
151314145441570	14-1344-15	15 13 14	145 44 15	03-06-86	0945	--	27.5	4000
				09-09-86	1035	10200	29.0	3200
151312145443970	14-1344-17	15 13 12	145 44 39	03-05-86	0930	775	28.0	95
				06-28-86	1815	854	27.0	95
				09-09-86	1000	854	28.5	100
151309145443370	14-1344-19	15 13 09	145 44 33	03-05-86	0950	2660	27.5	700
				06-28-86	1830	2970	27.0	750
				09-09-86	0945	2800	28.5	700

MARIANA ISLANDS, ISLAND OF GUAM

132624144452771. Local number, 18-2645-07 Ordot Well A-20.

LOCATION.--Lat 13°26'24" N., long 144°45'27" E., Hydrologic Unit 20100003, at Ordot School, 1.4 mi west of junction of Routes 4 and 10, Ordot. Owner: Government of Guam.

AQUIFER.--Mariana Limestone and Alutom formation.

WELL CHARACTERISTICS.--Drilled parabasal water-table well, depth reported 120 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 137 ft. Measuring point: Top of casing, 141.74 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, January 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 54.03 ft above mean sea level, Oct. 21, 1980; lowest, 32.76 ft above mean sea level, June 21, 22, 1984.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.05	52.27	49.33	46.84	43.27	40.50	39.61	38.08	38.81	37.78	42.98	50.18
2	49.35	52.28	49.20	46.73	43.15	40.48	39.55	38.07	38.78	37.82	43.14	50.41
3	49.66	52.26	49.09	46.64	43.02	40.51	39.49	38.09	38.74	37.84	43.36	50.60
4	49.90	52.22	48.92	46.57	42.90	40.56	39.43	38.13	38.67	37.78	43.60	50.75
5	50.10	52.19	48.81	46.48	42.78	40.61	39.37	38.21	38.61	37.75	43.78	50.83
6	50.26	52.14	48.67	46.37	42.68	40.68	39.32	38.34	38.59	37.82	44.07	50.92
7	50.36	52.06	48.58	46.25	42.57	40.74	39.26	38.47	38.56	37.98	44.17	50.99
8	50.47	51.92	48.50	46.15	42.43	40.77	39.21	38.59	38.50	38.19	44.24	51.00
9	50.50	51.85	48.48	46.06	42.30	40.78	39.16	38.69	38.44	38.40	44.27	51.00
10	50.60	51.76	48.44	45.95	42.21	40.79	39.10	38.79	38.39	38.65	44.29	51.01
11	50.62	51.66	48.40	45.82	42.09	40.78	39.04	38.85	38.33	38.96	44.28	51.01
12	50.67	51.53	48.36	45.70	41.99	40.77	38.96	38.86	38.27	39.27	44.27	50.97
13	50.73	51.40	48.31	45.59	41.87	40.74	38.90	38.91	38.21	39.58	44.27	50.97
14	50.78	51.31	48.23	45.62	41.77	40.73	38.84	38.93	38.18	39.86	44.29	50.89
15	50.82	51.22	48.15	45.63	41.68	40.69	38.77	38.90	38.13	40.15	44.41	50.84
16	50.93	51.12	48.07	45.52	41.59	40.65	38.72	38.90	38.08	40.42	44.62	50.87
17	51.12	50.98	48.00	45.25	41.48	40.60	38.66	38.87	38.03	40.71	44.87	51.06
18	51.25	50.87	47.89	44.97	41.38	40.54	38.61	38.83	38.01	40.94	45.18	51.14
19	51.36	50.75	47.82	44.84	41.29	40.45	38.57	38.79	37.98	41.14	45.44	51.21
20	51.49	50.65	47.76	44.73	41.20	40.40	38.51	38.75	37.94	41.28	45.68	51.26
21	51.64	50.46	47.69	44.59	41.11	40.34	38.45	38.71	37.90	41.40	45.86	51.29
22	51.79	50.35	47.66	44.49	41.03	40.28	38.40	38.64	37.87	41.56	46.06	51.33
23	51.94	50.25	47.61	44.35	40.96	40.22	38.36	38.60	37.86	41.67	46.22	51.46
24	52.08	50.14	47.56	44.25	40.87	40.15	38.33	38.56	37.83	41.79	46.43	51.56
25	52.15	49.98	47.51	44.12	40.77	40.09	38.29	38.55	37.81	41.97	46.76	51.59
26	52.17	49.92	47.43	44.00	40.71	40.01	38.24	38.56	37.77	42.07	47.28	51.59
27	52.19	49.84	47.35	43.86	40.63	39.93	38.20	38.58	37.74	42.19	47.84	51.60
28	52.20	49.74	47.25	43.74	40.56	39.87	38.16	38.65	37.71	42.32	48.37	51.61
29	52.18	49.63	47.14	43.63	---	39.80	38.13	38.74	37.71	42.52	48.94	51.58
30	52.21	49.47	47.04	43.53	---	39.73	38.10	38.79	37.73	42.67	49.45	51.53
31	52.24	---	46.94	43.40	---	39.67	---	38.81	---	42.81	49.86	---
MEAN	51.06	51.07	48.07	45.22	41.80	40.41	38.79	38.62	38.17	40.17	45.43	51.10
MAX	52.24	52.28	49.33	46.84	43.27	40.79	39.61	38.93	38.81	42.81	49.86	51.61
MIN	49.05	49.47	46.94	43.40	40.56	39.67	38.10	38.07	37.71	37.75	42.98	50.18

WTR YR 1986 MEAN 44.17 MAX 52.28 MIN 37.71

MARIANA ISLANDS, ISLAND OF GUAM

132644144480871. Local number, 18-2648-02 BPM Well 1.

LOCATION.--Lat 13°26'44" N., long 144°48'08" E., Hydrologic Unit 20100003, on lot number 2287, 0.2 mi southeast of junction of Routes 15 and 10, Mangilao. Owner: Ana P. Diaz.

AQUIFER.--Coralline Limestone, probably Miocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth reported 235 ft, casing diameter 12 in.

DATUM.--Elevation of land-surface datum is 210 ft. Measuring point: Top of casing, 209.86, revised, ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, February 1972 to December 1973.
Water level recorder, January 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.45 ft above mean sea level, May 22, 1976; lowest, 1.89 ft above mean sea level, Feb. 11, 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.12	2.77	2.71	2.83	2.84	2.66	2.75	2.64	2.66	2.76	2.82	3.29
2	e3.15	2.77	2.71	2.85	2.86	2.66	2.73	2.64	2.67	2.72	2.83	3.23
3	e3.13	2.78	2.70	2.85	2.88	2.66	2.72	2.64	2.68	2.71	2.86	3.16
4	e3.08	2.77	2.71	2.86	2.88	2.66	2.71	2.64	2.68	2.71	2.87	3.09
5	e3.04	2.77	2.73	2.86	2.86	2.65	2.69	2.65	2.70	2.80	2.88	3.04
6	e2.99	2.81	2.76	2.88	2.83	2.63	2.69	2.63	2.71	2.97	2.88	3.00
7	e2.96	2.84	2.78	2.88	2.81	2.61	2.69	2.62	2.71	3.03	2.86	2.95
8	e2.95	2.84	2.79	2.89	2.81	2.60	2.69	2.61	2.73	3.05	2.86	2.90
9	e2.94	2.82	2.80	2.90	2.80	2.61	2.68	2.60	2.73	3.03	2.88	2.88
10	e2.93	2.83	2.80	2.91	2.79	2.63	2.66	2.58	2.74	2.98	2.89	2.84
11	e2.93	2.84	2.80	2.93	2.77	2.65	2.66	2.59	2.74	2.95	2.85	2.82
12	e2.95	2.85	2.80	2.94	2.76	2.66	2.66	2.59	2.76	2.94	2.85	2.81
13	2.97	2.85	2.80	2.93	2.73	2.66	2.66	2.60	2.76	2.90	2.84	2.80
14	3.03	2.84	2.82	2.93	2.70	2.64	2.65	2.60	2.79	2.88	2.81	2.82
15	3.08	2.83	2.86	2.93	2.69	2.65	2.60	2.59	2.80	2.85	2.76	2.80
16	3.11	2.82	2.88	2.91	2.69	2.66	2.58	2.58	2.80	2.82	2.82	2.84
17	3.11	2.80	2.91	2.88	2.67	2.66	2.54	2.59	2.81	2.81	2.98	2.82
18	3.09	2.75	2.91	2.86	2.66	2.67	2.53	2.61	2.81	2.79	3.07	2.79
19	3.05	2.71	2.90	2.85	2.65	2.68	2.51	2.62	2.81	2.78	3.11	2.75
20	3.01	2.69	2.91	2.85	2.66	2.68	2.51	2.66	2.81	2.77	3.12	2.73
21	2.96	2.67	2.92	2.84	2.66	2.67	2.52	2.70	2.83	2.76	3.11	2.70
22	2.90	2.64	2.91	2.84	2.66	2.68	2.54	2.74	2.82	2.76	3.12	2.68
23	2.88	2.63	2.91	2.84	2.65	2.69	2.55	2.74	2.81	2.75	3.15	2.67
24	2.85	2.63	2.90	2.82	2.65	2.68	2.55	2.71	2.79	2.74	3.18	2.69
25	2.86	2.62	2.88	2.80	2.65	2.68	2.54	2.68	2.80	2.74	3.24	2.69
26	2.85	2.62	2.86	2.78	2.65	2.68	2.54	2.68	2.78	2.76	3.41	2.68
27	2.82	2.64	2.83	2.79	2.65	2.68	2.57	2.68	2.78	2.78	3.51	2.66
28	2.79	2.68	2.82	2.79	2.67	2.72	2.58	2.67	2.78	2.80	3.53	2.66
29	2.80	2.70	2.82	2.80	---	2.75	2.61	2.67	2.78	2.81	3.49	2.62
30	2.79	2.71	2.82	2.80	---	2.76	2.63	2.67	2.78	2.83	3.40	2.59
31	2.78	---	2.81	2.82	---	2.78	---	2.66	---	2.82	3.33	---
MEAN	2.96	2.75	2.82	2.86	2.73	2.67	2.62	2.64	2.76	2.83	3.04	2.83
MAX	3.15	2.85	2.92	2.94	2.88	2.78	2.75	2.74	2.83	3.05	3.53	3.29
MIN	2.78	2.62	2.70	2.78	2.65	2.60	2.51	2.58	2.66	2.71	2.76	2.59

WTR YR 1986 MEAN 2.80 MAX 3.53 MIN 2.51

e Estimated

MARIANA ISLANDS, ISLAND OF GUAM

132824144464271. Local number, 18-2846-01 ACEORP Tunnel.

LOCATION.--Lat 13°28'24" N., long 144°46'42" E., Hydrologic Unit 20100003, behind Navy Telephone Exchange, 0.35 mi southwest of junction of Routes 1 and 14, Tamuning. Owner: U.S. Navy, Public Works Department.

AQUIFER.--Mariana Limestone.

WELL CHARACTERISTICS.--Dug basal water-table well consisting of an inclined shaft, three skimming tunnels, and a large pump room. Tunnels 1 and 2 are 150 ft each and tunnel 3 is 700 ft in length.

DATUM.--Elevation of land-surface datum is 180 ft. Measuring point: Top of wooden recorder shelf, 9.28 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, October 1954 to May 1965, March 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.95 ft above mean sea level, May 22, 1976; lowest, 1.70 ft above mean sea level, Feb. 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.82	2.47	2.43	2.54	2.59	2.53	2.44	e2.32	2.41	2.37	2.54	2.89
2	2.77	2.47	2.41	2.54	2.60	2.50	2.42	e2.32	2.42	2.37	2.58	e2.73
3	2.76	2.46	2.43	2.50	2.59	2.50	2.41	e2.31	2.43	e2.40	2.55	e2.66
4	2.75	2.44	2.41	2.52	2.58	2.47	2.35	e2.32	2.44	e2.51	2.56	e2.62
5	2.67	2.48	2.43	2.58	2.56	2.44	2.40	e2.31	2.44	e2.90	2.57	2.57
6	2.60	2.59	2.48	2.59	2.57	2.41	2.40	e2.37	2.42	e2.90	2.55	2.54
7	2.55	2.58	2.51	2.61	2.59	2.39	2.36	e2.36	2.40	e2.92	2.49	2.50
8	2.54	2.54	2.50	2.64	2.58	2.37	2.33	e2.34	2.41	e2.90	2.47	2.46
9	2.60	2.51	2.48	2.67	2.55	2.44	2.33	e2.33	2.43	e2.80	2.46	2.44
10	2.63	2.52	2.48	2.65	2.56	2.45	2.37	e2.34	2.45	2.66	2.43	2.43
11	2.62	2.55	2.49	2.67	2.54	2.45	2.39	e2.35	2.44	2.63	2.42	2.41
12	2.61	2.57	2.52	2.70	2.53	2.40	2.36	e2.36	2.48	2.62	2.41	2.42
13	2.64	2.58	2.53	2.68	2.49	2.38	2.32	e2.38	2.48	2.57	2.46	2.43
14	2.74	2.54	2.52	2.68	2.54	2.33	2.27	2.37	2.48	2.55	2.50	2.50
15	2.81	2.52	2.55	2.66	2.56	2.34	2.24	2.36	2.48	2.52	2.58	2.54
16	2.83	2.52	2.58	2.63	2.48	2.35	2.23	2.35	2.50	2.48	2.87	2.51
17	2.78	2.48	2.57	2.60	2.43	2.35	2.21	2.35	2.48	2.47	3.01	2.48
18	2.74	2.41	2.63	2.59	2.43	2.36	e2.21	2.37	2.48	2.45	3.04	2.49
19	2.69	2.40	2.64	2.59	2.54	2.37	e2.21	2.40	e2.49	2.44	3.10	2.54
20	2.65	2.37	2.66	2.61	2.50	2.36	e2.21	2.45	e2.49	e2.43	3.02	2.50
21	2.59	2.37	2.63	2.60	2.43	2.36	e2.24	2.51	e2.50	e2.45	3.04	2.45
22	2.54	2.31	2.62	2.56	2.40	2.42	e2.26	2.53	2.50	e2.46	3.14	2.41
23	2.49	2.30	2.63	2.56	2.42	2.42	e2.26	2.50	2.48	e2.46	3.21	2.42
24	2.51	2.33	2.62	2.54	2.40	2.43	e2.25	2.48	2.48	e2.45	3.19	2.42
25	2.50	2.31	2.58	2.50	2.40	2.43	e2.25	2.45	2.49	e2.48	3.28	2.44
26	2.50	2.32	2.59	2.52	2.42	2.48	e2.26	2.47	2.49	2.51	3.44	2.45
27	2.45	2.37	2.59	2.52	2.50	2.55	e2.28	2.47	2.49	2.53	3.36	2.51
28	2.46	2.48	2.58	2.50	2.56	2.55	e2.32	2.46	2.47	2.53	3.18	2.52
29	2.49	2.50	2.53	2.49	---	2.54	e2.32	2.44	2.43	2.51	3.02	2.44
30	2.48	2.46	2.52	2.52	---	2.53	e2.31	2.43	2.39	2.52	2.90	2.40
31	2.47	---	2.56	2.56	---	2.50	---	2.41	---	2.50	2.86	---
MEAN	2.62	2.46	2.54	2.58	2.51	2.43	2.31	2.39	2.46	2.56	2.81	2.50
MAX	2.83	2.59	2.66	2.70	2.60	2.55	2.44	2.53	2.50	2.92	3.44	2.85
MIN	2.45	2.30	2.41	2.49	2.40	2.33	2.21	2.31	2.39	2.37	2.41	2.40

WTR YR 1986 MEAN 2.52 MAX 3.44 MIN 2.21

e Estimated

MARIANA ISLANDS, ISLAND OF GUAM

132813144472771. Local number, 18-2847-12 Barrigada Well 2 (A-16).

LOCATION.--Lat 13°28'13" N., long 144°47'27" E., Hydrologic Unit 20100003, at Carbullido School, 0.6 mi west of junction of Routes 8 and 10, Barrigada. Owner: Public Utility Agency of Guam.

AQUIFER.--Mariana Limestone, probably Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth reported 215 ft, diameter 12 in.

DATUM.--Elevation of land-surface datum is 207 ft. Measuring point: Top of casing, 208.00 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, June 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.71 ft above mean sea level, May 22, 1976; lowest, 2.83 ft above mean sea level, Feb. 11, 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.23	3.68	3.67	3.71	3.65	3.61	3.60	3.42	3.54	3.54	3.71	e4.20
2	4.12	3.68	3.66	3.71	3.65	3.60	3.59	3.41	3.54	3.53	3.82	e4.12
3	4.04	3.68	3.65	3.70	3.65	3.59	3.55	3.40	3.54	3.53	3.82	e4.06
4	4.00	3.67	3.65	3.70	3.65	3.57	3.54	3.44	3.54	3.54	3.80	e4.01
5	3.99	3.68	3.66	3.71	3.65	3.53	3.53	3.47	3.54	4.02	3.80	e3.98
6	3.91	3.73	3.67	3.72	3.64	3.51	3.52	3.47	3.55	4.30	3.79	e3.94
7	3.87	3.76	3.70	3.72	3.64	3.49	3.52	3.47	3.55	4.24	3.76	e3.90
8	3.87	3.77	3.70	3.73	3.64	3.49	3.52	3.46	3.55	4.06	3.75	e3.86
9	3.86	3.74	3.70	3.78	3.63	3.50	3.52	3.43	3.55	3.93	3.72	e3.83
10	3.86	3.73	3.69	3.78	3.63	3.50	3.52	3.41	3.56	3.83	3.69	e3.83
11	3.86	3.74	3.69	3.78	3.63	3.51	3.52	3.42	3.56	3.80	3.68	e3.83
12	3.86	3.75	3.69	3.79	3.62	3.52	3.52	3.42	3.58	3.78	3.68	e3.82
13	3.86	3.77	3.70	3.79	3.60	3.53	3.52	3.43	3.59	3.76	3.68	e3.86
14	3.89	3.77	3.70	3.79	3.60	3.53	3.51	3.42	3.59	3.65	3.68	e3.90
15	3.97	3.76	3.70	3.79	3.61	3.53	3.44	3.42	3.59	3.63	3.69	e3.92
16	4.07	3.76	3.70	3.78	3.59	3.52	3.40	3.41	3.59	3.63	3.93	3.92
17	4.05	3.74	3.70	3.76	3.57	3.52	3.39	3.42	3.59	3.63	4.31	3.85
18	4.04	3.72	3.71	3.74	3.53	3.52	3.39	3.43	3.59	3.63	4.33	3.82
19	3.99	3.68	3.83	3.72	3.57	3.53	3.39	3.44	3.61	3.60	4.30	3.82
20	3.96	3.66	3.84	3.72	3.60	3.53	3.38	3.48	3.62	3.59	4.25	3.80
21	3.92	3.63	3.83	3.72	3.57	3.53	3.39	3.52	3.62	3.63	4.24	3.77
22	3.85	3.61	3.82	3.71	3.52	3.53	3.39	3.58	3.61	3.63	4.27	3.77
23	3.84	3.59	3.82	3.71	3.51	3.54	3.39	3.59	3.61	3.66	4.32	3.77
24	3.81	3.59	3.82	3.71	3.51	3.56	3.38	3.58	3.59	3.68	4.33	3.76
25	3.80	3.58	3.80	3.71	3.50	3.56	3.37	3.54	3.59	3.68	4.53	3.76
26	3.78	3.59	3.79	3.66	3.50	3.57	3.38	3.55	3.60	3.70	4.94	3.76
27	3.71	3.62	3.77	3.64	3.52	3.62	3.39	3.55	3.59	3.71	4.90	3.77
28	3.68	3.66	3.75	3.64	3.61	3.63	3.40	3.54	3.57	3.70	4.77	3.78
29	3.69	3.70	3.75	3.63	---	3.63	3.41	3.54	3.56	3.69	e4.60	3.77
30	3.69	3.69	3.70	3.62	---	3.63	3.41	3.54	3.56	3.70	e4.44	3.76
31	3.68	---	3.70	3.64	---	3.62	---	3.54	---	3.70	e4.24	---
MEAN	3.90	3.69	3.73	3.72	3.59	3.55	3.46	3.48	3.58	3.73	4.09	3.86
MAX	4.23	3.77	3.84	3.79	3.65	3.63	3.60	3.59	3.62	4.30	4.94	4.20
MIN	3.68	3.58	3.65	3.62	3.50	3.49	3.37	3.40	3.54	3.53	3.68	3.76

WTR YR 1986 MEAN 3.70 MAX 4.94 MIN 3.37

e Estimated

MARIANA ISLANDS, ISLAND OF GUAM

132806144481871. Local number, 18-2848-03 Barrigada Exploratory Well Ex-9.

LOCATION.--Lat 13°28'06" N., long 144°48'18" E., Hydrologic Unit 20100003, near P.C. Lujan Elementary School Radio Barrigada. Owner: Government of Guam.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 513 ft, borehole diameter 8 in.

DATUM.--Elevation of land-surface datum is 238 ft. Measuring point: Top of surface casing, 239.41 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, September 1981 to June 1985.
WATER LEVEL: Water-level recorder, July 1985 to current year.
WATER QUALITY: 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.93 ft above mean sea level, Aug. 26, 1986; lowest, measured, 2.29 ft above mean sea level, Feb. 18, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.08	---	---	---	3.06	2.97	2.98	2.85	2.90	2.88	3.00	3.32
2	3.03	---	h2.81	---	3.08	2.95	2.95	2.85	2.92	2.86	3.05	3.26
3	2.99	---	---	---	3.08	2.94	2.94	2.84	2.92	2.87	3.05	3.18
4	2.97	---	---	---	3.06	2.94	2.93	2.86	2.92	2.94	3.03	3.13
5	2.94	---	---	---	3.04	2.91	2.92	2.83	2.94	3.40	3.04	3.10
6	2.87	---	h2.93	---	3.04	2.89	2.92	2.89	2.95	3.43	3.02	3.06
7	2.83	---	---	---	3.04	2.87	2.92	2.87	2.96	3.42	2.98	3.02
8	2.78	---	---	---	3.04	2.86	2.90	2.85	2.95	3.24	2.96	2.98
9	2.81	---	---	---	3.03	2.90	2.88	2.84	2.96	3.21	2.96	2.95
10	2.84	---	---	---	3.01	2.92	2.88	2.83	2.97	3.16	2.94	2.94
11	2.85	---	---	---	2.99	2.93	2.90	2.83	2.99	3.13	2.92	2.94
12	2.88	---	---	---	2.97	2.93	2.89	2.84	3.01	3.11	2.93	2.93
13	2.90	---	---	---	2.96	2.91	2.87	2.85	3.02	3.08	2.96	2.96
14	2.97	h2.97	---	---	2.95	2.87	2.84	2.85	3.03	3.06	2.97	3.01
15	3.05	---	---	---	2.96	2.88	2.80	2.83	3.03	3.03	3.02	3.08
16	3.08	---	---	---	2.93	2.89	2.79	2.83	3.03	3.01	3.28	3.08
17	3.05	---	---	---	2.92	2.89	2.78	2.83	3.03	2.98	3.47	3.00
18	3.02	---	---	---	2.92	2.91	2.74	2.86	3.02	2.96	3.47	3.00
19	2.97	---	---	---	2.93	2.90	2.74	2.85	3.02	2.95	3.47	3.00
20	2.93	---	---	---	2.94	2.90	2.74	2.92	3.04	2.93	3.43	2.97
21	2.88	---	---	---	2.92	2.90	2.78	2.99	3.03	2.95	3.42	2.95
22	2.82	---	---	---	2.90	2.93	2.80	3.00	3.03	2.96	3.48	e2.91
23	---	---	---	---	2.90	2.96	2.80	2.99	3.02	2.96	3.55	e2.91
24	---	---	---	---	2.89	2.96	2.78	2.96	3.00	2.95	3.57	e2.92
25	---	---	---	---	2.89	2.97	2.78	2.95	3.00	2.94	3.68	e2.94
26	---	h2.73	---	---	2.90	2.99	2.80	2.94	3.00	2.97	3.91	e2.95
27	---	---	---	---	2.93	3.02	2.82	2.95	2.99	2.98	3.81	e3.01
28	---	---	---	---	2.98	3.05	2.84	2.94	2.97	2.98	3.71	e3.01
29	---	h2.93	h2.96	---	---	3.05	2.85	2.93	2.93	2.99	3.56	e2.94
30	---	---	---	---	---	3.05	2.84	2.93	2.90	3.00	3.42	e2.98
31	---	---	---	3.05	---	3.05	---	2.91	---	2.99	3.35	---
MEAN	---	---	---	---	2.97	2.94	2.85	2.89	2.98	3.04	3.27	3.01
MAX	---	---	---	---	3.08	3.05	2.98	3.00	3.04	3.43	3.91	3.32
MIN	---	---	---	---	2.89	2.86	2.74	2.83	2.90	2.86	2.92	2.91

e Estimated
h Tape measurement.

MARIANA ISLANDS, ISLAND OF GUAM

132806144481871 - 18-2848-03 BARRIGADA EXP WELL EX-9, GUAM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV					
26...	1000	260	3480	--	950
26...	1040	340	3110	--	800
26...	1125	345	8120	--	2400
26...	1205	350	16500	--	5400
26...	1305	360	28600	--	10000
26...	1350	380	42100	--	16000
26...	1440	400	46800	--	17000
26...	1520	450	49800	--	19000
FEB					
12...	1115	260	3060	29.0	780
12...	1155	340	2800	28.0	700
12...	1225	345	5140	28.0	1400
12...	1255	350	16700	28.0	5500
12...	1325	360	31100	28.0	11000
12...	1355	380	43200	28.0	16000
12...	1430	400	48000	27.0	18000
12...	1505	450	51400	27.0	19000
APR					
07...	1105	260	2820	30.0	700
07...	1140	340	2640	28.5	660
07...	1240	345	7520	28.5	2300
07...	1310	350	17400	28.5	5600
APR					
07...	1345	360	32000	28.0	11000
07...	1410	380	43300	28.0	16000
07...	1440	400	48100	28.0	18000
07...	1515	450	51300	28.0	19000
JUN					
10...	1020	260	2910	28.0	720
10...	1100	340	4860	28.0	1300
10...	1130	345	8710	28.0	2600
10...	1205	350	18000	28.0	5800
10...	1245	360	34300	28.0	12000
10...	1315	380	43700	28.0	16000
10...	1345	400	48600	28.0	17000
10...	1425	450	51500	28.0	19000
AUG					
14...	0920	260	2870	--	720
14...	0950	340	2480	--	600
14...	1020	345	7770	--	2300
14...	1050	350	16800	--	5200
14...	1120	360	29600	--	10000
14...	1155	380	43000	--	16000
14...	1230	400	47000	--	17000
14...	1305	450	51000	--	19000

MARIANA ISLANDS, ISLAND OF GUAM

133032144491871. Local number, 18-3049-03 Harmon Loop School Well M-10A.

LOCATION.--Lat 13°30'32" N., long 144°49'18" E., Hydrologic Unit 20100003, at Harmon Loop School, Dededo. Owner: Public Utility Agency of Guam.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth reported 288 ft, casing diameter 8 in.

DATUM.--Elevation of land-surface datum is 227 ft. Measuring point: Top of casing, 228.62 ft above mean sea level.

REMARKS.--Well was abandoned in 1973 because of oil taste and high iron content.

PERIOD OF RECORD.--Water-level recorder, January 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.61 ft above mean sea level, May 23, 1976; lowest, 1.94 ft above mean sea level, Feb. 10-12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.78	2.54	2.60	2.78	2.81	2.70	e2.80	2.64	2.75	e2.69	e2.82	e2.98
2	2.80	2.53	2.59	2.77	2.81	2.69	e2.78	2.65	2.75	e2.69	e2.81	e2.90
3	2.76	2.53	2.60	2.76	2.82	2.69	e2.74	2.62	2.75	e2.70	e2.81	e2.88
4	2.73	2.52	2.60	2.76	2.82	2.70	e2.72	2.64	2.74	e2.76	e2.82	e2.82
5	2.69	2.53	2.60	2.81	2.81	2.68	e2.69	2.68	2.72	e2.90	e2.83	e2.81
6	2.67	2.55	2.62	2.83	2.80	2.68	e2.69	2.68	2.72	e3.04	e2.81	e2.80
7	2.65	2.64	2.67	2.83	2.82	2.67	e2.68	2.68	2.72	e3.04	e2.81	e2.78
8	2.62	2.64	2.68	2.85	2.82	2.64	e2.68	2.67	2.72	e3.00	e2.80	e2.76
9	2.61	2.62	2.69	e2.88	2.80	2.65	e2.66	2.65	2.72	e2.97	e2.79	e2.73
10	2.62	2.63	2.69	e2.87	2.79	2.66	e2.64	2.64	2.73	e2.94	e2.77	e2.72
11	2.62	2.63	2.70	e2.90	2.78	2.67	e2.66	2.64	2.74	e2.85	e2.77	e2.72
12	2.64	2.64	2.71	e2.91	2.78	2.66	e2.66	2.65	e2.75	e2.84	e2.75	e2.74
13	2.66	2.68	2.72	e2.89	2.76	2.65	e2.66	2.66	e2.76	e2.78	e2.77	e2.74
14	2.68	2.66	2.72	2.87	2.75	2.62	e2.64	2.65	e2.76	e2.76	e2.80	e2.73
15	2.76	2.66	2.73	2.90	2.76	2.59	e2.61	2.64	e2.76	e2.72	e2.83	e2.77
16	2.79	2.65	2.77	2.89	2.75	2.62	e2.58	2.64	e2.77	e2.72	e3.05	e2.79
17	2.79	2.64	2.79	2.88	2.74	2.62	2.54	2.64	e2.77	e2.71	e3.15	e2.80
18	2.79	2.62	2.83	2.87	2.70	2.63	2.55	2.66	e2.76	e2.69	e3.25	e2.86
19	2.77	2.62	2.84	2.87	2.72	2.64	2.53	2.67	e2.77	e2.68	e3.32	e2.89
20	2.75	2.62	2.87	2.88	2.72	2.64	2.52	2.71	e2.76	e2.66	e3.31	e2.87
21	2.71	2.58	2.89	2.86	2.70	2.64	2.55	e2.76	e2.75	e2.66	e3.30	e2.82
22	2.66	2.51	2.89	2.85	2.68	2.65	2.56	e2.79	e2.75	e2.67	e3.45	e2.80
23	2.58	2.50	2.88	2.84	2.69	2.67	2.56	e2.77	e2.75	e2.68	e3.46	e2.78
24	2.58	2.50	2.88	2.84	2.67	2.67	2.57	e2.75	e2.75	e2.70	e3.42	e2.78
25	2.58	2.49	2.85	2.84	2.67	2.71	2.58	2.74	e2.75	e2.72	e3.42	e2.78
26	2.57	2.49	2.84	2.79	2.69	e2.73	2.58	2.74	e2.75	e2.73	e3.44	e2.80
27	2.56	2.50	2.85	2.77	2.69	e2.75	2.62	2.74	e2.74	e2.74	e3.45	e2.82
28	2.56	2.51	2.83	2.76	2.70	e2.78	2.65	2.74	e2.72	e2.76	e3.40	e2.81
29	2.56	2.51	2.81	2.75	---	e2.82	2.65	2.74	e2.71	e2.77	e3.25	e2.78
30	2.56	2.52	2.76	2.76	---	e2.82	2.63	2.74	e2.69	e2.79	e3.13	e2.71
31	2.56	---	2.79	2.78	---	e2.82	---	2.74	---	e2.81	e3.05	---
MEAN	2.67	2.58	2.75	2.83	2.75	2.68	2.63	2.69	2.74	2.78	3.06	2.80
MAX	2.80	2.68	2.89	2.91	2.82	2.82	2.80	2.79	2.77	3.04	3.46	2.98
MIN	2.56	2.49	2.59	2.75	2.67	2.59	2.52	2.62	2.69	2.66	2.75	2.71

WTR YR 1986 MEAN 2.75 MAX 3.46 MIN 2.49

e Estimated

MARIANA ISLANDS, ISLAND OF GUAM

133047144500171. Local number, 18-3049-05 Well M-11.

LOCATION.--Lat 13°30'49" N., long 144°49'58" E., Hydrologic Unit 20100003, at intersection of Harmon Loop School Road and Route 1 at Dededo. Owner: Public Utility Agency of Guam.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth reported 325 ft, casing diameter 8 in.

DATUM.--Elevation of land-surface datum is 294 ft. Measuring point: Top of casing, 295.82 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, July 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.90 ft above mean sea level, Aug. 27, 1986; lowest, 2.46 ft above mean sea level, Feb. 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.25	3.20	3.20	3.38	3.34	3.37	3.38	3.23	3.39	3.51	3.51	4.32
2	4.02	3.19	3.18	3.37	3.36	3.47	3.35	3.23	3.40	3.48	3.54	4.18
3	3.90	3.19	3.19	3.36	3.37	3.51	3.32	3.28	3.40	3.47	3.51	4.04
4	3.84	3.18	3.19	3.35	3.37	3.48	3.29	3.39	3.39	3.48	3.52	3.92
5	3.74	3.18	3.19	3.39	3.35	3.43	3.29	3.59	3.39	3.83	3.53	3.83
6	3.62	3.26	3.19	3.40	3.37	3.38	3.29	3.73	3.39	5.26	3.57	3.77
7	3.54	3.29	3.19	3.42	3.40	3.34	3.28	3.65	3.40	5.19	3.58	3.69
8	3.47	3.28	3.20	3.45	3.39	3.30	3.26	3.56	3.40	4.57	3.56	3.62
9	3.45	3.25	3.24	3.46	3.37	3.31	3.24	3.48	3.41	4.23	3.53	3.57
10	3.45	3.25	3.30	3.45	3.35	3.32	3.26	3.43	3.41	4.03	3.51	3.55
11	3.44	3.28	3.33	3.45	3.34	3.33	3.27	3.40	3.42	3.92	3.49	3.51
12	3.38	3.30	3.33	3.47	3.31	3.32	3.26	3.39	3.43	3.86	3.47	3.48
13	3.39	3.31	3.35	3.47	3.28	3.29	3.24	3.38	3.44	3.78	3.46	3.46
14	3.44	3.29	3.36	3.46	3.28	3.28	3.21	3.37	3.44	3.72	3.51	3.43
15	3.49	3.28	3.37	3.44	3.31	3.26	3.19	3.35	3.44	3.68	3.61	3.44
16	3.52	3.27	3.39	3.42	3.28	3.28	3.16	3.34	3.45	3.64	3.91	3.45
17	3.57	3.26	3.39	3.40	3.24	3.32	3.14	3.34	3.45	3.61	4.90	3.58
18	3.59	3.21	3.42	3.38	3.22	3.30	3.12	3.38	3.44	3.60	5.01	3.66
19	3.57	3.17	3.44	3.37	3.28	3.29	3.11	3.43	3.44	3.57	4.82	3.72
20	3.55	3.14	3.45	3.38	3.28	3.29	3.11	3.46	3.45	3.53	4.63	3.70
21	3.49	3.13	3.45	3.37	3.24	3.27	3.14	3.51	3.45	3.52	4.50	3.65
22	3.43	3.11	3.44	3.36	3.21	3.29	3.15	3.53	3.44	3.49	4.50	3.61
23	3.35	3.09	3.45	3.34	3.23	3.31	3.16	3.53	3.43	3.49	4.45	3.59
24	3.33	3.09	3.45	3.33	3.22	3.32	3.15	3.50	3.42	3.49	4.42	3.59
25	3.30	3.08	3.43	3.30	3.23	3.34	3.15	3.47	3.43	3.49	4.84	3.59
26	3.29	3.08	3.43	3.30	3.25	3.36	3.18	3.47	3.42	3.48	6.13	3.60
27	3.26	3.11	3.42	3.30	3.26	3.41	3.20	3.47	3.41	3.48	6.73	3.62
28	3.23	3.18	3.40	3.29	3.28	3.44	3.25	3.46	3.39	3.48	6.06	3.62
29	3.22	3.23	3.38	3.28	---	3.43	3.26	3.45	3.46	3.48	5.25	3.58
30	3.21	3.22	3.35	3.28	---	3.43	3.24	3.43	3.52	3.50	4.77	3.49
31	3.20	---	3.36	3.32	---	3.41	---	3.41	---	3.50	4.47	---
MEAN	3.50	3.20	3.34	3.38	3.30	3.35	3.22	3.44	3.42	3.75	4.27	3.66
MAX	4.25	3.31	3.45	3.47	3.40	3.51	3.38	3.73	3.52	5.26	6.73	4.32
MIN	3.20	3.08	3.18	3.28	3.21	3.26	3.11	3.23	3.39	3.47	3.46	3.43

CAL YR 1985 MEAN 3.31 MAX 4.25 MIN 3.05
WTR YR 1986 MEAN 3.49 MAX 6.73 MIN 3.08

MARIANA ISLANDS, ISLAND OF GUAM

133119144491771. Local number, 18-3149-05 Wettengel Exploratory Well Ex-7.

LOCATION.--Lat 13°31'19" N., long 144°49'17" E., Hydrologic Unit 20100003, 200 ft east of junction of Routes 1 and 3, Wettengel. Owner: Government of Guam.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 698 ft, borehole diameter 8 in., casing diameter 6 in., cased to 10 ft.

DATUM.--Elevation of land-surface datum is 283 ft. Measuring point: Top of 6-inch diameter surface casing, 283.31 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, August 1981 to May 1983.
Water-level recorder, June 1983 to current year.
WATER QUALITY: 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.00 ft above mean sea level, Aug. 22, 1986; lowest, 2.78 ft above mean sea level, June 6, 7, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.20	3.11	3.10	3.25	3.31	3.19	3.24	3.12	3.18	3.23	3.34	3.63
2	3.20	3.11	3.09	3.25	3.32	3.17	3.21	3.11	3.19	3.23	3.35	3.56
3	3.21	3.10	3.10	3.23	3.32	3.18	3.21	3.10	3.19	3.23	3.34	3.48
4	3.25	3.09	3.09	3.24	3.31	3.17	e3.20	3.11	3.19	3.28	3.34	3.43
5	3.20	3.11	3.10	3.30	3.29	3.15	e3.18	3.14	3.20	3.44	3.37	3.39
6	3.16	3.20	3.13	3.31	3.33	3.14	3.19	3.15	3.21	3.47	3.36	3.35
7	3.13	3.21	3.18	3.33	3.37	3.12	3.18	3.14	3.23	3.47	3.33	3.32
8	3.11	3.20	3.19	3.36	3.33	3.09	3.16	3.13	3.23	3.42	3.30	3.28
9	e3.12	3.18	3.16	3.38	3.29	3.14	3.15	3.10	3.24	3.37	3.29	3.27
10	e3.17	3.19	3.15	3.37	3.28	3.15	3.16	3.09	3.25	3.35	3.27	3.26
11	e3.17	3.21	3.17	3.39	3.27	3.15	3.17	3.08	3.26	3.33	3.26	3.23
12	e3.21	3.23	3.19	3.41	3.24	3.13	3.16	3.10	3.27	3.33	3.24	3.23
13	e3.24	3.24	3.19	3.40	3.23	3.10	3.14	3.12	3.28	3.31	3.28	3.24
14	e3.30	3.22	3.21	3.38	3.24	3.07	3.11	3.11	3.30	3.28	3.32	3.26
15	e3.33	3.21	3.24	3.35	3.26	3.07	3.09	3.10	3.31	3.26	3.41	3.26
16	3.32	3.20	3.26	3.34	3.22	3.08	3.07	3.09	3.32	3.23	3.55	3.25
17	3.29	3.18	3.26	3.33	3.17	3.08	3.06	3.10	3.33	3.22	3.67	3.28
18	3.29	3.12	3.30	3.31	3.16	3.10	3.03	3.13	3.33	3.21	3.75	3.35
19	3.30	3.08	3.32	3.30	3.24	3.12	3.02	3.15	3.34	3.20	3.85	3.40
20	3.30	3.06	3.35	3.32	3.23	3.11	3.03	3.19	3.33	3.19	3.83	3.36
21	3.24	3.06	3.36	3.30	3.17	3.11	3.06	3.24	3.34	3.19	3.82	3.32
22	3.19	3.04	3.35	3.27	3.15	3.14	3.07	3.27	3.34	3.19	3.96	3.26
23	3.14	3.02	3.35	3.26	3.16	3.17	3.08	3.26	3.33	3.22	3.97	3.26
24	3.14	3.03	3.34	3.26	3.15	3.19	3.06	3.24	3.32	3.24	3.94	3.26
25	3.14	3.00	3.30	3.24	3.15	3.20	3.05	3.21	3.33	3.24	3.94	3.27
26	3.17	3.02	3.31	3.25	3.17	3.25	3.07	3.22	3.33	3.26	3.96	3.30
27	3.13	3.06	3.31	3.25	3.19	3.30	3.09	3.22	3.31	3.27	3.97	3.34
28	3.12	3.15	3.29	3.25	3.21	3.31	3.11	3.21	3.28	3.28	3.92	3.35
29	3.12	3.17	3.25	3.23	---	3.30	3.12	3.20	3.26	3.29	3.82	3.29
30	3.12	3.15	3.23	3.26	---	3.28	3.11	3.20	3.24	3.31	3.73	3.22
31	3.11	---	3.25	3.28	---	3.27	---	3.19	---	3.32	3.67	---
MEAN	3.20	3.13	3.23	3.30	3.24	3.16	3.12	3.16	3.28	3.29	3.59	3.32
MAX	3.33	3.24	3.36	3.41	3.37	3.31	3.24	3.27	3.34	3.47	3.97	3.63
MIN	3.11	3.00	3.09	3.23	3.15	3.07	3.02	3.08	3.18	3.19	3.24	3.22

WTR YR 1986 MEAN 3.25 MAX 3.97 MIN 3.00

e Estimated

MARIANA ISLANDS, ISLAND OF GUAM

133119144491771 - 18-3149-05 WETTENGEL EXP WELL EX-7, GUAM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT					
19...	1250	290	3360	27.0	900
19...	1330	390	3160	27.0	820
19...	1415	410	3280	26.5	850
19...	1500	415	3590	26.5	950
19...	1515	420	33500	26.5	12000
19...	1630	430	44500	26.5	17000
DEC					
09...	1105	290	3040	27.5	750
09...	1145	390	2850	27.0	700
09...	1220	410	2904	27.0	720
09...	1255	415	23500	27.0	8000
09...	1330	420	39520	27.0	14000
09...	1405	430	43820	27.5	16000
FEB					
03...	1245	290	3000	24.4	780
03...	1325	390	2820	24.5	700
10...	1305	290	3110	27.5	780
10...	1340	390	2880	27.0	720
10...	1415	410	16400	27.0	5400
10...	1445	415	34700	27.0	13000
10...	1520	420	37100	27.0	14000
10...	1600	430	42500	26.5	16000
APR					
05...	1000	330	2990	27.5	780
05...	1035	390	2970	27.0	780
05...	1110	410	19600	27.0	6500
05...	1150	415	34400	27.0	12000
05...	1225	420	39700	27.0	14000
05...	1305	430	44400	27.0	16000
JUN					
06...	1050	290	3460	27.5	920
06...	1130	390	3150	27.5	820
06...	1200	410	20600	27.0	6800
06...	1235	415	35000	27.0	12000
06...	1305	420	39700	27.0	14000
06...	1335	430	44500	27.0	16000
06...	1410	450	48900	27.0	18000
AUG					
15...	0905	290	3890	27.0	1000
15...	0940	390	3350	27.0	880
15...	1010	410	3340	27.0	880
15...	1045	415	6170	27.0	1800
15...	1115	420	34900	26.5	12000
15...	1145	430	46500	26.5	17000
15...	1225	450	49000	26.5	17000

MARIANA ISLANDS, ISLAND OF GUAM

133224144495271. Local number, 18-3249-02 Finegayan Exploratory Well Ex-10.

LOCATION.--Lat 13°32'24" N., long 144°49'52" E., Hydrologic Unit 20100003, near NAVCAMS Housing area.
Owner: Government of Guam.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 704.5 ft, uncased hole diameter 8 in.

DATUM.--Elevation of land-surface datum is 348 ft. Measuring point: Top of surface casing, 348.54 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, September 1981 to May 1984.
Water-level recorder, June 1984 to current year.
WATER QUALITY: 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.59 ft above mean sea level, Aug. 22, 1986; lowest measured, 1.97 ft above mean sea level, Feb. 24, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.68	2.58	2.65	2.83	2.92	e2.81	2.88	2.76	2.85	2.83	2.94	3.02
2	2.67	2.58	2.64	2.83	2.92	e2.80	2.88	2.75	2.85	2.81	2.94	2.97
3	2.70	2.58	2.65	2.81	2.93	e2.81	2.86	2.75	2.85	2.83	2.92	2.87
4	2.74	2.57	e2.62	2.83	2.92	e2.80	2.84	2.77	2.88	2.90	2.92	2.81
5	2.67	2.59	e2.61	2.90	2.89	e2.78	2.84	2.80	2.87	3.05	2.97	2.79
6	2.62	2.69	e2.60	2.90	2.93	e2.75	2.86	2.79	2.87	3.01	2.93	2.75
7	2.59	2.69	e2.66	2.93	2.97	e2.73	2.84	2.79	2.87	2.98	2.89	2.71
8	2.57	2.67	e2.67	2.96	2.93	e2.71	2.82	2.77	2.89	2.96	2.84	2.68
9	2.61	2.66	e2.66	2.98	2.89	e2.74	2.80	2.75	2.91	2.92	2.81	2.66
10	2.63	2.67	e2.68	2.95	2.88	e2.74	e2.82	2.73	2.92	2.94	2.79	2.65
11	2.64	2.70	e2.68	2.99	2.86	e2.74	e2.81	2.75	2.93	2.90	2.78	2.64
12	2.68	2.72	e2.72	3.00	2.86	2.74	2.81	2.77	2.95	2.90	2.77	2.63
13	2.71	2.72	e2.72	2.99	2.82	2.73	2.78	2.75	2.94	2.87	2.84	2.67
14	2.78	2.68	e2.75	2.97	2.85	2.68	2.75	2.76	2.94	2.86	2.88	2.67
15	2.82	2.66	e2.78	2.95	2.88	2.71	2.73	2.76	2.95	2.86	2.99	2.67
16	2.81	2.66	e2.80	2.93	2.81	2.73	2.72	2.75	2.96	2.84	3.08	2.67
17	2.79	2.64	e2.80	2.91	2.77	2.73	2.69	2.76	2.97	2.83	3.22	2.71
18	2.79	2.58	e2.84	2.89	2.77	2.77	2.67	2.79	e2.96	2.82	3.29	2.78
19	2.75	2.57	e2.86	2.89	2.87	2.77	2.66	2.82	e2.95	2.80	3.40	2.83
20	2.75	2.55	e2.88	2.91	2.84	2.75	2.70	2.88	e2.96	2.78	3.34	2.78
21	2.66	2.55	e2.90	2.89	2.76	2.77	2.74	2.95	e2.96	2.80	3.41	2.73
22	2.62	2.53	e2.89	2.85	2.76	2.81	2.75	2.95	e2.95	2.80	3.54	2.67
23	2.57	2.52	e2.89	2.85	2.77	2.85	2.74	2.94	e2.94	2.83	3.53	2.68
24	2.59	2.53	e2.88	2.84	2.76	2.85	2.73	2.90	e2.94	2.84	3.46	2.70
25	2.60	2.53	e2.84	2.81	2.76	2.86	2.74	2.88	e2.92	2.84	3.42	2.73
26	2.63	2.53	e2.85	2.84	e2.78	2.91	2.75	2.90	e2.92	2.86	3.39	2.77
27	2.59	2.59	e2.85	2.82	e2.80	2.99	2.79	2.88	2.92	2.88	3.35	2.82
28	2.58	2.72	e2.84	2.81	e2.82	3.00	2.78	2.86	2.90	2.89	3.23	2.81
29	2.58	2.72	e2.82	2.82	---	2.98	2.79	2.85	2.86	2.89	3.12	2.73
30	2.58	2.68	2.81	2.84	---	2.96	2.76	2.85	2.84	2.91	3.04	2.64
31	2.57	---	2.85	2.87	---	2.93	---	2.83	---	2.91	3.01	---
MEAN	2.66	2.62	2.76	2.89	2.85	2.80	2.78	2.81	2.91	2.88	3.10	2.74
MAX	2.82	2.72	2.90	3.00	2.97	3.00	2.88	2.95	2.97	3.05	3.54	3.02
MIN	2.57	2.52	2.60	2.81	2.76	2.68	2.66	2.73	2.84	2.78	2.77	2.63

WTR YR 1986 MEAN 2.82 MAX 3.54 MIN 2.52

e Estimated.

MARIANA ISLANDS, ISLAND OF GUAM

133224144495271 - 18-3249-02 FINEGAYAN EXP WELL EX-10, GUAM--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
DEC					
04...	1010	365	764	--	80
04...	1045	400	1160	--	210
04...	1120	430	1240	--	1240
04...	1200	450	4500	--	4500
04...	1240	460	19400	--	6400
04...	1315	470	35400	--	12000
04...	1355	480	50300	--	19000
FEB					
14...	1125	365	804	27.5	82
14...	1200	400	1140	27.5	200
14...	1235	430	1180	27.5	220
14...	1310	450	4550	27.5	1200
14...	1350	460	18500	27.0	6100
14...	1430	470	35000	27.0	12000
14...	1510	480	48000	27.0	18000
APR					
11...	0815	365	697	27.5	70
11...	0850	400	1060	27.5	132
11...	0920	430	1120	27.0	200
11...	0955	450	4420	27.0	1200
APR					
11...	1030	460	18200	27.0	5900
11...	1105	470	35000	27.0	12000
11...	1140	480	47600	27.0	17000
JUN					
26...	0850	365	668	27.0	47
26...	0930	400	996	27.0	160
26...	1010	430	1080	27.0	190
26...	1045	450	4510	26.5	1200
26...	1130	460	17700	26.5	5800
26...	1205	470	34800	26.5	12000
26...	1245	480	47500	26.5	17000
AUG					
16...	1040	365	566	27.0	34
16...	1110	400	959	26.5	160
16...	1145	430	1015	26.5	170
16...	1220	450	4000	26.5	1100
16...	1250	460	3880	26.5	1000
16...	1330	470	26300	26.5	8800
16...	1405	480	43400	26.5	16000

132615144470571. Local number, 18-2647-01 Father Duenas Well.

LOCATION.--Lat 13°26'15" N., long 144°47'05" E., Hydrologic Unit 20100003, at Father Duenas Memorial School, Chalan Pago-Ordot. Owner: Government of Guam.

AQUIFER.--Mariana Limestone.

WELL CHARACTERISTICS.--Drilled parabasal water-table well, casing diameter 8 in.

DATUM.--Elevation of land-surface datum is 179 ft. Measuring point: Top of casing, 179.86 ft above mean sea level.

PERIOD OF RECORD.--Occational measurements, March 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.37 ft above mean sea level, Oct. 24, 1980; lowest measured, 6.08 ft above mean sea level, Aug. 5, 1980.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	9.07	DEC 27	8.04	MAR 14	7.39	MAY 6	6.38	JUN 30	7.19	AUG 8	7.99
DEC 5	8.09	JAN 31	7.68	31	7.50	28	7.35				

MARIANA ISLANDS, ISLAND OF GUAM

132626144471771. Local number, 18-2647-12 Exploratory Well Ex-4.

LOCATION.--Lat 13°26'26" N., long 144°47'17" E., Hydrologic Unit 20100003, in Tai Mangilao near Father Duenas Memorial High School. Owner: Government of Guam.

AQUIFER.--Argillaceous member of the Marianas Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 400 ft, borehole diameter 8 in., casing diameter 6 in., cased to 400 ft.

DATUM.--Elevation of land-surface datum is 152 ft. Measuring point: Top of casing, 153.71 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, March 1981 to April 1982, February 1983 to current year.
Water-level recorder, May to November 1982.
WATER QUALITY: 1981, 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.86 ft above mean sea level, Sept. 2, 1986; lowest, measured, 4.82 ft above mean sea level, Aug. 23, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	7.33	DEC 5	6.22	MAR 5	5.57	MAY 28	5.48	JUL 31	5.99	SEP 2	8.86
NOV 5	7.12	DEC 27	6.21	MAR 31	5.57	MAY 29	5.46	AUG 8	6.42	SEP 24	7.24
DEC 3	6.22	JAN 31	5.82	APR 30	5.31	JUN 30	6.47				

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV					
05...	1130	170	790	27.5	80
05...	1255	340	717	27.5	56
05...	1350	350	725	27.5	57
05...	1445	360	715	27.5	56
05...	1530	370	711	27.5	55
05...	1610	380	719	27.0	55
05...	1655	390	690	27.0	54
DEC					
03...	0945	170	765	27.5	55
03...	1015	340	903	27.5	100
03...	1045	350	974	27.5	120
03...	1115	360	988	27.0	120
03...	1150	370	1120	27.0	160
03...	1220	380	13580	27.0	4400
03...	1250	390	23960	27.0	8200
JAN					
31...	1020	170	820	28.0	70
31...	1100	340	1960	28.0	420
31...	1130	350	2370	28.0	550
31...	1205	360	2530	28.0	600
31...	1235	370	2530	28.0	600
31...	1305	380	20400	28.0	6900
31...	1340	390	37700	28.0	14000
MAR					
28...	0850	170	746	27.5	42
28...	0925	340	2970	27.0	800
28...	0955	350	3730	27.0	1100
28...	1030	360	3740	27.0	1100
MAR					
28...	1100	370	6890	27.0	2000
28...	1130	380	22800	26.5	7800
28...	1210	290	39000	26.5	14000
MAY					
29...	0935	170	774	27.0	52
29...	1000	340	2920	27.0	950
29...	1035	350	3680	27.0	950
29...	1140	370	7420	27.0	2200
29...	1105	360	5010	27.0	1400
29...	1210	380	26400	27.0	9000
29...	1240	390	41800	27.0	15000
AUG					
08...	1030	170	903	--	100
08...	1100	340	745	--	62
08...	1130	350	743	--	55
08...	1210	360	744	--	58
08...	1240	370	752	--	58
08...	1310	380	876	--	98
08...	1335	390	3750	--	14000
SEP					
24...	1030	170	752	27.5	65
24...	1105	340	725	27.0	62
24...	1140	350	723	27.0	60
24...	1210	360	724	27.0	55
24...	1245	370	726	27.0	56
24...	1315	380	722	27.0	55
24...	1345	390	727	27.0	55

MARIANA ISLANDS, ISLAND OF GUAM

132758144450571. Local number, 18-2745-03 Agana Well 147.

LOCATION.--Lat 13°27'58" N., long 144°45'05" E., Hydrologic Unit 20100003, on Route 4, 0.6 mi south of junction of Routes 1 and 4 in Agana. Owner: Government of Guam.

AQUIFER.--Mariana Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth when drilled, 186 ft, when measured in May 1973, 29 ft, casing diameter 6 in.

DATUM.--Elevation of land-surface datum is 33 ft. Measuring point: Top of casing, 33.22 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, August 1955 to May 1960, January 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.42 ft above mean sea level, Oct. 14, 1955; lowest measured, 6.83 ft above mean sea level, June 20, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	12.56	JAN 31	11.59	MAR 31	11.10	MAY 28	10.62	JUL 31	12.81
DEC 5	11.98	MAR 5	11.30	APR 30	11.16	JUN 30	10.41	SEP 2	13.76
DEC 27	11.90								

132742144452971. Local number, 18-2745-07 Agana Springs.

LOCATION.--Lat 13°27'42" N., long 144°45'29" E., Hydrologic Unit 20100003, near Sinajana on the edge of Agana Swamp.

AQUIFER.--Mariana Limestone.

WELL CHARACTERISTICS.--Basal ground water issues from an opening in the Mariana Limestone. The water level is measured in a pool with a concrete spillway.

DATUM.--Elevation of land-surface datum is 10 ft. Measuring point: Edge of concrete spillway, 8.80 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, April 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Lowest water level measured, 6.04 ft above mean sea level, June 8, 1984.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	f	DEC 27	f	MAR 5	f	APR 30	f	JUN 30	8.18	SEP 2	8.80
DEC 5	f	JAN 31	f	MAR 31	f	MAY 28	8.51	JUL 31	8.80		

f Water overflowing spillway.

MARIANA ISLANDS, ISLAND OF GUAM

132736144461671. Local number, 18-2746-06 Chochogo Well Ex-1.

LOCATION.--Lat 13°27'36" N., long 144°46'16" E., Hydrologic Unit 20100003, near San Miguel School, Chochogo.

AQUIFER.--Mariana Limestone: Agana argillaceous member.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 597 ft, casing diameter 6 in, cased to 300 ft.

DATUM.--Elevation of land-surface datum is 94 ft. Measuring point: Top of PVC casing, 96.50 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, November 1980 to current year.
WATER QUALITY: 1981, 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.24 ft above mean sea level, Sept. 2, 1986; lowest measured, 6.14 ft above mean sea level, June 22, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	9.68	NOV 14	8.47	JAN 16	7.66	MAR 31	7.01	MAY 28	7.07	AUG 10	8.05
OCT 8	9.58	DEC 5	7.98	JAN 31	7.35	APR 2	6.96	JUN 30	6.92	SEP 2	10.24
NOV 1	9.01	DEC 27	8.00	MAR 5	7.45	APR 30	7.36	JUL 31	8.03	SEP 27	8.88
NOV 13	8.50	JAN 15	7.64								

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT					
07...	1000	110	690	27.5	32
07...	1030	200	679	27.5	34
07...	1200	250	687	26.5	34
07...	1230	270	687	26.5	34
07...	1300	300	692	27.0	35
07...	1330	330	19750	27.0	6400
07...	1410	340	20140	27.0	6500
07...	1520	350	21850	27.0	7100
08...	1100	365	22500	27.0	7500
08...	1240	400	30700	26.5	11000
08...	1345	450	31200	26.5	12000
08...	1430	550	44000	26.5	17000
NOV					
13...	0925	110	734	27.5	36
13...	1000	200	701	--	37
13...	1030	250	695	--	37
13...	1105	270	702	--	39
13...	1145	300	7140	--	2100
13...	1225	330	18900	--	6000
13...	1305	340	21500	--	7100
13...	1345	350	23500	--	7900
13...	1135	375	31900	--	11000
14...	1220	400	34600	--	12000
14...	1300	450	42600	--	16000
14...	1405	550	46300	--	17000
JAN					
15...	1020	110	695	28.0	36
16...	1125	240	1630	27.5	310
15...	1045	250	1640	27.5	310
15...	1145	300	11600	27.5	3600
15...	1220	330	18600	27.0	6200
15...	1250	340	23000	27.0	7800
15...	1325	350	26300	27.0	9200
15...	1405	375	34700	27.0	13000
15...	1440	400	38000	27.0	14000
16...	1200	450	47900	27.5	18000
16...	1245	550	48000	27.0	18000
APR					
02...	0830	110	881	27.0	100
02...	0855	250	2224	26.5	520
02...	0955	300	14300	26.5	4500
02...	1100	330	20100	26.5	6600
APR					
02...	1130	340	24600	26.5	8400
02...	1205	350	29800	26.5	10000
02...	1345	375	39600	26.5	14000
02...	1420	400	46300	26.5	17000
02...	1455	450	47900	26.5	18000
02...	1545	550	48200	26.5	18000
MAY					
28...	0810	110	707	27.0	42
28...	0835	250	2180	27.0	500
28...	0935	300	14800	26.5	4800
28...	1005	330	21400	26.5	7100
28...	1040	340	25900	26.5	8800
28...	1115	350	30000	26.5	10000
28...	1145	375	38700	26.5	14000
28...	1225	400	44900	26.5	16000
28...	1300	450	48900	26.5	18000
28...	1340	550	49800	26.5	18000
AUG					
10...	0725	110	814	27.0	70
10...	0750	250	693	27.0	40
10...	0815	270	703	27.0	40
10...	0840	300	9700	27.0	3000
10...	0905	330	21100	27.0	6800
10...	0940	340	25100	27.0	8200
10...	1010	350	26400	27.0	8800
10...	1040	375	33600	26.5	12000
10...	1145	400	36800	27.0	13000
10...	1220	450	45700	27.0	16000
10...	1300	550	47700	27.0	18000
SEP					
27...	0755	110	1060	27.0	140
27...	0755	250	703	27.0	38
27...	0755	270	695	27.0	36
27...	0755	300	745	27.0	55
27...	0755	330	17700	27.0	5600
27...	0755	340	18000	27.0	5600
27...	0755	350	21500	27.0	7000
27...	0755	375	28000	27.0	9100
27...	0755	400	33200	27.0	11000
27...	0755	450	36500	27.0	13000
27...	0755	550	45300	27.0	16000

MARIANA ISLANDS, ISLAND OF GUAM

133034144500871. Local number, 18-3050-05 Macheche Rd. Well Ex-6.

LOCATION.--Lat 13°30'34" N., long 144°50'08" E., Hydrologic Unit 20100003, in Macheche area, Dededo.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 407 ft, uncased hole diameter 12 in. Well deepened to 462 ft on Aug. 7, 1981.

DATUM.--Elevation of land-surface datum is 309 ft. Measuring point: Top of surface casing, 309.41 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, February 1978 to current year.
WATER QUALITY: 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.09 ft above mean sea level, Aug. 16, 1978; lowest measured, 2.61 ft above mean sea level, Feb. 2, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	2.98	DEC 27	3.24	MAR 5	3.25	APR 30	3.24	JUN 6	3.38	SEP 2	3.67
NOV 7	3.07	JAN 6	3.27	MAR 31	3.37	MAY 28	3.37	JUL 31	3.35	SEP 25	3.22
DEC 5	3.05	JAN 31	3.23	APR 4	3.24	JUN 5	3.35	AUG 13	3.31		

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV					
07...	1010	330	405	26.0	13
07...	1100	430	454	26.0	33
07...	1150	440	22700	26.0	7900
07...	1240	445	41100	26.0	15000
07...	1335	450	48000	26.0	19000
07...	1420	455	49200	26.0	19000
JAN					
06...	1115	330	409	27.0	14
06...	1155	430	400	27.0	15
06...	1235	440	10700	27.0	3500
06...	1315	445	40300	27.0	15000
06...	1350	450	48600	27.0	18000
06...	1430	455	50000	26.5	19000
APR					
04...	0955	330	487	26.5	42
04...	1035	430	401	26.5	16
04...	1155	440	1070	26.5	220
04...	1240	445	27900	26.5	14000
04...	1320	450	47800	26.0	18000
04...	1400	455	50000	26.0	18000
JUN					
05...	1235	330	556	27.5	59
05...	1315	430	402	27.0	18
05...	1355	440	399	26.5	17
05...	1430	445	37700	26.5	14000
05...	1510	450	47400	26.5	17000
05...	1545	455	49300	26.5	18000
AUG					
13...	0905	330	723	26.5	110
13...	0945	430	397	26.5	20
13...	1020	440	393	26.5	15
13...	1055	445	26500	26.5	13000
13...	1135	450	46800	26.5	17000
13...	1210	455	49700	26.5	18000
SEP					
25...	1010	330	394	27.0	10
25...	1050	430	391	26.5	11
25...	1125	440	390	26.5	12
25...	1240	450	45100	26.5	16000
25...	1315	455	48800	26.5	18000

MARIANA ISLANDS, ISLAND OF GUAM

133115144484971. Local number, 18-3148-02 Harmon Well 1 (107).

LOCATION.--Lat 13°31'15" N., long 144°48'49" E., Hydrologic Unit 20100003, 500 ft north of junction of Routes 1 and 16, Dededo. Owner: Government of Guam.

AQUIFER.--Mariana Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 289 ft, diameter 10 in.

DATUM.--Elevation of land-surface datum is 268 ft. Measuring point: Top of casing, 267.96 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder: March 1973 to May 1983.
Occasional measurements: June 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.34 ft above mean sea level, May 22, 1976; lowest, 1.84 ft above mean sea level, Feb. 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	2.33	DEC 27	2.69	MAR 5	2.67	APR 30	2.41	JUN 30	2.72	SEP 2	2.96
DEC 5	2.46	JAN 31	2.66	MAR 31	2.91	MAY 28	2.86	JUL 31	2.70		

MARIANA ISLANDS, ISLAND OF GUAM

133120144505471. Local number, 18-3150-10 Ghura-Dededo Monitoring Well.

LOCATION.--Lat 13°31'20" N., long 144°50'54" E., Hydrologic Unit 20100003, in the Dededo Well Field, PUAG, Dededo. Owner: Government of Guam.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 785 ft, uncased hole diameter 12 in.

DATUM.--Elevation of land-surface datum is 393 ft. Measuring point: Top of surface casing, 393.90 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Water-level recorder, November 1982 to February 1983.
Occasional measurements, March 1980 to August 1982, March 1983 to current year.
WATER QUALITY: 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.58 ft above mean sea level, April 12, 1985; lowest measured, 1.40 ft above mean sea level, Dec. 17, 1982.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	1.78	DEC 5	1.86	JAN 31	2.04	MAR 31	2.20	MAY 28	2.19	JUL 31	2.16
NOV 1	1.78	DEC 27	2.05	MAR 5	2.05	APR 30	2.08	JUN 30	2.18	SEP 2	2.43
NOV 5	1.80										

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)	DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV						NOV					
04...	1120	400	537	27.0	32	04...	1345	520	3890	26.5	1000
04...	1205	500	650	26.5	60	04...	1435	530	29180	26.0	1000
04...	1300	510	1018	26.5	160	04...	1525	540	47450	26.0	18000

MARIANA ISLANDS, ISLAND OF GUAM

133628144513271. Local number, 18-3651-05 Northwest Field Exploratory Well Ex-8.

LOCATION.--Lat 13°36'28" N., long 144°51'32" E., Hydrologic Unit 20100003, in old Air Force Housing area in Northwest Field.

AQUIFER.--Barrigada Limestone.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 658 ft, diameter 8 in.

DATUM.--Elevation of land-surface datum is 461 ft. Measuring point: Top of surface casing 462.49 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, September 1981 to current year.
WATER QUALITY: 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.86 ft above mean sea level, June 8, 1984; lowest, 1.88 ft above mean sea level, Feb. 28, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	2.20	OCT 31	2.11	MAR 5	2.30	APR 30	2.39	JUN 30	2.48	SEP 2	2.52
OCT 29	2.10	DEC 6	2.29	MAR 31	2.55	MAY 28	2.49	JUL 31	2.41		

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)	DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
OCT											
29...	1050	480	503	26.5	28	29...	1435	600	23200	26.0	7800
29...	1155	570	488	26.5	24	29...	1525	605	32870	26.0	12000
29...	1250	580	3924	26.0	1000	29...	1610	620	49150	26.0	19000
29...	1340	590	7727	26.0	2300						

CAROLINE ISLANDS, PALAU ISLANDS

072151134310970 - AIRAI WELL 6, BABELTHUAP

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
JUL 21...	1345	240	6.70	27	96	27	6.9	14	24	0.6

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
JUL 21...	0.7	119	4.9	6.8	<0.20	66	200	<0.100	1100	170

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, YAP ISLANDS

092919138045670. Local number, 25-2904-01 Yugamanman Well 1 (Fraq-Lamaer), Yap.

LOCATION.--Lat 09°29'19" N., long 138°04'57" E., Hydrologic Unit 20100006, 800 ft southwest of the Communication Station, and 800 ft northwest of the U.S. Weather Bureau station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 92 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 42 ft. Measuring point: Top of casing, 42.68 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, July 1982 to current year.
WATER QUALITY: 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.09 ft above mean sea level, Sept. 23, 1983; lowest measured, 12.24 ft above mean sea level, May 13, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	29.19	JAN 28	27.22	MAR 17	28.55	APR 30	25.99	JUN 18	26.80	AUG 29	26.40
NOV 13	27.24	FEB 27	28.60	APR 11	25.33	JUN 3	25.81	JUL 31	29.92		

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
SEP 16...	1015	115	7.10	29.0	38	7.1	4.9	7.5	30	0.5

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
SEP 16...	0.50	44	2.3	7.3	<0.10	45	100	0.100	16	3

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, YAP ISLANDS

092918138045470. Local number, 25-2904-02 Yugamanman Well 2 (Faraq-Lamaer), Yap.

LOCATION.--Lat 09°29'18" N., long 138°04'54" E., Hydrologic Unit 20100006, 1,000 ft southwest of the Communication Station, and 1,000 ft northwest of the U.S. Weather Bureau Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 84 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 37 ft. Measuring point: Top of casing, 38.83 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, July 1982 to current year.
WATER QUALITY: 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.75 ft above mean sea level, Aug. 8, 1983; lowest measured, 12.04 ft above mean sea level, May 13, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	27.37	JAN 28	25.11	MAR 17	26.86	APR 30	25.10	JUN 18	25.75	AUG 29	25.53
NOV 13	26.01	FEB 27	26.47	APR 11	25.25	JUN 3	18.93	JUL 31	28.16		

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
SEP 16...	1045	118	7.00	29.0	40	8.1	4.9	7.7	29	0.5

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
SEP 16...	0.60	48	1.7	6.9	<0.10	39	9	<0.100	39	3

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, YAP ISLANDS

092915138050270. Local number, 25-2905-01 Timlang Well 1, Yap.

LOCATION.--Lat 09°29'15" N., long 138°05'02" E., Hydrologlic Unit 20100006, 900 ft south of the Communication Station, and 300 ft southwest of the U.S. Weather Bureau Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 70 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 41 ft. Measuring point: Top of casing, 42.65 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.14 ft above mean sea level, Oct. 16, 1984; lowest measured, 11.19 ft above mean sea level, May 13, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	35.75	JAN 28	32.14	MAR 17	34.93	APR 30	31.11	JUN 18	32.34	AUG 29	31.45
NOV 13	33.05	FEB 27	32.19	APR 11	34.83	JUN 3	31.45	JUL 31	35.74		

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
SEP 15...	0945	93	5.00	29.0	17	2.2	2.7	7.4	49	0.8

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
SEP 15...	0.50	4.0	16	12	<0.10	3.9	49	0.32	2200	32

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, YAP ISLANDS

092920138050270. Local number, 25-2905-02 Timlang Well 2, Yap.

LOCATION.--Lat 09°29'18" N., long 138°05'01" E., Hydrologic Unit 20100006, 600 ft south of the Communication Station, and 300 ft west of the U.S. Weather Bureau Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 80 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 39 ft. Measuring point: Top of casing, 40.43 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, July 1982 to current year.
WATER QUALITY: 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.83 ft above mean sea level, Oct. 16, 1984; lowest measured, 11.38 ft above mean sea level, May 13, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	33.81	JAN 27	31.70	FEB 27	31.04	APR 11	32.59	JUN 3	28.55	JUL 31	34.01
NOV 13	30.54	JAN 28	31.32	MAR 17	32.65	APR 30	28.63	JUN 18	30.23	AUG 29	30.79
DEC 24	34.25										

CAROLINE ISLANDS, YAP ISLANDS

092616138050670. Local number 25-2905-03 Timlang Well 3, Yap

LOCATION.--Lat 09°29'16" N., long 138°05'05" E., Hydrologic Unit 20100006, 800 ft south-southeast of the Communication Station, and 100 ft southeast of the U.S. Weather Bureau Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 88 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 43 ft. Measuring point: Top of casing, 44.22 ft above mean sea level.

REMARKS.--Water level affected by pumping of nearby well.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, September 1982 to current year.
WATER QUALITY: 1982, 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.52 ft above mean sea level, Oct. 16, 1984; lowest measured, 12.76 ft above mean sea level, May 13, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	33.77	DEC 24	35.21	FEB 27	32.83	APR 11	30.36	JAN 3	28.76	JUL 31	35.19
NOV 13	32.81	JAN 28	31.26	MAR 17	33.45	APR 30	30.47	JUN 18	31.63	AUG 29	30.52
NOV 15	32.43	JAN 28	29.87								

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
SEP 16...	1000	73	5.00	29.0	12	1.5	1.9	7.2	57	0.9

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
SEP 16...	0.30	7.0	7.8	9.3	<0.10	4.8	38	1.10	830	25

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, YAP ISLANDS

092926138050470. Local number, 25-2905-06 Communication Well 2, Yap.

LOCATION.--Lat 09°29'25" N., long 138°05'03" E., Hydrologic Unit 20100006, 75 ft north of the Communication Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 81 ft, diameter 2 in.

DATUM.--Elevation of land-surface datum is 39 ft. Measuring point: Top of casing, 39.40 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, December 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.40 ft above mean sea level, June 8, 1982; lowest measured, 9.90 ft above mean sea level, May 27, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	28.57	DEC 24	29.00	FEB 27	27.37	APR 11	27.70	JUN 3	24.42	JUL 31	30.13
NOV 13	26.01	JAN 28	27.75	MAR 17	27.84	APR 30	24.34	JUN 18	25.74	AUG 29	27.30

093158138095770. Local number 25-3109-01 Monguch Well 1, Gagil-Tamil.

LOCATION.--Lat 09°31'59" N., long 138°09'58" E., Hydrologic Unit 20100006, 0.6 mi northeast of the Tamilang Elementary School, and 1.0 mi south of the Coast Guard LORAN Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled observation well, depth reported 85 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 19.5 ft. Measuring point: Top of casing, 21.38 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, overflowing casing for many days each year; lowest measured, 18.19 ft above mean sea level, May 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	f	DEC 23	f	FEB 26	20.37	APR 9	21.37	JUN 2	20.61	JUL 31	f
NOV 15	20.90	JAN 29	f	MAR 13	18.72	APR 30	20.44	JUN 19	21.22	AUG 29	f

f Water overflowing casing.

CAROLINE ISLANDS, YAP ISLANDS

093159138095870. Local number, 25-3109-02 Monguch Well 2, Gagil-Tamil.

LOCATION.--Lat 09°31'59" N., long 138°09'58" E., Hydrologic Unit 20100006, 0.6 mi north of the Tamilang Elementary School, and 1.0 mi south of the Coast Guard LORAN Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 95 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 24 ft. Measuring point: Top of casing, 26.47 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.79 ft above mean sea level, Aug. 10, 1984, Dec. 23, 1985; lowest measured, 19.00 ft above mean sea level, Mar. 13, 1986.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	24.42	DEC 23	24.79	FEB 26	22.81	APR 9	19.85	JUN 2	22.91	JUL 31	24.48
NOV 15	23.29	JAN 29	24.25	MAR 13	19.00	APR 29	22.78	JUN 19	23.84	AUG 29	24.07

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
SEP 16...	1420	85	6.70	29.0	22	3.4	3.3	7.9	42	0.7

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
SEP 16...	1.8	32	1.7	6.8	<0.10	66	110	<0.100	9	1

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, YAP ISLANDS

093157138095670. Local number, 25-3109-03 Thilung Well 1 (Monguch 3), Gagil-Tamil.

LOCATION.--Lat 09°31'57" N., long 138°09'56" E., Hydrologic Unit 20100006, 0.6 mi north of the Tamilang Elementary School, and 1.1 mi south of the Coast Guard LORAN Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 115 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 26 ft. Measuring point: Top of casing, 28.16 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.87 ft above mean sea level, Dec. 28, 1985; lowest measured, 22.41 ft above mean sea level, Mar. 13, 1986.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	26.44	DEC 23	28.87	FEB 26	24.66	APR 9	25.82	JUN 2	24.76	JUL 31	26.52
NOV 15	26.08	JAN 29	23.90	MAR 13	22.41	APR 29	24.56	JUN 19	25.74	AUG 29	25.96

CAROLINE ISLANDS, YAP ISLANDS

093154138095370. Local number, 25-3109-04 Thilung Well 2 (Monguch 4), Gagil-Tamil.

LOCATION.--Lat 09°31'54" N., long 138°09'53" E., Hydrologic Unit 20100006, 0.5 mi north of the Tamilang Elementary School, and 1.1 mi south of the Coast Guard LORAN Station.

AQUIFER.--Tamil Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 105 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 33 ft. Measuring point: Top of casing, 34.82 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, July 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.58 ft above mean sea level, Aug. 20, 1985; lowest measured, 22.95 ft above mean sea level, May 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	29.00	DEC 23	29.42	FEB 26	26.20	APR 29	26.66	JUN 19	28.03	AUG 29	28.28
NOV 15	27.35	JAN 29	28.58	MAR 13	25.79	JUN 2	26.90	JUL 31	29.11		

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM ADSORPTION RATIO (00931)
SEP 16...	1500	124	6.70	27.5	21	3.4	3.1	5.1	33	0.5

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
SEP 16...	1.2	24	1.6	6.5	<0.10	51	86	<0.100	37	2

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, YAP ISLANDS

093217138101270. Local number, 25-3210-01 Mukong Well, Gagil-Tamil.

LOCATION.--Lat 09°32'17" N., long 138°10'12" E., Hydrologic Unit 20100006, 0.6 mi south of the Coast Guard LORAN Station, and 1.1 mi north-northeast of the Tamilang Elementary School.

AQUIFER.--Coral formation in the Tamil-Volcanics.

WELL CHARACTERISTICS.--Drilled water-table well, depth reported 120 ft, diameter 6 in.

DATUM.--Elevation of land-surface datum is 24 ft. Measuring point: Top of casing, 25.83 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, July 1982 to current year.
WATER QUALITY: 1984.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.19 ft above mean sea level, Sept. 1, 1982; lowest measured, 12.68 ft above mean sea level, May 12, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	15.88	DEC 23	15.68	FEB 26	15.50	APR 9	13.38	JUN 2	14.81	JUL 31	15.86
NOV 15	15.38	JAN 29	15.34	MAR 13	15.65	APR 29	14.92	JUN 19	15.09	AUG 29	15.51

CAROLINE ISLANDS, YAP ISLANDS

093144138054670 - 25-3105-01 MAGAF, YAP

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
SEP 14...	1040	370	6.60	28.0	180	26	28	14	15	0.5

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
SEP 14...	1.1	180	5.3	16	0.20	63	260	<0.100	1700	120

< Actual value is known to be less than the value shown.

CAROLINE ISLANDS, TRUK ISLANDS

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE OF SAMPLE	TIME	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
072454151503870	30-2450-01 W83-10 MOEN	07 24 54	151 50 38	11-21-85	1530	450	28.5	95
				03-25-86	1425	720	30.5	200
072658151511970	30-2650-01 W1 MOEN	07 26 46	151 50 56	11-21-85	1025	191	28.5	14
				03-25-86	0950	146	28.0	14
				08-05-86	1000	152	28.5	12
072654151511870	30-2650-02 W2 MOEN	07 26 50	151 50 55	11-21-85	1035	174	28.5	14
				03-25-86	1000	156	28.5	13
				08-05-86	1010	163	28.0	13
072707151512070	30-2650-03 W4 MOEN	07 26 59	151 50 56	03-25-86	1050	211	29.0	28
072704151511070	30-2650-05 W10 MOEN	07 26 57	151 50 46	11-21-85	1305	216	28.5	22
				03-25-86	1100	202	28.5	20
				08-05-86	1240	220	28.5	24
072617151503070	30-2650-07 W83-9 MOEN	07 26 17	151 50 30	03-26-86	0950	169	28.0	8.0
072702151512570	30-2651-01 W7 MOEN	07 26 54	151 51 01	11-21-85	1315	319	28.5	26
				08-05-86	1100	317	28.5	25
072706151512470	30-2651-03 W12 MOEN	07 26 58	151 51 00	03-25-86	1035	327	29.5	38
072708151511770	30-2750-01 W3 MOEN	07 27 02	151 50 54	03-25-86	1515	188	28.5	14
072708151512170	30-2750-03 W13 MOEN	07 27 01	151 50 56	11-21-85	1100	255	28.5	19
				03-25-86	1045	248	29.5	18
				08-05-86	1045	234	28.5	18
072710151512570	30-2751-01 W15 MOEN	07 27 03	151 51 01	11-21-85	1350	199	29.0	12
				03-25-86	1015	153	28.5	15
				08-05-86	1125	201	28.5	14

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

CAROLINE ISLANDS, ISLAND OF POHNPEI

065653158121201 - 40-5612-01 KOLONIA K-2, POHNPEI

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
NOV										
13...	1545	145	--	27.5	--	--	--	--	--	--
MAR										
22...	1000	149	8.00	27.5	58	9.5	8.5	8.8	25	0.5

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
NOV										
13...	--	--	--	5.5	--	--	--	--	--	--
MAR										
22...	1.0	74	3.3	4.0	0.10	32	110	<0.100	97	5

CAROLINE ISLANDS, ISLAND OF KOSRAE

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE OF SAMPLE	TIME	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
051926163002670	44-1900-01 TOFOL W4	05 19 26	163 00 26	11-18-85	0950	200	28.0	8.0
051930163003170	44-1900-02 TOFOL W8	05 19 30	163 00 03	11-18-85	0935	305	28.0	11
051953163000970	44-1900-03 INNEM W3	05 19 53	163 00 09	11-18-85	1020	335	28.5	8.0
052136162585670	44-2158-01 TAFUNSAK WG	05 21 36	162 58 56	11-18-85	1425	306	29.0	18
052148162592370	44-2159-01 TAFUNSAK WA	05 21 48	162 59 23	11-18-85	1105	82	28.0	7.0
052149162592070	44-2159-02 TAFUNSAK WB	05 21 49	162 59 20	11-18-85	1205	150	28.0	5.0
052149162591470	44-2159-03 TAFUNSAK WD	05 21 49	162 59 14	11-18-85	1415	169	28.0	4.0

< Actual value is known to be less than the value shown.

SAMOA ISLANDS, ISLAND OF TUTUILA

141945170435401. Local number, 90-1943-24 Tafunafou Observation Well 1.

LOCATION.--Lat 14°19'45" S., long 170°43'54" W., Hydrologic Unit 20100001, 120 ft northwest of Tafunafou village cross road intersection, and 0.7 mi southeast of High School in Mapusaga. Owner: Government of American Samoa.

AQUIFER.--Basalt lava flows of the Leone Volcanics.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 78 ft, casing diameter 4 inch.

DATUM.--Elevation of land-surface datum is 73 ft. Measuring point: Top of 4-inch casing, 75.18 ft above mean sea level.

REMARKS.--Water level affected by pumping of nearby well.

PERIOD OF RECORD.--Occasional measurements, October 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 20.38 ft above mean sea level, may be caused by cascading water in the well following heavy rain, May 13, 1977; lowest 7.37 ft below mean sea level, July 13, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	1.66	DEC 2	1.65	FEB 10	2.86	APR 07	1.58	JUN 16	1.64	AUG 4	2.28
28	2.27	16	1.20	18	1.58	28	4.61	30	1.01	SEP 22	2.68
NOV 4	1.56	JAN 13	6.37	MAR 3	2.06	MAY 5	3.44	JUL 14	1.36		
18	4.47	27	4.19	25	2.25	19	7.44	28	2.73		

141948170435701. Local number, 90-1943-28 Tafunafou Observation Well 5.

LOCATION.--Lat 14°19'48" S., long 170°43'57" W., Hydrologic Unit 20100001, 1,000 ft southeast of Tafunafou village, and 1.5 mi northwest of Pago Pago International Airport. Owner: Government of American Samoa.

AQUIFER.--Basalt lava flows of the Leone Volcanics.

WELL CHARACTERISTICS.--Drilled basal water-table well, sounded depth 106 ft, casing diameter 4 in.

DATUM.--Elevation of land-surface datum is 83 ft. Measuring point: Top of 4-inch casing, 85.32 ft above mean sea level.

REMARKS.--Water level affected by pumping of nearby well.

PERIOD OF RECORD.--Occasional measurements, October 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.32 ft above mean sea level, may be caused by cascading water in the well following heavy rain, July 28, 1981; lowest 4.23 ft below mean sea level, Aug. 15, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	-0.77	DEC 2	-0.88	FEB 10	-0.43	APR 7	-1.48	JUN 16	-0.38	AUG 4	-0.60
28	-.61	16	-1.11	18	-.86	28	.97	30	-2.00	SEP 22	.32
NOV 4	-.98	JAN 13	1.14	MAR 3	-.66	MAY 5	.67	JUL 14	-1.38		
18	.32	27	.32	25	-1.63	19	2.09	28	-.66		

SAMOA ISLANDS, ISLAND OF TUTUILA

142055170455901. Local number, 90-2045-03 Malaeloa Well 92.

LOCATION.--Lat 14°20'55" S., long 170°45'59" W., Hydrologic Unit 20100001, 0.4 mi southeast of Malaeloa School, adn 0.6 west of Olovalu Crater. Owner: Government of American Samoa.

AQUIFER.--Lava flows and cinders of the Leone Volcanics underlain by beach sand.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 191 ft, casing diameter 8 in.

DATUM.--Elevation of land surface datum is 163 ft. Measuring point: Top of 8-inch casing, 163.74 ft above mean sea level.

REMARKS.--Water level affected by pumping of nearby well.

PERIOD OF RECORD.--Occasional measurements, September 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.77 ft above mean sea level, January 28, 1985; lowest 1.19 ft above mean sea level, September 4, 1984.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	3.48	DEC 2	3.16	FEB 10	3.74	APR 7	2.06	JUN 16	3.21	AUG 4	2.49
28	4.71	16	2.14	18	3.26	28	4.25	30	2.71	SEP 22	3.19
NOV 4	3.75	JAN 13	6.55	MAR 3	3.25	MAY 5	4.53	JUL 14	1.76		
18	4.46	27	3.78	25	2.60	19	5.71	28	2.46		

142102170445601. Local number, 90-2144-12 Iliili test well 115.

LOCATION.--Lat 14°21'02" S., long 170°44'56" W., Hydrologic Unit 20100001, 800 ft northwest of Iliili village church, and 0.5 mi northeast of Futiga village school.

AQUIFER.--Basalt lava flows of the Leone Volcanics underlain by calcareous coastal deposits.

WELL CHARACTERISTICS.--Drilled basal water-table well, well depth 243 ft, casing diameter 4 inch.

DATUM.--Elevation of land-surface datum is 216 ft. Measuring point: Top of 4-inch casing, 216.94 ft above mean sea level.

REMARKS.--Water level affected by pumping of nearby well.

PERIOD OF RECORD.--Occasional measurements, February 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.89 ft above mean sea level, June 15, 1982; lowest 2.56 ft above mean sea level, May 31, 1983.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	4.55	DEC 2	4.49	FEB 10	5.31	APR 7	4.55	JUN 16	4.71	AUG 4	4.32
28	4.86	16	4.51	18	5.07	28	5.32	30	4.78	SEP 22	5.07
NOV 4	4.60	JAN 13	5.89	MAR 3	5.69	MAY 5	5.31	JUL 14	4.11		
18	5.14	27	5.85	25	5.48	19	5.20	28	4.51		

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE OF SAMPLE	TIME	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
141623170393801	90-1639-08 AUA W97	14 16 23	170 39 38	10-07-85	0830	244	27.0	31
				11-18-85	0810	275	27.0	44
				12-16-85	0750	300	26.5	55
				01-27-86	0825	370	27.0	78
				02-18-86	0915	410	27.5	92
				03-25-86	1105	502	28.0	110
				04-07-86	0805	541	27.0	120
				05-05-86	1345	580	27.0	150
				07-14-86	1330	853	28.0	220
				08-25-86	0945	1010	27.0	260
				09-08-86	0915	900	27.0	260
141625170393801	90-1639-09 AUA W98	14 16 25	170 39 38	08-25-86	0950	610	27.5	150
141624170393201	90-1639-11 AUA W99	14 16 24	170 39 32	08-25-86	0925	220	28.0	22
141703170405301	90-1740-01 UTULEI DW3	14 17 03	170 40 53	10-07-85	0925	510	27.0	91
				11-18-85	0830	325	27.0	48
				12-16-85	0825	540	27.0	110
				01-27-86	0850	310	28.0	42
				02-18-86	0930	400	27.0	66
				03-25-86	1040	400	28.0	64
				04-07-86	0835	440	28.0	78
				07-14-86	1245	440	28.0	81
				08-25-86	1020	540	27.0	110
				09-08-86	0955	543	26.5	100
141628170411101	90-1741-07 FAGATOGO W101	14 16 28	170 41 11	08-25-86	0800	139	25.5	8.0
141945170435301	90-1943-06 TAFUNAFOU W33	14 19 45	170 43 53	10-07-85	1015	650	26.0	160
				11-18-85	0900	190	26.0	28
				12-16-85	0845	900	26.0	220
				01-27-86	0945	200	27.0	30
				02-18-86	1000	648	26.0	160
				03-25-86	0805	320	26.5	70
				05-05-86	0840	265	26.5	46
				07-14-86	0800	845	26.5	200
				08-25-86	1120	913	27.0	220
				09-08-86	1035	1120	26.0	270

SAMOA ISLANDS, ISLAND OF TUTUILA

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE OF SAMPLE	TIME	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
141928170435201	90-1943-20 TAFUNAFOU W81	14 19 28	170 43 52	10-07-85	0955	135	27.0	11
				11-18-85	0955	105	27.0	8.5
				12-16-85	0950	200	26.0	30
				01-27-86	0930	120	26.5	11
				02-18-86	--	140	27.0	15
				03-25-86	0740	145	26.5	18
				04-07-86	--	219	27.0	33
				05-05-86	0950	117	26.5	10
				07-14-86	0900	190	26.0	27
				09-08-86	1135	260	26.0	48
141952170440201	90-1944-11 TAFUNAFOU W61	14 19 52	170 44 02	11-18-85	0915	280	26.0	48
				12-16-85	0915	650	26.0	160
				01-27-86	1015	360	26.0	72
				02-18-86	1030	540	26.0	120
				02-25-86	0845	400	26.0	81
				03-25-86	0830	550	27.0	130
				04-07-86	0925	550	27.0	130
				05-05-86	0910	375	26.0	71
				07-14-86	0830	500	--	110
				08-25-86	1125	580	26.5	130
				09-08-86	1110	649	26.0	150
141951170440101	90-1944-12 TAFUNAFOU W60	14 19 51	170 44 01	10-07-85	1040	750	26.0	180
				11-18-85	0905	571	26.0	120
				12-16-85	0905	1000	26.0	260
				01-27-86	1005	440	26.5	97
				02-18-86	1020	720	26.0	190
				03-25-86	0815	852	27.0	200
				04-07-86	0920	932	26.0	220
				05-05-86	0905	600	27.0	140
				07-14-86	0825	845	26.0	200
				08-25-86	1125	991	26.0	240
				09-08-86	1100	1060	26.0	250
141929170441401	90-1944-13 MALAEIMI W67	14 19 29	170 44 14	10-07-85	1250	179	26.0	10
				11-18-85	1020	170	26.0	11
				12-16-85	0955	180	25.5	12
				01-27-86	1040	180	26.0	12
				02-18-86	1110	180	26.0	12
				03-25-86	0910	180	27.0	12
				04-07-86	0955	179	27.0	12
				05-05-86	1005	170	26.0	11
				07-14-86	0930	175	26.0	10
				08-25-86	1200	170	27.0	9.5
				09-08-86	1145	170	26.0	10

SAMOA ISLANDS, ISLAND OF TUTUILA

WATER QUALITY DATA, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE OF SAMPLE	TIME	SPECIFIC CONDUCTANCE (US/CM)	TEMPERATURE (DEG C)	CHLORIDE, DISSOLVED (MG/L AS CL)
142002170444201	90-2044-02 ILIILI W84	14 20 02	170 44 42	10-07-85	1105	1600	26.0	400
				11-18-85	1205	1490	26.5	390
				12-16-85	1125	1400	26.0	330
				01-27-86	1220	790	27.0	170
				02-18-86	1240	350	27.0	23
				03-25-86	0955	1100	28.0	260
				04-07-86	1130	1150	27.0	280
				05-05-86	1215	1060	27.0	230
				07-14-86	1130	1100	--	260
				08-25-86	1350	1100	27.0	260
				09-08-86	1400	1100	27.0	260
142042170463001	90-2046-03 MALAELOA W70	14 20 42	170 46 30	10-07-85	1210	300	26.0	16
				11-18-85	1130	280	27.0	16
				12-16-85	1050	300	26.0	16
				01-27-86	1145	265	27.5	14
				02-18-86	1215	270	28.0	14
				02-18-86	1215	270	28.0	14
				05-05-86	1135	280	28.0	14
				07-14-86	1100	280	27.0	15
				08-25-86	1325	300	27.0	23
				09-08-86	1330	300	27.0	18
142110170444601	90-2144-05 ILIILI W62	14 21 10	170 44 46	10-07-85	1130	625	27.0	100
142102170445401	90-2144-08 ILIILI W79	14 21 02	170 44 54	11-18-85	1155	580	27.0	94
				12-16-85	1100	600	27.0	92
				01-27-86	1200	570	28.0	81
				02-18-86	1230	540	27.0	79
				04-07-86	1115	540	27.0	76
				05-05-86	1155	570	27.0	78
				07-14-86	1115	570	--	75
				08-25-86	1340	540	27.0	75
				09-08-86	1345	560	26.5	79
142102170455801	90-2145-03 PUAPUA W119	14 21 02	170 45 58	10-07-85	1140	650	26.0	120
				11-18-85	1100	480	27.0	65
				12-16-85	1020	790	26.5	170
				01-27-86	1120	380	27.0	26
				03-25-86	0930	700	28.0	150
				04-07-86	1035	1070	27.0	230
				07-14-86	1030	847	28.0	170
				08-25-86	1300	1150	26.5	260
				09-08-86	1255	1300	26.0	320

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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